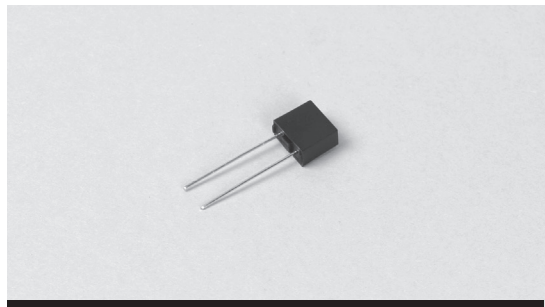


Packing & Quantity

PRODUCT CODE	TYPE	POWER RATING	QUANTITY / INNER	
SPT	BE, BS	-	1,000	
	TE, TS			
SPA	BE	-	1,000	
	TE			
SMP	T1	-	5,000	
	S1		4,000	
	R1		2,000	
SPF	T1, S1	1/2W, 1W	5,000	
SIP	T1, S1	1/6W	5,000	
ICW	T1, M0	2W	2,000	
	R0		1,500	
	ML		800	
RCT	-	3W	300	
		5W, 7W	250	
ICP	V-	-	500	
TCP	-	2W	500	
ICL	V-, SL	-	150	
PS2	TR	-	2,500	
SPS	FT	-	2,500	
CF	TR	06, 12	5,000	
CFS	TR	06, 12	5,000	
CP	TR	06, 12	5,000	
CPS	TR	06, 12	5,000	
SFC	FH	-	2,000	
STC	TH	-	2,000	
3TC	TL	-	2,000	
5GC	FL, FH	-	2,000	
5SC	SL, SH	-	2,000	
SFG	FL	-	2,000	
STG	TL	-	2,000	
3GG	FL	-	2,000	
3SG	SL	-	2,000	
3TG	TL	-	2,000	
5GG	FL, FH	-	2,000	
6GG	FL, FH	-	2,000	
HSA	A1	-	1,400	
	R1	-	1,500	
TSA	A1, R1, R2	-	1,500	
OSA	A1	-	1,000	
SSG	A1	-	1,000	
	B2		800	
	A0, B0		2,000	
SSA	A1	-	2,500	
	R1		1,500	
PRN	T1	1W	2,000	
	R0		1,500	
	T3	2W	1,500	
	T4	3W	750	
	F-, L-	1W, 2W	2,000	
SMW	F-, L-	3W	1,000	
		2W	2,000	
	T1	2W	1,500	
	R0		1,000	
	M1	3W	1,500	
	T3		750	
	T4	5W	400	
M1	2,000			
FNW	T1	1W	2,000	
	T3	2W	1,500	
	R0		750	
	T4	3R	400	
	M1		2,000	
BCW	F-, L-	1W, 2W	2,000	
		3W	1,000	
	T1	1W	1,500	
	PRC	T1, S1	1/4W	4,000
		T1	1/2W	2,000
T3		1W	1,500	
T4		2W	750	
F-, L-		1/4W	4,000	
		1/2W, 1W	2,000	
		2W	1,000	
PRM	T1	1/4W	5,000	
	T1, S1	1/2W	4,000	
	T1	1W	2,000	
	R0		1,500	
	T3	2W	1,500	
	T4	3W	750	
	F-, L-	1/2W	4,000	
		1W, 2W	2,000	
		3W	1,000	
PRD	T1	1/2W	2,000	
		1W	1,500	

PRODUCT CODE	TYPE	POWER RATING	QUANTITY / INNER
FN	T1	1/4W	5,000
		1/2W	2,000
	T3	1W	1,500
	T4	2W	750
	F-, L-	1/4W	10,000
		1/2W	4,000
		1W	2,000
2W		1,000	
FNS	T1	1/2W	5,000
		1W	2,000
	T3	2W	1,500
	F-, L-	1/2W	10,000
		1W	4,000
RSD	T1	1/2W	5,000
		1W	2,000
		2W	1,500
		3W	750
	F-, L-	1/2W	10,000
		1W	4,000
		2W	2,000
		3W	1,000
	M1	1/2W	1,500
		1W	1,000
		2W	
		3W	400
SMR	T1	1W	5,000
	R0		2,000
	T1	2W	1,000
	R1		1,500
SML	R0	2W	1,500
RN	T1, S1	1/6W	5,000
	T1		5,000
	S1		4,000
	R0		2,000
	T1	1/2W	2,000
	T0		1,500
	T3		1W
RDM	T1, S1	1/4W	5,000
	T1	1/2W	5,000
	S1		4,000
CSR	TR	1W	5,000
RC	TR	1/16W, 1/10W	5,000
		1/8W, 1/4W	
1/2W, 1W		4,000	
RCA	TR	1/16W	5,000
RA, RAS	A-	1/8W	1,000
SWR	TR	-	-
MPR	V-	2W	250
	V-, VF, VL, SL	5W	250
		10W	100
RWR	V-	3W, 5W	500
		7W	400
		10W	50
	A-	3W	100
	A-, P-, PD, SP	5W, 7W	100
	A-, PD		50
	P-, SP	10W	100
	P-	15W, 20W	50
		25W	30
	PD	15W	50
RWS	A-	5W	100
			250
	V-	7W	100
		10W	200
RSR	A-, P-, PD, SP	5W	100
	V-		250
	A-		50
	P-, PD, SP	7W	100
	V-		250



Sub – Miniature Fuse

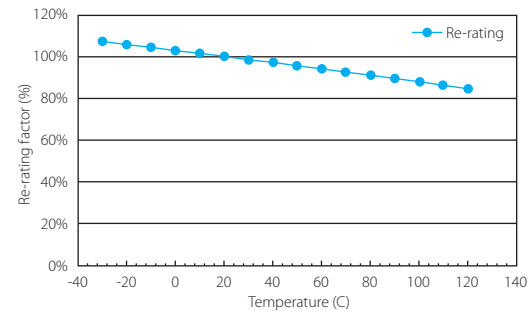
Time-Current Characteristic

- Time-Lag Type.

Interrupting Ratings

- 35A or 10X rated current whichever is greater.

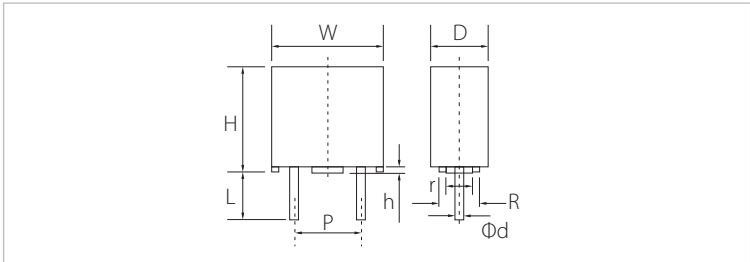
Temperature Rating Curve



Electrical Characteristics

% of Ampere Rating	Opening Time
210%	120sec, Max.
275%	0.4sec, Min. : 10sec, Max.
400%	0.15sec, Min. : 3sec, Max.
1000%	0.02sec, Min. : 0.15sec, Max.

Dimension



Type	Dimension (mm)								
	W±0.3	H±0.3	L±0.5	P±0.1	Min h	D±0.3	R±0.1	R±0.1	Φd±0.03
TE	8.4	7.9	4.3	5.0	0.5	4.3	3.0	2.0	0.6
TS		7.0							

Type Designation

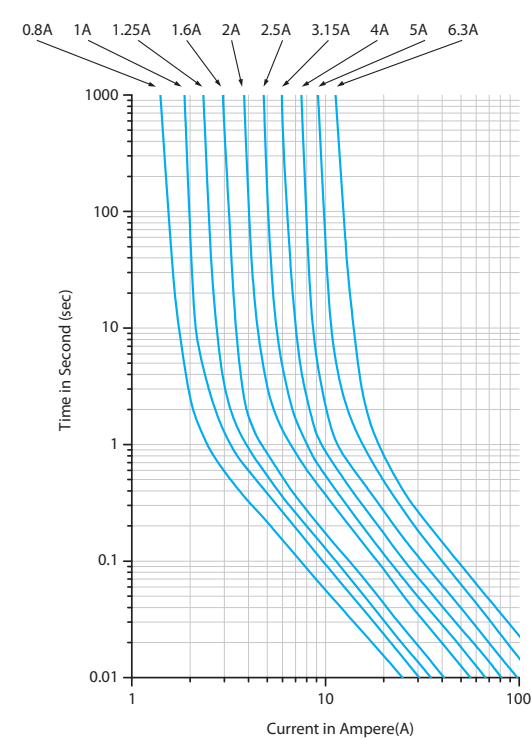
SPT	250	T	E	1A00
Products Code	Voltage Rating 250 : 250V 300 : 300V	Characteristics T : Time-Lag Type	Style E: Rectangle Type S: Small Rectangle Type	Ampere Rating 1A00 : 1A 1A25 : 1.25A 2A50 : 2.5A 6A30 : 6.3A

Agency Approval

- IEC 60127-3/4 : VDE approved through 6.3 amps. Recognized under the components program of underwriters laboratories and certified by CSA.

Agency	Item	File No.
	TE/TS 250V 0.8A~6.3A	JDYX8. E238986
	TE/TS 300V 0.8A~3.15A	
	TE 250V 0.8A~4A	40014285
	TE 250V 5A~6.3A	40027700
	TS 250V 1A~6.3A	909820
	TE 250V 0.8A~6.3A	CQC09012033996
	TS 250V 0.8A~6.3A	CQC09012033998
	TE/TS 250V 0.8A~5A	JET5457-31007-2001
	TE/TS 300V 0.8A~5A	JD60042527
	TE/TS 250V 0.8A	KTL SG 05001-8001
	TE/TS 250V 1A~2.5A	KTL SG 05001-6001C
	TE/TS 250V 3.15A~4A	KTL SG 05001-6002C
	TE/TS 250V 5A	KTL SG 05001-7001B
	TE/TS 250 6.3A	KTL SG 05001-7002B
	TE 300V 0.8A~6.3A	J50208226001

I-T Curve

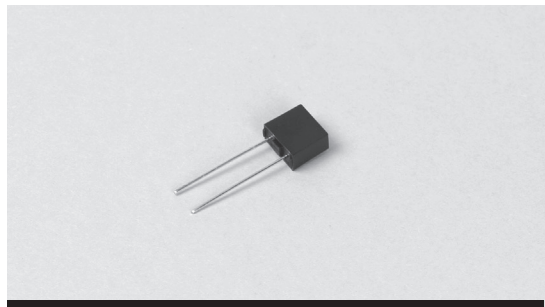


Characteristic

Type	Ampere Rating (A)	Voltage Rating (V)	Nominal Resistance Cold Ohms (Ω)	Nominal Melting I²t (A²s)	Operating Temperature (°C)
0A80	0.8	250/ 300	0.101	6.7	-55~+155
1A00	1		0.073	9.7	
1A25	1.25		0.053	12.3	
1A60	1.6		0.041	17.8	
2A00	2		0.031	33.0	
2A50	2.5		0.023	47.0	
3A15	3.15		0.017	62.5	
4A00	4		0.013	102.0	
5A00	5		0.010	163.0	
6A30	6.3		0.0075	235.0	

Performance

Test Items	Performance Requirements	Test Methods
Voltage Drop	Max. Voltage Drop (mV)	
	0.8A	160
	1A	140
	1.25A	130
	1.6A	120
	2A	100
	2.5A	100
	3.15A	100
	4A	100
	5A	100
	6.3A	90
Temp. Rise	Max. Temp. Rise 75°C	Surface Temp. should be measured by Rated current X 100%.
Endurance	The voltage drop increase shall be less than 10% of the value before the test.	100 cycles of rated current (DC) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.
Test at an elevated temperature 70°C	Not operate	A current of 1.0 In shall be passed through the fuse-link in 70(±3)°C for 1hr.
Insulation	0.1 MΩ minimum measured by 500V DC Insulation tester	After overload test or Breaking Capacity test.



Sub – Miniature Fuse

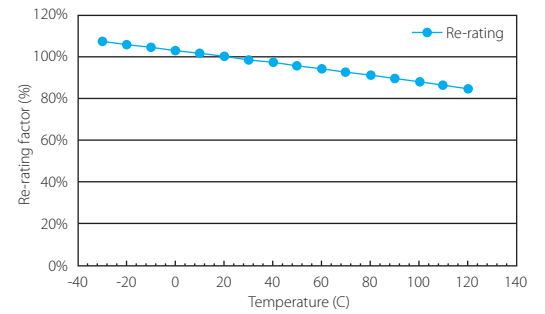
Time-Current Characteristic

- Time-Lag Type.

Interrupting Ratings

- 50A or 10X rated current whichever is greater.

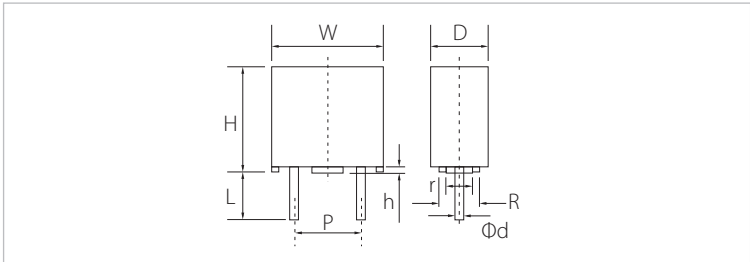
Temperature Rating Curve



Electrical Characteristics

% of Ampere Rating	Opening Time
210%	120sec, Max.
275%	0.4sec, Min. : 10sec, Max.
400%	0.15sec, Min. : 3sec, Max.
1000%	0.02sec, Min. : 0.15sec, Max.

Dimension



Type	Dimension (mm)								
	W±0.3	H±0.3	L±0.5	P±0.1	Min h	D±0.3	R±0.1	R±0.1	Ød±0.03
TE	8.4	7.9	4.3	5.0	0.5	4.3	3.0	2.0	0.6

Type Designation

SPA	300	T	E	1A00
Products Code	Voltage Rating	Characteristics	Style	Ampere Rating
	300 : 300V	T : Time-Lag Type	E: Rectangle Type	1A00 : 1A 1A25 : 1.25A 2A50 : 2.5A 6A30 : 6.3A

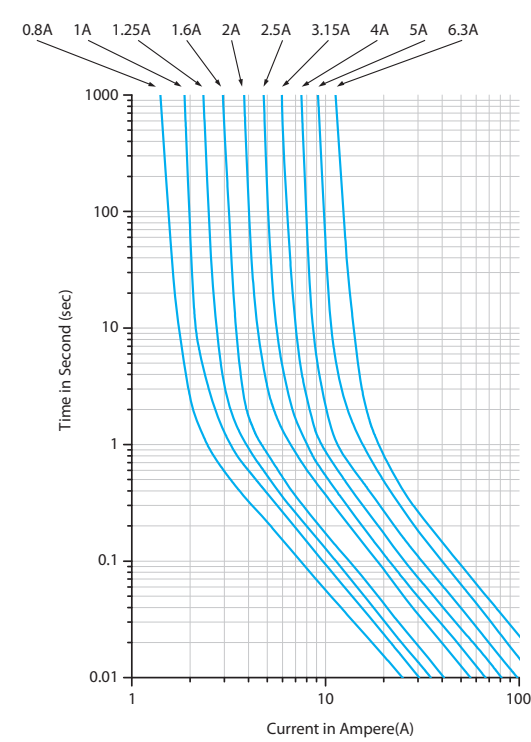
Agency Approval

Agency	Item	File No.
	TE 300V 0.8A~6.3A	JDXY8. E238986
	TE 300V 0.8A~6.3A	J502082270001

Characteristic

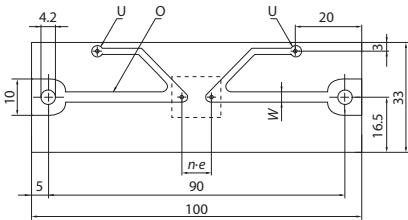
Type	Ampere Rating (A)	Voltage Rating (V)	Nominal Resistance Cold Ohms (Ω)	Nominal Melting I²t (A²s)	Operating Temperature (°C)
0A80	0.8	300	0.101	6.7	-55~+155
1A00	1		0.073	9.7	
1A25	1.25		0.053	12.3	
1A60	1.6		0.041	17.8	
2A00	2		0.031	33.0	
2A50	2.5		0.023	47.0	
3A15	3.15		0.017	62.5	
4A00	4		0.013	102.0	
5A00	5		0.010	163.0	
6A30	6.3		0.0075	235.0	

I-T Curve

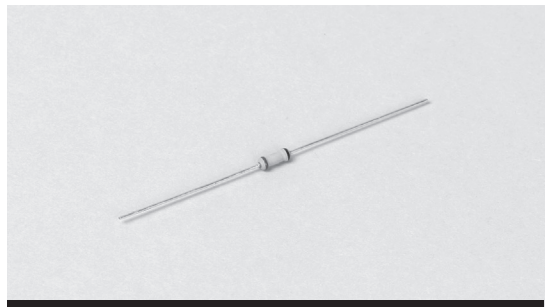


Performance

Test Items	Performance Requirements	Test Methods
Voltage Drop	Max. Voltage Drop (mV)	
	0.8A	160
	1A	140
	1.25A	130
	1.6A	120
	2A	100
	2.5A	100
	3.15A	100
	4A	100
	5A	100
	6.3A	90
Temp. Rise	Max. Temp. Rise 75°C	Surface Temp. should be measured by Rated current X 100%.
Endurance	The voltage drop increase shall be less than 10% of the value before the test.	100 cycles of rated current (DC) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.
Test at an elevated temperature 70°C	Not operate	A current of 1.0 In shall be passed through the fuse-link in 70(±3)°C for 1hr.
Insulation	0.1MΩ minimum measured by 500V DC Insulation tester	After overload test or Breaking Capacity test.



All electrical test is to conducted with the ambient air at a temperature of 25±3°C. The air temperature is not to vary more than 5°C during the test, and to be within these limits.



SMP is ideal for protecting from abnormal conditions in TV, monitor and so on.

SMP enable us to auto-insert and diminish the space which is needed for the former resistors.

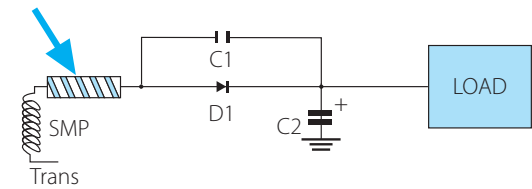
● Features

- Low voltage drop (Low resistance)
- Minimal space insert
- Good inrush current characteristics
- Flame proof
- Lead (Pb) free

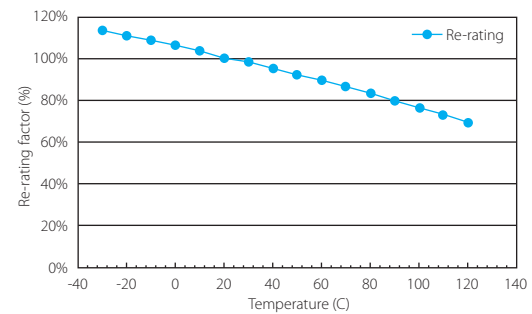
● Time-Current Characteristic

- Very Fast Acting.

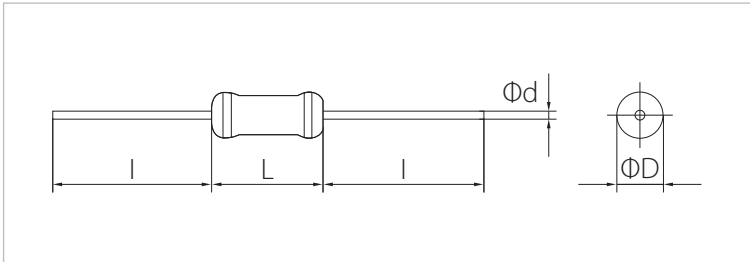
● Breaking Capacity – 50A 125Vac



● Temperature Rating Curve



● Dimension



Dimension (mm)			
L±0.5	ΦD±0.2	I±3.0	Φd±0.02
5.8	2.3	27.0	0.60

● Type Designation

SMP	125	T1	1A00
Products Code	Voltage Rating	Style	Ampere Rating
	125 : 125V	T-/S-: Axial Type R-: Forming Type	1A00 : 1A 3A50 : 3.5A 10A0 : 10A

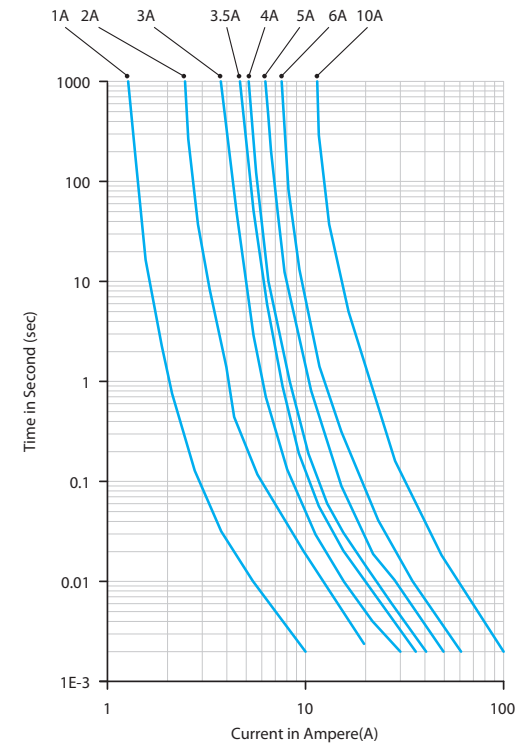
● Agency Approval

Agency	Item	File No.
	SMP 1A ~ 10A	E238986
	SMP 1A ~ 6A	2006010207180007
	SMP 2A ~ 5A	J50177672

● Electrical Characteristics

% of Ampere Rating	Opening Time
100%	4hr, Min.
200%	10sec, Max.

● I-T Curve



● Characteristic

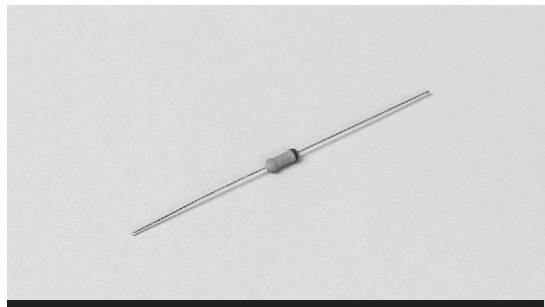
Type	Ampere Rating (A)	Voltage Rating (V)	Nominal Resistance Cold Ohms (Ω)	Nominal Melting I²t (A²s)	Operating Temperature (°C)
1A00	1	125	0.25	0.21	-55~+125
2A00	2		0.08	0.82	
3A00	3		0.06	1.74	
3A50	3.5		0.05	2.45	
4A00	4		0.04	3.26	
5A00	5		0.03	4.98	
6A00	6		0.02	6.86	
10A0	10		0.01	14.4	

● Shape

Type	Axial Type		Forming Type
	26mm	52mm	R-
SMP	O	O	O

● Performance

Test Items	Performance Requirements	Test Methods
Temp. Rise	Max. Temp. Rise 75°C.	Surface Temp. should be measured by Rated current X 100%.
Endurance	± (15% + 0.05Ω)	100 cycles of 80% rated current (DC) carry for 15 Min, then switch off for 4min.
Insulation	0.1MΩ minimum measured by 500V dc Insulation tester	After overload test or Breaking Capacity test.



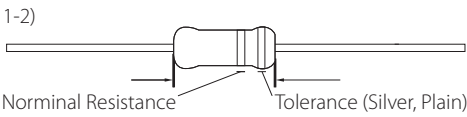
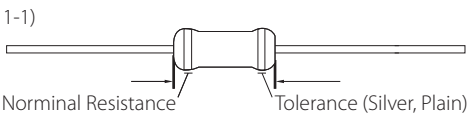
SPF has the same function with micro fuse. Ideal for protecting from abnormal conditions in TV, monitor and so on.
SPF can replace micro fuse and be auto-inserting, and lower price than micro fuse.

Features

- All normal fusible resistors can be replaced.
- The smallest design can be available.
- Auto-insertion can be available.
- Low range of resistance.
- Applied for a patent (PCT).

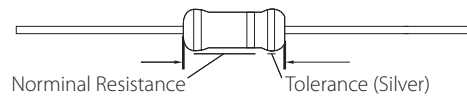
Color Coding

- SPF 0.1Ω Under



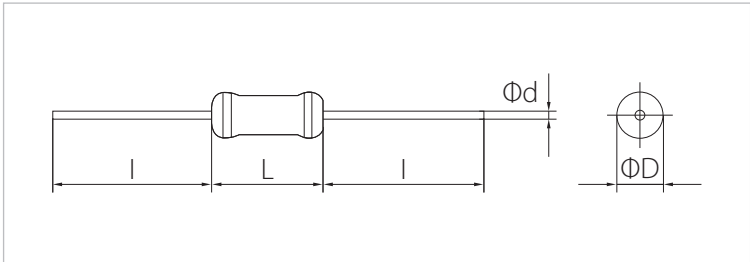
1st Color Coding	Silver (K)	Plain (M)
Color Code X 0.01Ω	± 10%	± 20%

- SPF 0.1Ω Over



1st Color Coding	2nd Color Coding	Silver (K)
Color Code X 0.01Ω	Color Code X 0.01Ω	± 10%

Dimension



Type	Dimension (mm)			
	L	ΦD±0.2	l±3.0	Φd±0.02
1/2W	3.2±0.3	2.0	28.0	0.43
1W	6.5±0.5	2.3	28.0	0.56

Type Designation

SPF	01	T1	R020	M
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	92 : 1/2W 01 : 1W	T-/S-: Axial Type	R020 : 0.020Ω R050 : 0.050Ω	K : ±10% M : ±20%

Characteristic

Type	Nominal Resistance Cold Ohms (Ω)	Ampere Rating (A)	Resistance Tolerance (%)	Operating Temperature (°C)	Ambient Temperature (°C)
1/2W	0.020	1.75	K: ±10 M: ±20	-55~+125	70
1W	0.050	3	K: ±10		
	0.100	3	K: ±10 M: ±20		
	0.070	3.5			
	0.050	4			
	0.040	5			
	0.020	6			
	0.010	10	M: ±20		

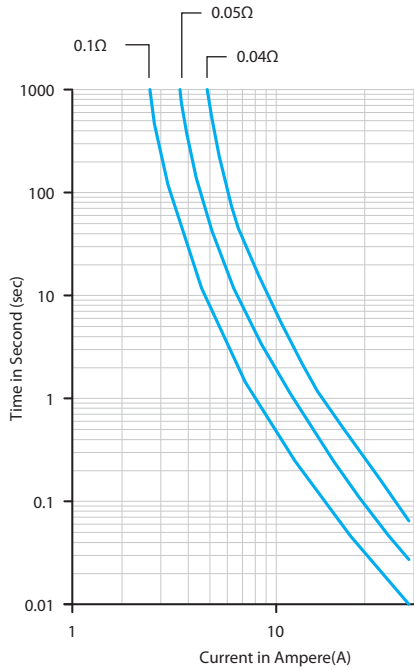
Electrical Characteristics

% of Ampere Rating	Opening Time
100%	4hr, Min.
200%	10sec, Max.
300%	1sec, Max.

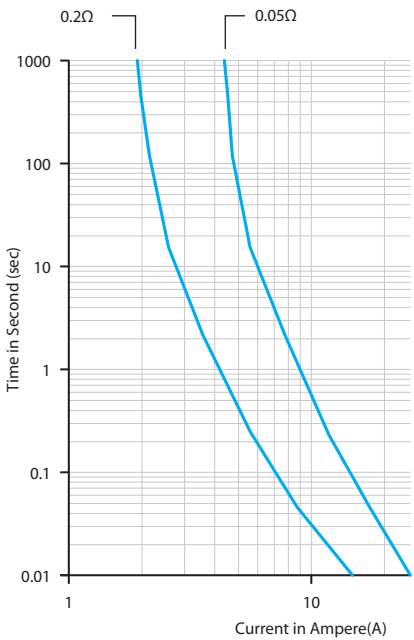
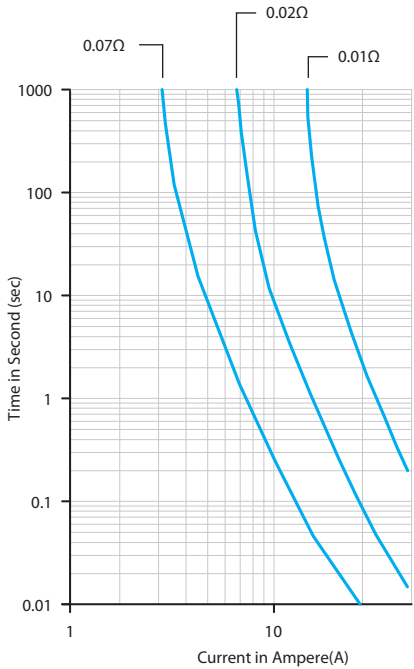
Shape

Type	Axial Type	
	26mm	52mm
SPF	O	O

I-T Curve (SPF 1W)

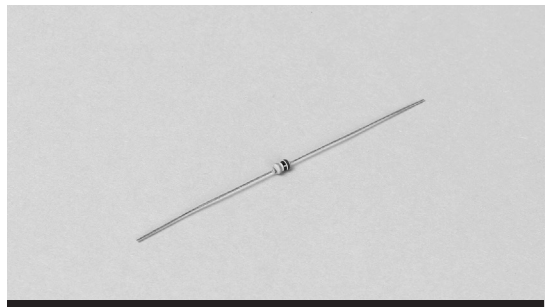


I-T Curve (SPF 1/2W)



Performance

Test Items	Performance Requirements	Test Methods
T.C.R	Within 3,000±1,000 PPM/°C.	+25 °C / +125 °C
Load Life in Moisture	± (10% + 0.001Ω)	40±2°C, 90~95%RH, 1.5hr ON / 0.5hr OFF cycle 1,000hr
Insulation	Over 10,000 times initial resistance	After overload test or fusing test

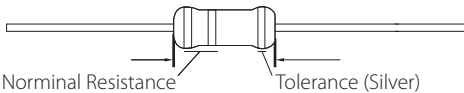


SIP is a circuit protector with excellent cut off characteristic, and normally used for low-current. SIP is a new-concept of IC-protector developed by up-to-data manufacturing method.

●Features

- Contain current advantages.
- Same voltage-drop with the current ones.
- Auto-insertion can be available.
- Low heating
- Superior surge characteristics to the current ones.
- Subminiature size.
- Low cost with resistor manufacturing technology.

●Color Coding

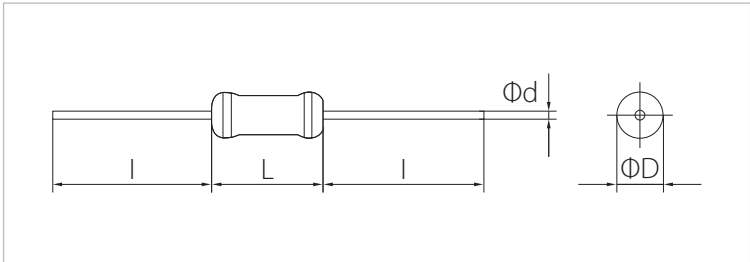


1st Color Coding	2nd Color Coding	Silver (K)
Color Code X 0.1Ω	Color Code X 0.01Ω	± 10%

●Shape

Type	Axial Type	
	26mm	52mm
SIP	O	O

●Dimension

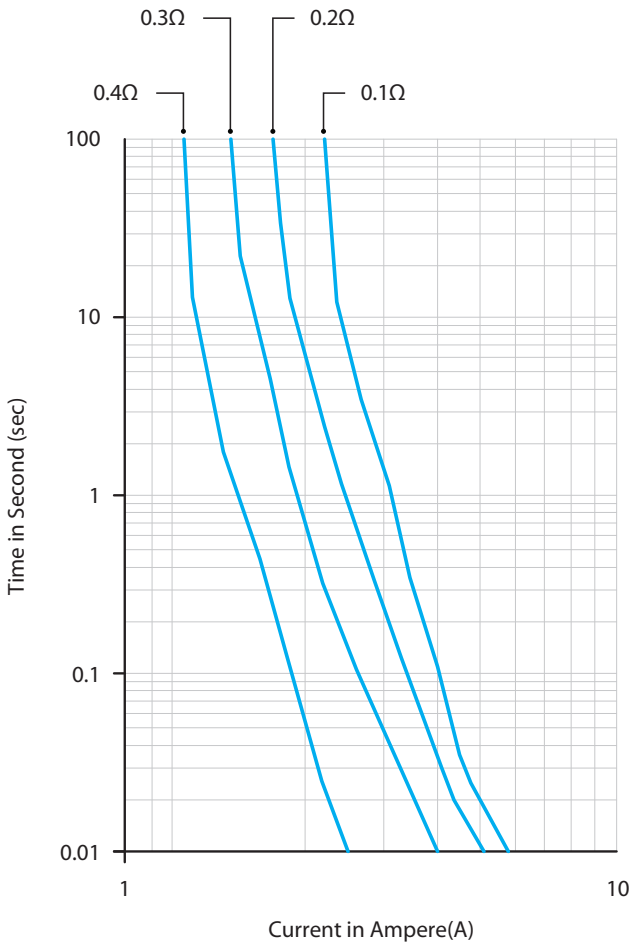


Type	Dimension (mm)			
	L±0.3	ΦD±0.2	L±3.0	Φd±0.02
1/6W	3.2	1.8	28.0	0.43

●Type Designation

SIP	96	T1	R200	K
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	96 : 1/6W	T-/S- : Axial Type	R100: 0.100Ω R200: 0.200Ω	K : ±10%

●I-T Curve



●Characteristics

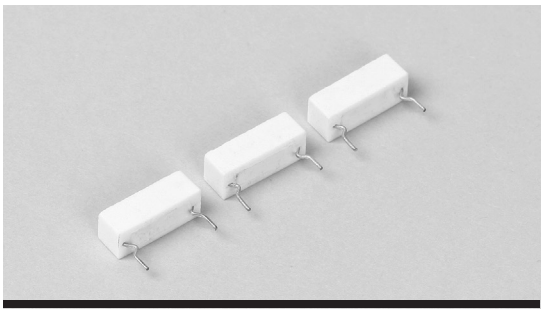
Type	Nominal Resistance Cold Ohms (Ω)	Ampere Rating (A)	Resistance Tolerance (%)	Operating Temperature (°C)	Ambient Temperature (°C)
1/6W	0.1	1.5	K : ±10	-55 ~ +125	70
	0.2	1.2			
	0.3	1			
	0.4	0.8			

●Electrical Characteristics

Nominal Resistance Cold Ohms (Ω)	Ampere Rating (A)	Applied Current (A)	OpenTime	Applied Current (A)	OpenTime
0.1	1.5	100%	4hr, Min	2.5	15sec, Max
0.2	1.2			2	
0.3	1			1.6	
0.4	0.8			1.2	

●Performance

Test Items	Performance Requirements	Test Methods
T.C.R	Within 3,000±1,000 PPM/°C.	+25 °C / +125 °C
Load Life in Moisture	± (10% + 0.05Ω)	40±2°C, 90~95% RH, 1.5hr ON / 0.5hr OFF cycle 1,000hr
Load Life in Temperature	± (10% + 0.05Ω)	70±2°C, 1.5hr ON / 0.5hr OFF cycle, Rated Voltage (DC), 1,000hr
Insulation	Over 10,000 times initial resistance	After overload test or fusing test

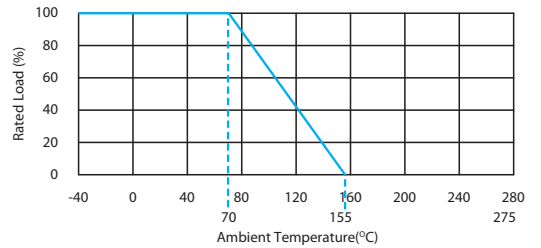


ICW is a kind of multi-functional Protector:
ICW can limit inrush current which is generated at the moment when power is on, and ICW cuts off over-current like fuse in case of abnormal condition.

●Features

- Effective control of inrush current.
- Quick cut-off time (like fuse)
- Stable against repeated surge voltage.
- Diminishing space for convenient use and auto-insertion.
- Superior LSS (Lightning Surge Simulation) capability.

●Deration Curve



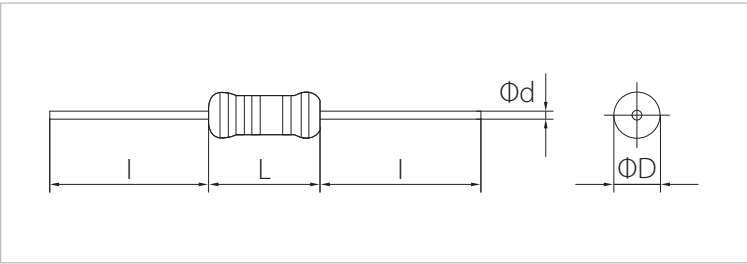
●Shape

Axial Type	Punching Type	Forming Type	Cement Type
52mm	M-	R-	ML
O	O	O	O

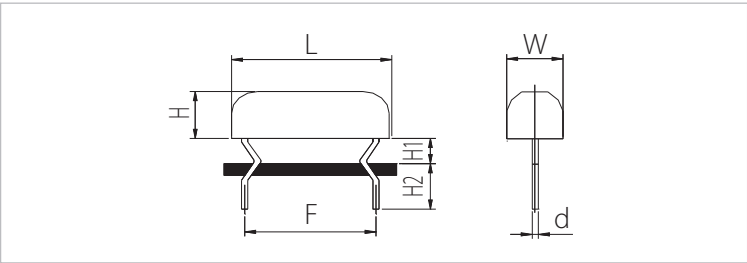
●Characteristics

Type	Dielectric Withstanding Voltage (V)	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temperature (°C)	Ambient Temperature (°C)
2W	350	0.1~10	J : ±5	-55~+200	70

●Dimension



Type	Dimension (mm)			
	L±1.0	ΦD±0.5	L±3.0	Φd±0.02
2W	8.5	3.5	26.0	0.70



Dimension (mm)						
L±1.0	H±0.5	W±0.5	d±0.03	F±0.1	H1±0.5	H2±0.5
17.0	6.5	6.6	0.7	15.0	3.0	4.5

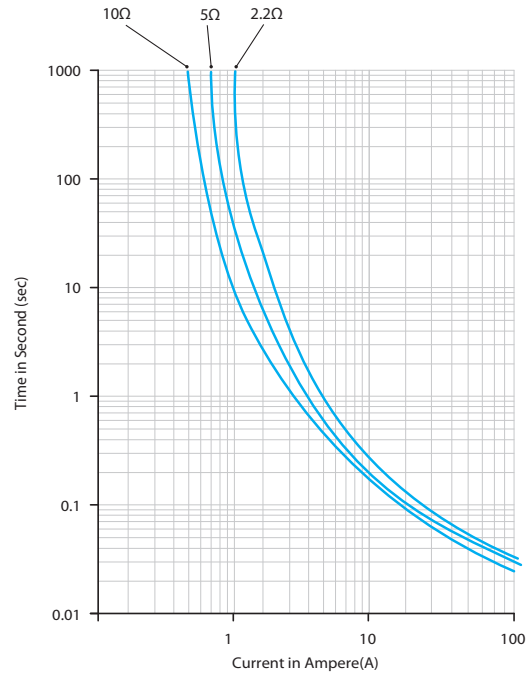
●Type Designation

ICW	02	T1	2R20	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	02 : 2W	T- : Axial Type R- : Forming Type M- : Punching Type ML : Cement Type	2R20: 2.2Ω	J : ±5% K : ±10%

●Agency Approval

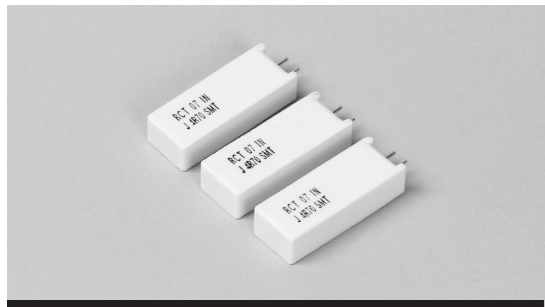
Agency	Item	File No.
	ICW 2W T1/M2 J 2.2Ω	E250345

●I-T Curve



●Performance

Test Items	Performance Requirements	Test Methods	
Resistance	Within specified tolerance	Measuring resistance at 25°C	
T.C.R	Within 4,500±1,500 PPM/°C	+25°C / +125°C	
Fusing Characteristics	Within specified value	Refer to IT-curve	
Resistance Against Soldering Test	± (2% + 0.1Ω)	260 ± 5°C, 2~2.5mm, 10 ± 1sec, Measure resistance after 1hour at room temp.	
Load Life in Moisture	± (5% + 0.1Ω)	40±2°C, 90~95%RH, 1.5hr ON / 0.5hr OFF cycle, 1,000hr	
Load Life in Temperature	± (5% + 0.1Ω)	70±2°C, 1.5hr ON / 0.5hr OFF cycle, 1,000hr	
Lightning Surge Simulation	± (5% + 0.1Ω)	Combination Waveform	Standard wave: Combination Waveform (1.2/50μs,8/20μs) Applied voltage:1.5kV Polarity : +/- each Method of application : 5times to each polarity
		Ring Waveform	Standard wave: Ring Waveform (0.5μs,100kHz) Applied voltage : 6 kV Polarity : +/- each Method of application : 5times to each polarity



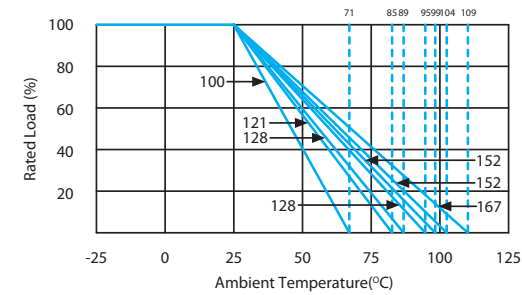
RCT is resistor that its resistance material is metal alloy wire Wounded on ceramic core, then connected with Thermal fuse and This object with terminals inserted into the ceramic case which has Good thermal conductivity, and finally sealed and insulated with Inorganic fillers.

RCT is suitable for PDP power supply.

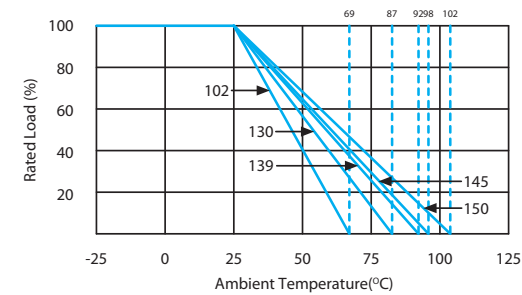
● Features

- Excels in surge withstanding capability
- Suitable for the prevention of inrush current for switching regulations.
- The dispersion in fusing characteristics has been minimized and assure high stability performance
- Respond quickly to over loading as well as external overheating

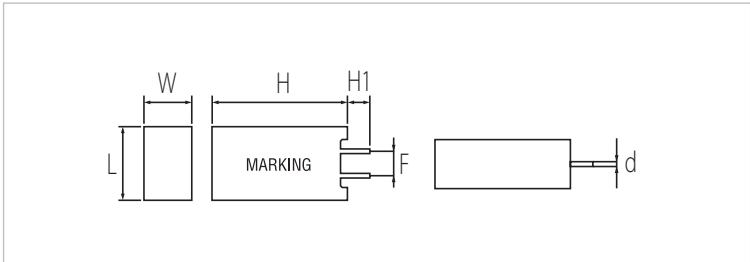
● Derating Curve – Fuse Rating 10A



● Derating Curve – Fuse Rating 2A



● Dimension



Type	Dimension (mm)							
	L±1.0	W±1.0	H±1.5	H1±1.5	F±1.5	Φd±0.02		
						Resistor	Fuse	
3W	11.0	7.5	20.0	11.5	5.0	0.8	2A	0.5
5W	14.0	9.5	26.5	4.5	5.0	0.8	2A	0.5
							10A	1.0
7W	14.0	9.5	40.0	4.5	5.0	0.8	10A	1.0

● Type Designation

RCT	07	1B	15R0	J
Products Code	Power Rating	Fuse Rating	Nominal Resistance	Resistance Tolerance
	03 : 3W 05 : 5W 07 : 7W	1B : 10A, 139°C 2D : 2A, 150°C	15R0: 15Ω	J : ±5% K : ±10%

● Agency Approval

Agency	Item	File No.
	RCT 5W / 7W 1~20Ω	E250345

● Fuse Rating

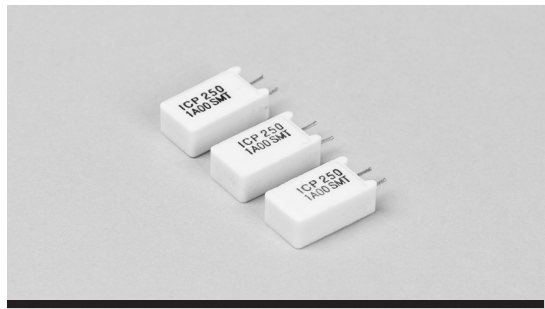
Type	Thermal Fuse Symbol	Type Thermal Fuse		
		Nominal Open Temp. (°C)	Voltage Rating (V)	Current Rating (A)
3W / 5W	E	102	250	2
	F	105		
	K	130		
	L	133		
	B	139		
	T	145		
	D	150		
5W / 7W	C	100		10
	G	109		
	H	121		
	J	126		
	P	128		
	B	139		
	N	144		
	S	152		
	Q	167		

● Characteristics

Type	Max. Open Circuit Voltage (V)	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temperature (°C)	Ambient Temperature (°C)
3W	250	0.47 ~ 10	J : ±5 K : ±10	-25~+100	25
5W	350	0.47 ~ 240			
7W	350	0.47 ~ 240			

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measuring resistance at 25°C
T.C.R	Under ±400 PPM/°C	+25°C / +100°C (Difference from thermistor fuse a vailability)
Fusing Characters	Over 100 times nominal resistance	Rated power × 10 / ~40sec Rated Power × 30 / ~20sec
Load Life in Moisture	± (5% + 0.1Ω)	40±2°C, 90~95%RH, 1.5hr ON / 0.5hr OFF cycle, 1,000hr
Load Life in Temperature	± (5% + 0.1Ω)	70±2°C, 1.5hr ON / 0.5hr OFF cycle, 1,000hr

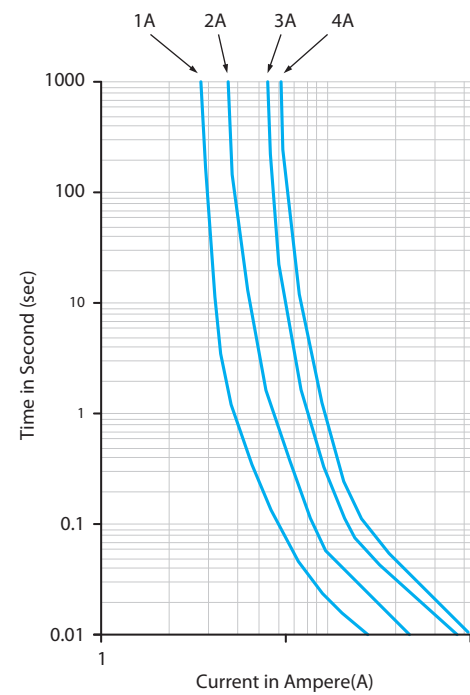


ICP is a kind of multi-functional Protector:
ICP can limit inrush current which is generated at the moment when power is on, and ICP cuts off over-current like fuse in case of abnormal condition.

● Features

- Effective control of inrush current.
- Quick cut-off time (like fuse)
- Stable against repeated surge voltage.
- Diminishing space for convenient use and auto-insertion.

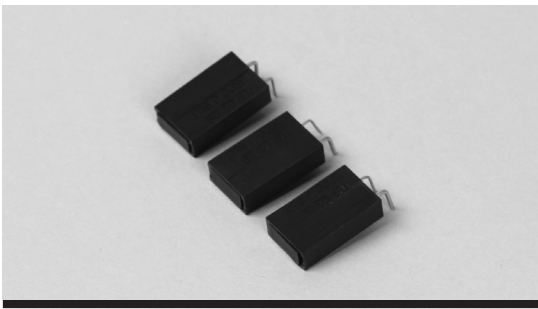
● I-T Curve



● Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measuring resistance at 25°C
Current Test	% of Ampere Rating	Open time
	Under 2A / 400%	5sec, Max
	Above 2A / 300%	
T.C.R	Within 4,500±1,500 PPM/°C	+25°C / +125°C

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

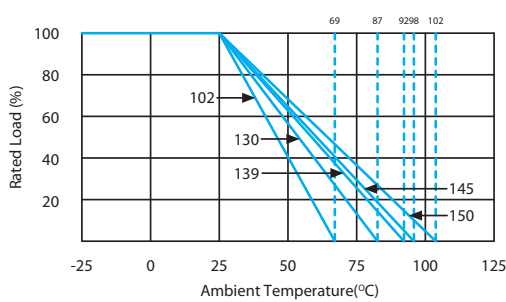


TCP is resistor that its resistance material is metal alloy wire wound on ceramic core, then connected with Thermal fuse and this object with terminals inserted into the ceramic case which has good thermal conductivity.

● Features

- Excels in surge withstanding capability
- Suitable for the prevention of inrush current for switching regulations.
- The dispersion in fusing characteristics has been minimized and assure high stability performance
- Respond quickly to over loading as well as ' external overheating

● Derating Curve

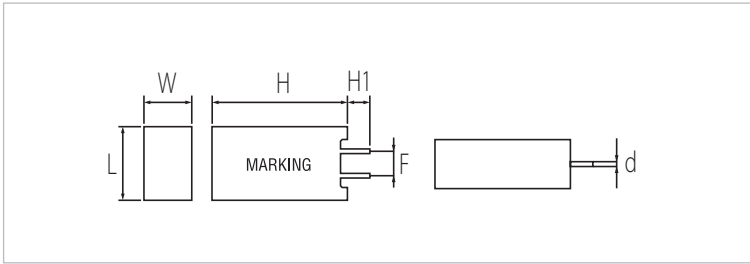


● Performance

Test Items	Performance Requirements	Test Methods
DC Resistance	Within specified tolerance	Measuring resistance at 25 °C
T.C.R	Under ±400 PPM/°C	+25 °C / +100°C (Difference from thermistor fuse a vailability)
Resistance Against Soldering Test	± (2% + 0.05Ω)	260 ± 5 °C, 2~2.5mm, 10 ± 1sec, Measure resistance after 1hour at room temp.
Load Life in Moisture	± (5% + 0.1Ω)	40±2°C, 90~95%RH, 1.5hr ON / 0.5hr OFF cycle, 1,000hr
Load Life in Temperature	± (5% + 0.1Ω)	70±2°C, 1.5hr ON / 0.5hr OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

● Dimension



Dimension (mm)					
L±1.0	W±1.0	H±1.5	H1±0.5	F±0.5	Φd±0.02
11.0	8.0	20.0	4.0	5.0	0.7

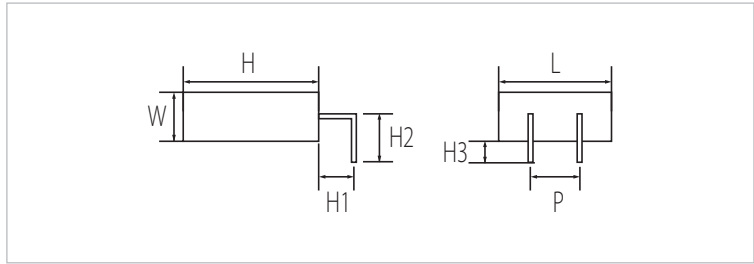
● Type Designation

ICP	250	V-	3A00
Products Code	Voltage Rating	Style	Ampere Rating
	250: 250V	V-Vertical Type	1A00 : 1A 3A00 : 3A 4A00 : 4A

● Characteristics

Ampere Rating (A)	Voltage Rating (V)	Nominal Resistance Cold Ohms (Ω)	Resistance Tolerance (%)	Operating Temperature (°C)	Ambient Temperature (°C)
1A	250	0.400	K : ±10	-55 ~ +125	70
2A		0.250			
3A		0.160			
4A		0.110			

● Dimension



Type	Dimension (mm)							
	L±1.0	W±0.2	H±1.0	H1±0.5	H2±1.0	H3±0.4	P±1.0	Φd±0.02
								Resistor Fuse
2W	11.5	5.5	18.5	3.0	6.25	3.4	5.0	0.8 0.5

● Type Designation

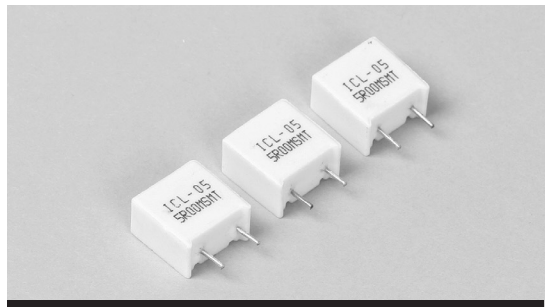
TCP	02	2B	3R00	J
Products Code	Power Rating	Fuse Rating	Nominal Resistance	Resistance Tolerance
	02 : 2W	2B : 2A,139°C	3R00 : 3Ω	J : ±5%

● Fuse Rating

Thermal Fuse Symbol	Type Thermal Fuse		
	Nominal Open Temp. (°C)	Voltage Rating (V)	Current Rating (A)
E	102	250	2
F	105		
K	130		
L	133		
B	139		
T	145		
D	150		

● Characteristics

Type	Max. Open Circuit Voltage (V)	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temperature (°C)	Ambient Temperature (°C)
2W	250	3	J : ±5	-25 ~ +100	25

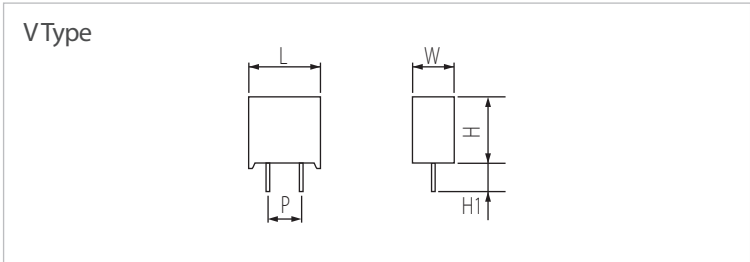


The ICL protector the circuit of TV, Monitor and so on from damage like as inrush current when the electronic appliances are just turned on.

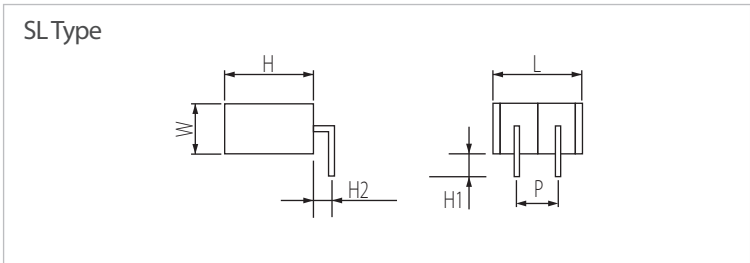
●Features

- Effective inrush current control
- Electric stability
- Heat generation
- Safety for fever

●Dimension



Dimension (mm)						Remarks
L±0.5	W±0.5	H±0.5	H1	P±1.0	Φd±0.1	
14.0	8.0	14.0	4.0±0.5 3.5±0.4	7.5	0.8	



Dimension (mm)						
L±0.5	W±0.5	H±0.5	H1±0.4	H2±1.0	P±1.0	Φd±0.1
14.0	8.0	14.0	3.5	3.0	7.5	0.8

●Type Designation

ICL	05	V-	2R50	M
Products Code	Appearance Size	Style	Nominal Resistance	Resistance Tolerance
	05 : 14mm×14mm×8mm	V- : Vertical Type SL : Vertical Lead Forming Type	2R50 : 2.5Ω 3R00 : 3Ω 5R00 : 5Ω 8R00 : 8Ω 15R00 : 15Ω	M : ±20

●Characteristic

Part Number	Resistance at 25℃ (Ω)	Max. Steady State Curent (A)	Thermal Dissipation Constant (mW/℃)	Normal B Constant, ±10% (25/50℃, K)	Max. Capacitance (μF)	
					AC 120V	AC 240V
2.5Ω	2.5	4.5	25	2500	2400	600
3Ω	3.0	4		2600		
5Ω	5.0	3		2600		
8Ω	8.0	2		2800		
15Ω	15.0	1		2900		

●Performance

Test Items	Performance Requirements	Test Methods
Max. Steady State Current	To meet the specified value	The Max. allowable current at loading to max operating temperature in 25℃ ambient.
Thermal Dissipation Constant	To meet the specified value	Products used to raise the temperature 1℃ means power.
B Value	To meet the specified value	T1:25℃/T2:50℃, R1:T1 resistor/R2:T2 resistor $= \frac{\ln (R_2 / R_1)}{1 / (273.15+T_2)-1 / (273.15+T_1)}$
High Temperature Storage	Within ±(15%+0.1Ω)	125±3℃, 1,000±48hr, It should be measured after over 1hr in ambient.
Low Temperature Storage	Within ±(15%+0.1Ω)	-20±3℃, 1,000±48hr, It should be measured after over 1hr in ambient.
Current Life Test	Within ±(15%+0.1Ω)	Max. steady state current, 15sec, 2,000cycle



PS2 is very small square surface mount fuse.
This fuse usually has application to LCD inverter.

●Features

- Shortly cutoff
- Lead free exactly
- Flame proof
- Lead (Pb) free
- RoHS Compliant

●Interrupting Ratings

- All range (1A ~ 15A) : 60Vdc, 50A
- 1A ~ 10A : 32 Vdc, 300A
- 12A , 15A : 24 Vdc, 300A

●Agency Approval

Agency	Item	File No.
	PS2 1~15A	E238986

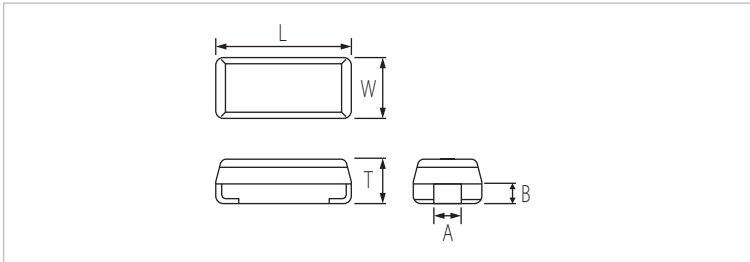
●Soldering Method

- Reflow Solder : 260℃ 30 sec, Max
- Wave Solder : 260℃ 10 sec, Max

●Electrical Characteristics

% of Ampere Rating	Amperage rating (A)	Opening Time
100%	1~15	4hr, Min.
200%	1~10	10sec, Max.
	12~15	20sec, Max.

●Dimension

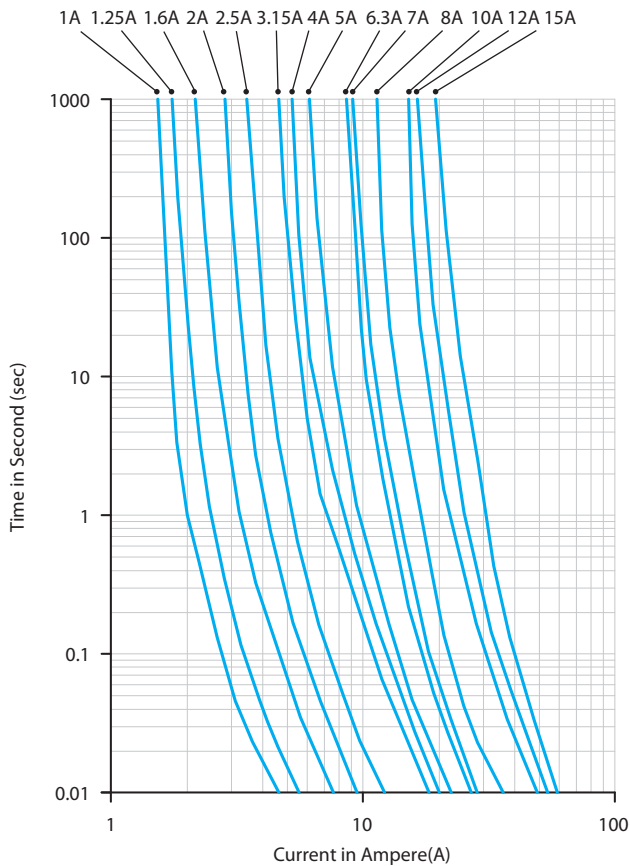


Dimension (mm)				
L±0.2	T±0.2	W±0.2	A±0.1	B±0.1
6.3	2.8	3.3	1.4	1.2

●Type Designation

PS2	060	F	S	1A00
Products Code	Voltage Rating	Style	Characteristics	Ampere Rating
	060 : 60V	S: SMD Type	F : Fast-Acting	1A00 : 1A

●I-T Curve

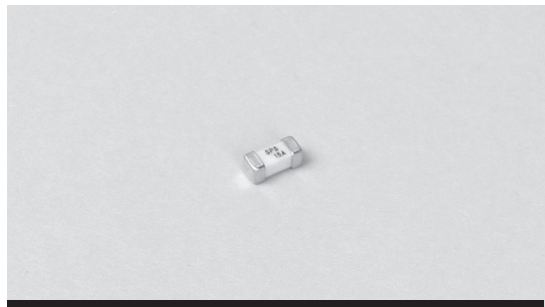


●Characteristic

Type	Ampere Rating (A)	Voltage Rating (V)	Nominal Resistance Cold Ohms (Ω)	Operation Temperature (℃)
1A00	1	60Vdc	0.215	-55~+125
1A25	1.25		0.140	
1A60	1.6		0.085	
2A00	2		0.063	
2A50	2.5		0.045	
3A15	3.15		0.038	
4A00	4		0.030	
5A00	5		0.020	
6A30	6.3		0.018	
7A00	7		0.015	
8A00	8		0.011	
10A0	10		0.008	
12A0	12		0.006	
15A0	15		0.004	

●Performance

Test Items	Performance Requirements	Test Methods
Insulation	The insulation resistance between fuse terminals shall be 0.1MΩ minimum measured by 500V DC insulation tester	100 cycle of rated current (DC.) carry for 1hr, then switch off for 15min. followed by 1hr at 1.5hr
Endurance	±(10% + 0.1Ω)	1 cycle : 15min ON/4min OFF, 100 cycle



The SPS(Smart protector SMD type Fuse) is a very small, Wire-in-Air square shape surface mount fuse which is very suitable for the secondary side circuit over-current protection applications.

● Features

- Fast acting, Inrush withstand capability
- Wire-In-Air performance
- Wide range of current rating available
- 6.1mmx 2.5mm square shape surface mount
- Higher temperature profiles
 - 50℃~125℃ operating temperature
- Excellent environmental integrity
- RoHS compliant
- Halogen-free

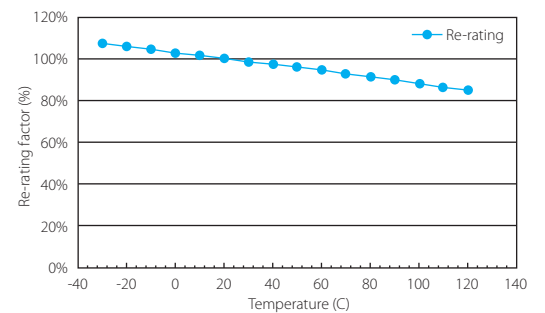
● Interrupting Ratings

- All range (1A ~ 15A) : 32Vdc, 50A

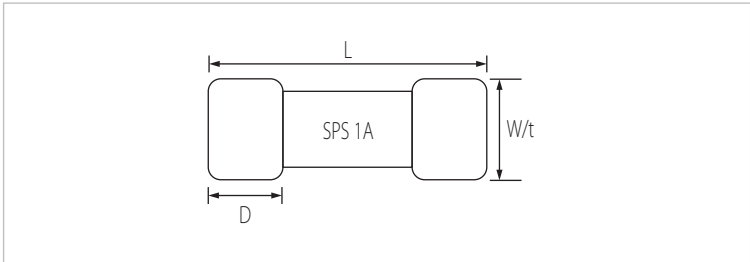
● Ampere Rating

Amperage Rating	% of Ampere Rating	Opening Time
1A-20A	100%	4hr, Min.
1A-10A	200%	5sec, Max.
12A-20A	200%	20sec, Max.
1A~20A	1000%	1ms-10ms

● Temperature Rating Curve



● Dimension



Dimension (mm)			
L	W	t	D
6.1±0.2	2.5±0.1	2.5±0.1	1.4±0.1

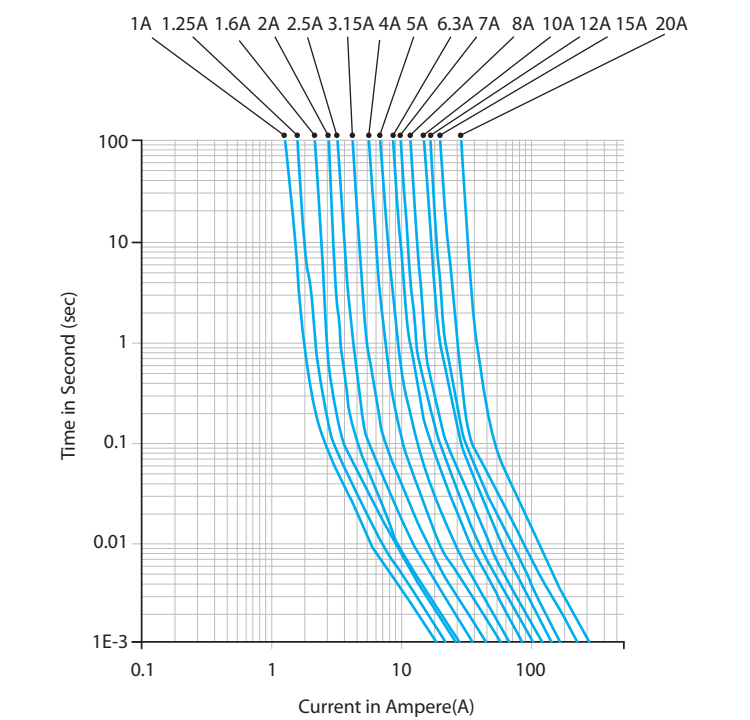
● Type Designation

SPS	125	F	T	1A00
Products Code	Voltage Rating	Characteristic	Style (breaking)	Ampere Rating
	125:125V 65:65V	F : Fast-Acting Type	T : Taping Type	1A00 : 1A

● Agency Approval

Agency	Item	File No.
	SPS 125V 1A ~ 10A	E238986
	SPS 65V 12A ~ 15A	

● Average Time Current Curve

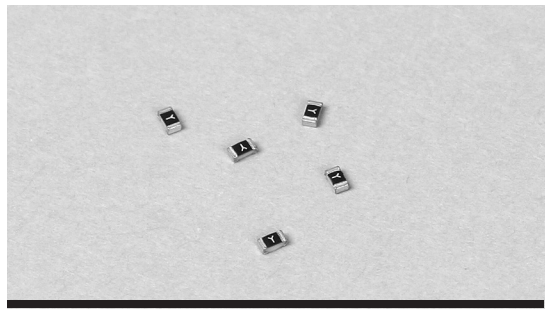


● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Nominal Resistance Cold Ohms (mΩ)	Normal Melting I ² T (A ² sec)	Operation Temperature (℃)
SPS 1A00	1	125	100	0.355	-55~125
SPS 1A25	1.25		89	0.481	
SPS 1A60	1.6		58	0.847	
SPS 2A00	2.0		32	0.84	
SPS 2A50	2.5		27	1.403	
SPS 3A15	3.15		21	2.054	
SPS 4A00	4		16	3.44	
SPS 5A00	5		14	4.843	
SPS 6A30	6.3		10	10.558	
SPS 7A00	7		9.4	10.584	
SPS 8A00	8		7.4	17.628	
SPS 10A0	10		5.9	30.3	
SPS 12A0	12	65	4.8	42.221	
SPS 15A0	15		3.7	69.763	
SPS 20A0	20		3	132	

● Performance

Test Items	Test condition/Methods	Performance
Voltage Drop	100% of its rated current	1~6.3A<300mv 7~10A<220mv 12A~20A<150mv
Endurance Test	125% of its rated current	1~6.3A<70℃ 7~10A<85℃
	100% of its rated current	12~20A<105℃
Interrupting Ability	50A/125V AC 160V DC(1A~10A) 50A/65V AC/DC(12A~20A)	Without permanent arcing, ignition and bursting of fuse link
Solder Ability	240℃±5℃, 3s±0.5s	95% coverage min.
Resistance to Soldering	260℃±5℃, 10s±0.5s	ΔR:<10%
High Temperature Operating Life	T=70±2℃, 0.6In, 96h	ΔR:<10%
Humidity (Steady state)	T=40±2℃, 90~95%RH, 1000h	ΔR:<10%
Low Temperature Storage	T=-55±3℃, 96h	ΔR:<10%
High Temperature Storage	T=125±2℃, 96h	ΔR:<10%
Salt Spray	5% salt solution, 48h	ΔR:<10%
Thermal Shock	5 cycles between -55℃/+125℃, 60 minutes ; each extreme	ΔR:<±(10%R±0.005)



CF is specification applies
For the lead-free fuse series of thin film chip fuse.

Features

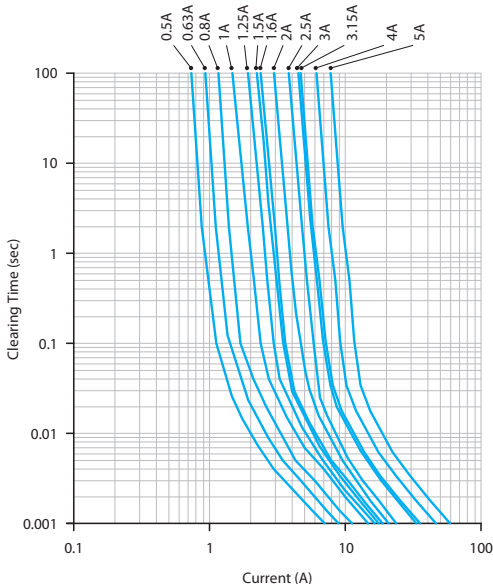
- Small and light chip current fuse for the secondary circuit
- Thin film manufacturing method stabilizing fusing characteristics
- Low power consumption less voltage dropping due to low internal resistance
- Suitable for over current protection of circuit block in small electronic device
- RoHS requirement

Ampere Rating

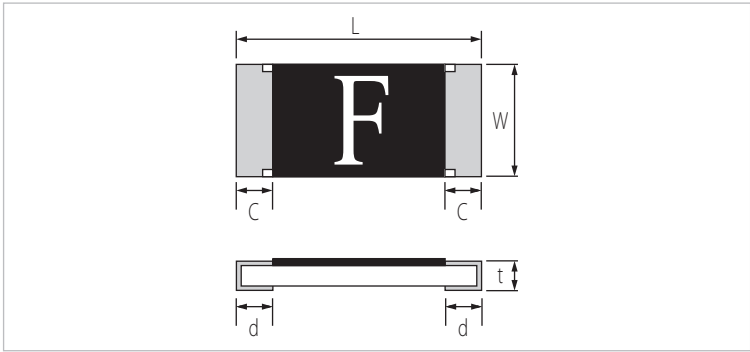
% of Ampere Rating	Opening Time
100%	4hr, Min.
200%	60sec, Max.

Average Time Current Curve

- CF 0603 Size



Dimension



Type	Dimension (mm)				
	L	W	C	d	t
06 (0603)	1.6±0.1	0.8±0.1	0.3±0.2	0.35±0.2	0.45±0.1
12 (1206)	3.1±0.1	1.55±0.1	0.5±0.3	0.5±0.2	0.6±0.1

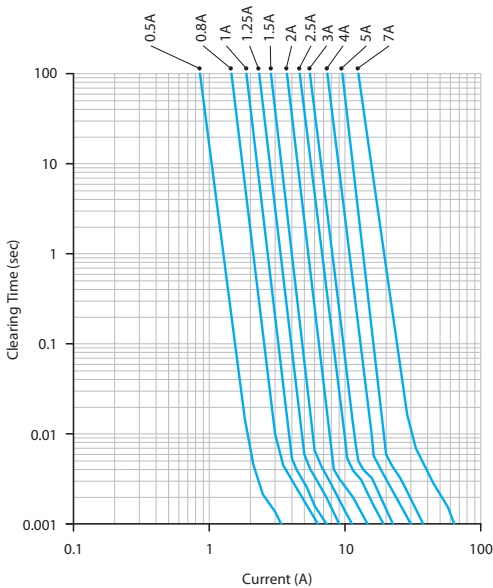
Type Designation

CF-	06	V5	T	A500
Products Code	Size	Rated Voltage	Packaging	Rated Current
	06:0603(1.6X0.8mm) 12:1206(3.2X1.6mm)	V6 : 63V V5 : 50V V3 : 32V	T: Paper Tape(5K)	A500:0.5A

Agency Approval

Agency	Item	File No.
UL	CF 06 32V 0.63A ~ 5A	E238986
UL	CF 06 0.5A ~ 5A	
UL	CF 12 0.5A ~ 7A	

- CF 1206 Size



Characteristic

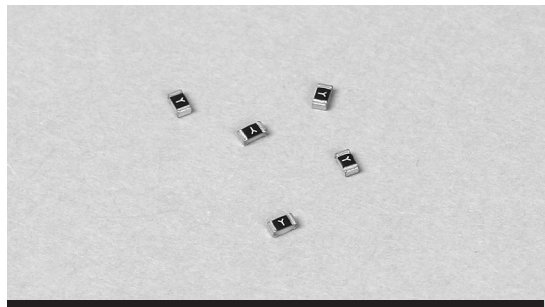
Part Number	Ampere Rating (A)	Voltage Rating (V)	Marking	Nominal Resistance Cold Ohms (mΩ)
CF-06V5TA500	0.50	DC50	F	250
CF-06V5TA630	0.63	DC32	I	173
CF-06V5TA800	0.80		K	115
CF-06V5T1A00	1.00		L	88
CF-06V5T1A25	1.25		M	63
CF-06V5T1A50	1.50		P	45
CF-06V5T1A60	1.60		N	42
CF-06V5T2A00	2.00		S	33
CF-06V5T2A50	2.50		T	24
CF-06V5T3A00	3.00		3	21
CF-06V5T3A15	3.15		U	19
CF-06V5T4A00	4.00		W	15
CF-06V5T5A00	5.00		Y	12
CF-12V6TA500	0.50	DC63	F	590
CF-12V6TA800	0.80		K	225
CF-12V6T1A00	1.00		L	130
CF-12V6T1A25	1.25		M	88
CF-12V6T1A50	1.50		P	65
CF-12V6T2A00	2.00		S	38
CF-12V3T2A50	2.50	DC32	T	32
CF-12V3T3A00	3.00		3	23
CF-12V3T4A00	4.00		W	15
CF-12V3T5A00	5.00		Y	11
CF-12V3T7A00	7.00		Z	7

Performance

Test Items	Performance Requirements	Test Methods
Carrying Capacity	No fusing	Rated current, 4hr
Interrupting Ability	No Mechanical damages	After the fuse is interrupted, rated voltage applied for 30sec again
Bending Test	No Mechanical damages	Distance between holding points : 90mm, Bending : 3mm, 1time, 30sec
Resistance to Solder Heat	±20%	260℃ ±5℃, 10seconds ± 1second
Solder Ability	95% coverage minimum	235℃ ±5℃, 2 ± 0.5second 245℃ ±5℃, 2 ± 0.5second(Lead Free)
Temperature Rise	<75℃	100% of its rated current, Measure of surface temperature
Resistance to Dry Heat	±20%	105℃ ± 5℃, 1000hrs
Resistance to Solvent	No evident damages on protective coating and marking	23℃ ±5℃ of Isopropyl alcohol 90second
Insulation Resistance	10 ^{kΩ} and more	Measure DC resistance after fusing
Thermal Shock	ΔR<10%	-20℃/+25℃/+125℃/+25℃, 10cycle

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.



CFS is specification applies
For the lead-free fuse series of thin film chip fuse.

●Features

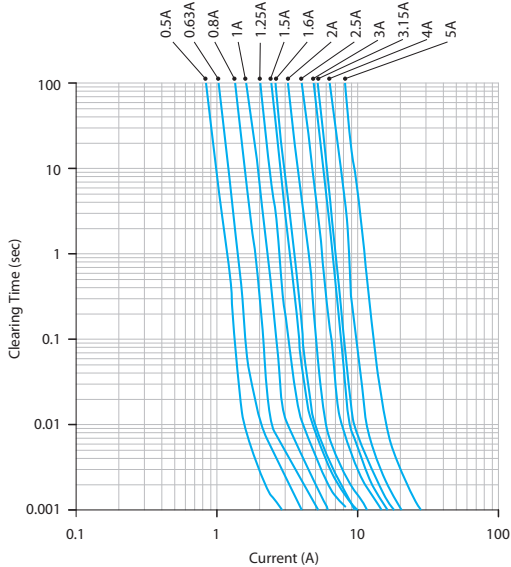
- Small and light chip current fuse for the secondary circuit
- Thin film manufacturing method stabilizing fusing characteristics
- Low power consumption less voltage dropping due to low internal resistance
- Suitable for over current protection of circuit block in small electronic device
- RoHS requirement

●Ampere Rating

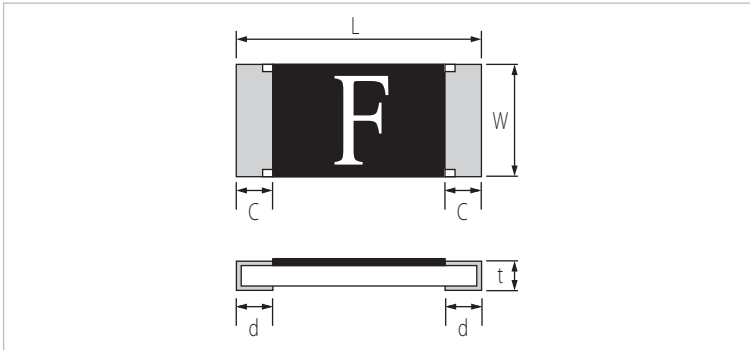
% of Ampere Rating	Opening Time
250%	5sec, Max.

●Average Time Current Curve

- CFS 06 Size



●Dimension



Type	Dimension (mm)				
	L	W	C	d	t
06 (0603)	1.6±0.1	0.8±0.1	0.3±0.2	0.35±0.2	0.45±0.1
12 (1206)	3.1±0.1	1.55±0.1	0.5±0.3	0.5±0.2	0.6±0.1

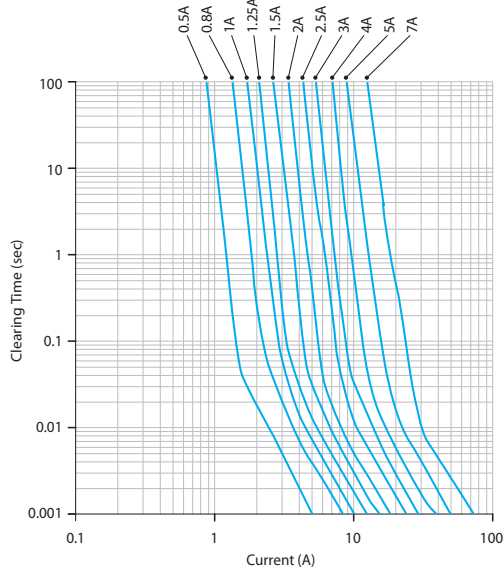
●Type Designation

CFS	06	V5	T	A500
Products Code	Size	Rated Voltage	Packaging	Rated Current
	06:0603(1.6X0.8mm) 12:1206(3.2X1.6mm)	V6 : 63V V5 : 50V V3 : 32V	T: Paper Tape(5K)	A500:0.5A

●Agency Approval

Agency	Item	File No.
	CFS 06 0.5A ~ 5A CFS 12 0.5A ~ 7A	E238986

- CFS 12 Size

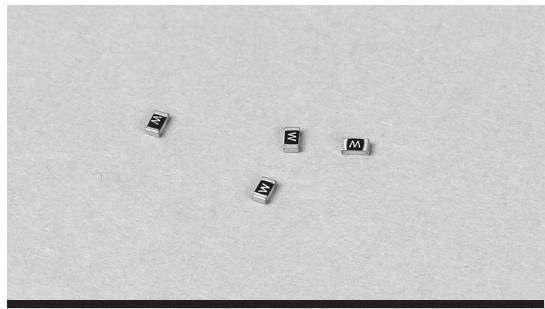


●Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Marking	Nominal Resistance Cold Ohms (mΩ)
CFS06V5TA500	0.50	DC50	F	175
CFS06V5TA630	0.63	DC32	I	130
CFS06V5TA800	0.80		K	93
CFS06V5T1A00	1.00		L	65
CFS06V5T1A25	1.25		M	47
CFS06V5T1A50	1.50		P	36
CFS06V5T1A60	1.60		N	34
CFS06V5T2A00	2.00		S	26
CFS06V5T2A50	2.50		T	20
CFS06V5T3A00	3.00		3	16
CFS06V5T3A15	3.15		U	15
CFS06V5T4A00	4.00		W	12
CFS06V5T5A00	5.00		Y	9
CFS12V6TA500	0.50	DC63	F	385
CFS12V6TA800	0.80		K	165
CFS12V6T1A00	1.00		L	108
CFS12V6T1A25	1.25		M	76
CFS12V6T1A50	1.50		P	51
CFS12V6T2A00	2.00		S	32
CFS12V3T2A50	2.50	DC32	T	26
CFS12V3T3A00	3.00		3	20
CFS12V3T4A00	4.00		W	14
CFS12V3T5A00	5.00		Y	10
CFS12V3T7A00	7.00		Z	6.5

●Performance

Test Items	Performance Requirements	Test Methods
Carrying Capacity	No fusing	Rated current, 4hr
Interrupting Ability	No Mechanical damages	After the fuse is interrupted, rated voltage applied for 30sec again
Bending Test	No Mechanical damages	Distance between holding points : 90mm, Bending : 3mm, 1time, 30sec
Resistance to Solder Heat	±20%	260℃ ±5℃, 10seconds ± 1second
Solder Ability	95% coverage minimum	235℃ ±5℃, 2 ± 0.5second 245℃ ±5℃, 2 ± 0.5second(Lead Free)
Temperature Rise	<75℃	100% of its rated current, Measure of surface temperature
Resistance to Dry Heat	±20%	105℃ ± 5℃, 1000hrs
Resistance to Solvent	No evident damages on protective coating and marking	23℃ ±5℃ of Isopropyl alcohol 90second
Insulation Resistance	10 ^{kΩ} and more	Measure DC resistance after fusing
Thermal Shock	ΔR<10%	-20℃/+25℃/+125℃/+25℃, 10cycle



CP is specification applies
For the lead-free fuse series of thin film chip fuse.

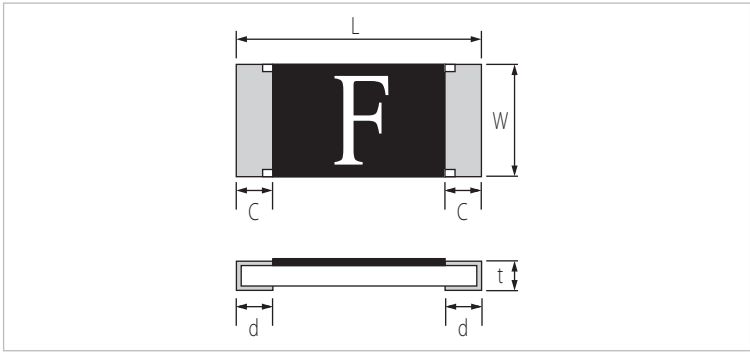
● Features

- Small and light weight design
- Thin film manufacturing method stabilizing fusing characteristics
- Low internal resistance
- Suitable for over current protection
- Recognized standard : UL248-14 file No. E241710

● Ampere Rating

% of Ampere Rating	Opening Time
200%	5sec, Max.

● Dimension



Type	Dimension (mm)				
	L	W	C	d	t
06 (0603)	1.6±0.1	0.8±0.1	0.3±0.2	0.35±0.2	0.45±0.1
12 (1206)	3.1±0.1	1.55±0.1	0.5±0.3	0.5±0.2	0.6±0.1

● Type Designation

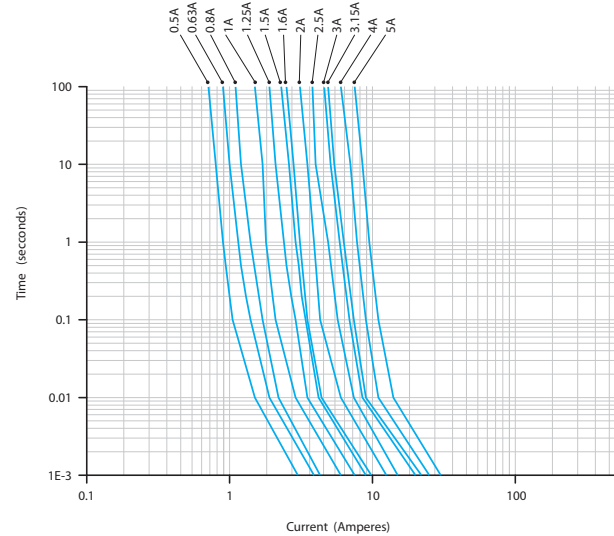
CP-	06	V5	T	A500
Products Code	Size	Rated Voltage	Packaging	Rated Current
	06:0603(1.6X0.8mm) 12:1206(3.2X1.6mm)	V6 : 63V V5 : 50V V3 : 32V	T: Paper Tape(5K)	A500:0.5A

● Agency Approval

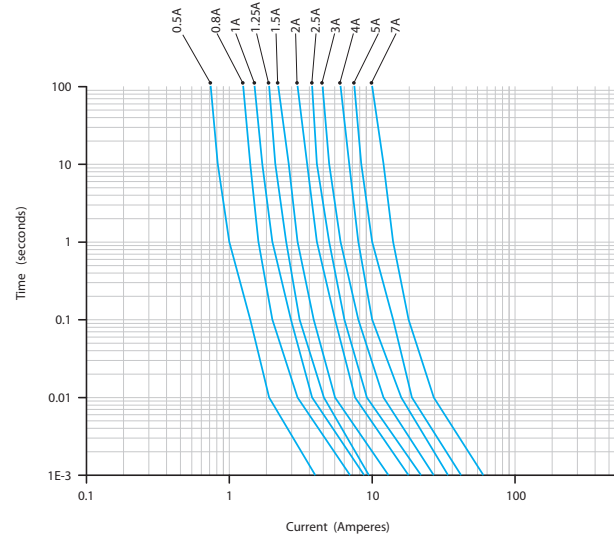
Agency	Item	File No.
	CP 06 0.5A ~ 5A	E238986
	CP 12 0.5A ~ 7A	
	CP 06 0.5A ~ 5A	
	CP 12 0.5A ~ 7A	

● Average Time Current Curve

• CP 06 Size



• CP 12 Size

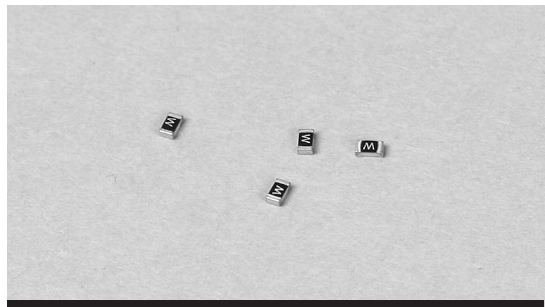


● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Marking	Nominal Melting I ² T (A ² sec)	Nominal Resistance Cold Ohms (mΩ)
CP-06V5TA500	0.50	DC50	F	0.0088	385
CP-06V5TA630	0.63	DC32	I	0.0145	218
CP-06V5TA800	0.80		K	0.0178	161
CP-06V5T1A00	1.00		L	0.0298	125
CP-06V5T1A25	1.25		M	0.0507	85
CP-06V5T1A50	1.50		P	0.0745	66
CP-06V5T1A60	1.60		N	0.0817	63
CP-06V5T2A00	2.00		S	0.1167	45
CP-06V5T2A50	2.50		T	0.1807	36
CP-06V5T3A00	3.00		3	0.3517	28
CP-06V5T3A15	3.15		U	0.3805	27
CP-06V5T4A00	4.00		W	0.5746	20
CP-06V5TA00	5.00		Y	0.7726	16
CP-12V6TA500	0.50	DC63	F	0.015	640
CP-12V6TA800	0.80		K	0.040	258
CP-12V6T1A00	1.00		L	0.062	178
CP-12V6T1A25	1.25		M	0.094	122
CP-12V6T1A50	1.50		P	0.141	83
CP-12V6T2A00	2.00		S	0.285	57
CP-12V3T2A50	2.50	DC32	T	0.445	44
CP-12V3T3A00	3.00		3	0.639	33
CP-12V3T4A00	4.00		W	1.109	22
CP-12V3T5A00	5.00		Y	1.710	17
CP-12V3T7A00	7.00		Z	3.300	11

● Performance

Test Items	Performance Requirements	Test Methods
Carrying Capacity	No fusing	Rated current, 4hr
Interrupting Ability	No Mechanical damages	After the fuse is interrupted, rated voltage applied for 30sec again
Bending Test	No Mechanical damages	Distance between holding points : 90mm, Bending : 3mm, 1time, 30sec
Resistance to Solder Heat	±20%	260℃ ±5℃, 10seconds ± 1second
Solder Ability	95% coverage minimum	235℃ ±5℃, 2 ± 0.5second 245℃ ±5℃, 2 ± 0.5second(Lead Free)
Temperature Rise	<75℃	100% of its rated current, Measure of surface temperature
Resistance to Dry Heat	±20%	105℃ ± 5℃, 1000hrs
Resistance to Solvent	No evident damages on protective coating and marking	23℃ ±5℃ of Isopropyl alcohol 90second
Insulation Resistance	10 ^{kΩ} and more	Measure DC resistance after fusing
Thermal Shock	ΔR<10%	-20℃/+25℃/+125℃/+25℃, 10cycle



CPS is specification applies
For the lead-free fuse series of thin film chip fuse.

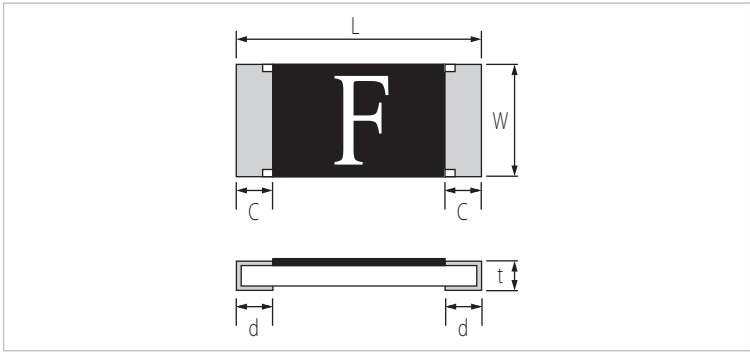
●Features

- Small and light weight design
- Thin film manufacturing method stabilizing fusing characteristics
- Low internal resistance
- Suitable for over current protection
- Recognized standard : UL248-14 file No. E241710

●Ampere Rating

% of Ampere Rating	Opening Time
200%	1~120sec

●Dimension



Type	Dimension (mm)				
	L	W	C	d	t
06 (0603)	1.6±0.1	0.8±0.1	0.3±0.2	0.35±0.2	0.45±0.1
12 (1206)	3.1±0.1	1.55±0.1	0.5±0.3	0.5±0.2	0.6±0.1

●Type Designation

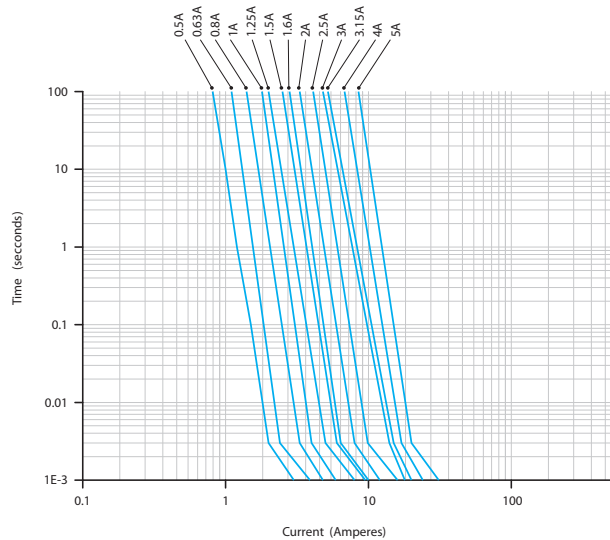
CPS	06	V5	T	A500
Products Code	Size	Rated Voltage	Packaging	Rated Current
	06:0603(1.6X0.8mm) 12:1206(3.2X1.6mm)	V6 : 63V V5 : 50V V3 : 32V	T: Paper Tape(5K)	A500:0.5A

●Agency Approval

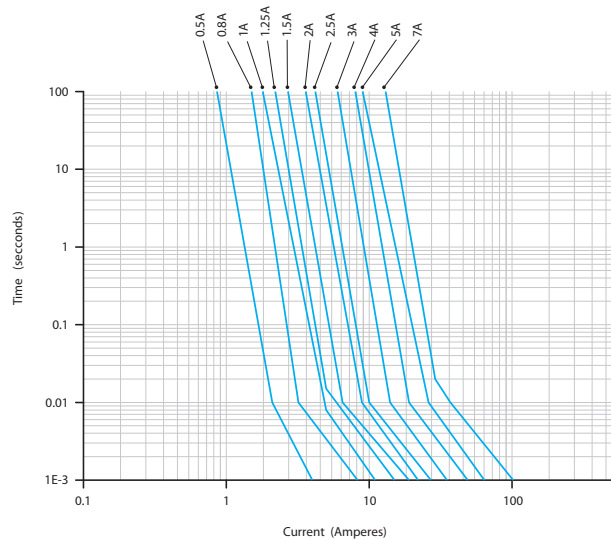
Agency	Item	File No.
	CPS 06 0.5A ~ 5A	E238986
	CPS 12 0.5A ~ 7A	
	CPS 06 0.5A ~ 5A	
	CPS 12 0.5A ~ 7A	

●Average Time Current Curve

- CPS 06 Size



- CPS 12 Size

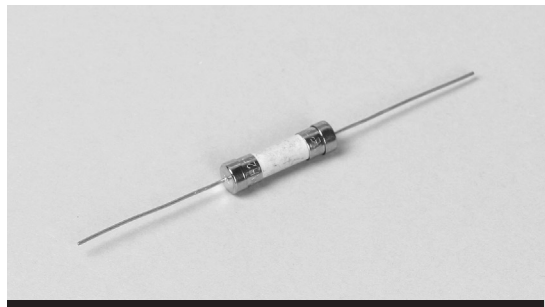


●Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Marking	Normal Melting I ² T (A ² sec)	Nominal Resistance Cold Ohms (mΩ)
CPS06V5TA500	0.50	DC50	F	0.0135	308
CPS06V5TA630	0.63	DC32	I	0.0216	170
CPS06V5TA800	0.80		K	0.0349	125
CPS06V5T1A00	1.00		L	0.0726	89
CPS06V5T1A25	1.25		M	0.0852	67
CPS06V5T1A50	1.50		P	0.1464	51
CPS06V5T1A60	1.60		N	0.1665	46
CPS06V5T2A00	2.00		S	0.2160	36
CPS06V5T2A50	2.50		T	0.5030	28
CPS06V5T3A00	3.00		3	0.6980	22
CPS06V5T3A15	3.15		U	0.7668	21
CPS06V5T4A00	4.00		W	1.8380	18
CPS06V5TA00	5.00		Y	2.5970	12
CPS12V6TA500	0.50	DC63	F	0.027	528
CPS12V6TA800	0.80		K	0.072	215
CPS12V6T1A00	1.00		L	0.134	149
CPS12V6T1A25	1.25		M	0.233	100
CPS12V6T1A50	1.50		P	0.305	71
CPS12V6T2A00	2.00		S	0.509	47
CPS12V3T2A50	2.50	DC32	T	0.777	39
CPS12V3T3A00	3.00		3	1.285	28
CPS12V3T4A00	4.00		W		19
CPS12V3T5A00	5.00		Y	5.510	15
CPS12V3T7A00	7.00		Z	10.170	10

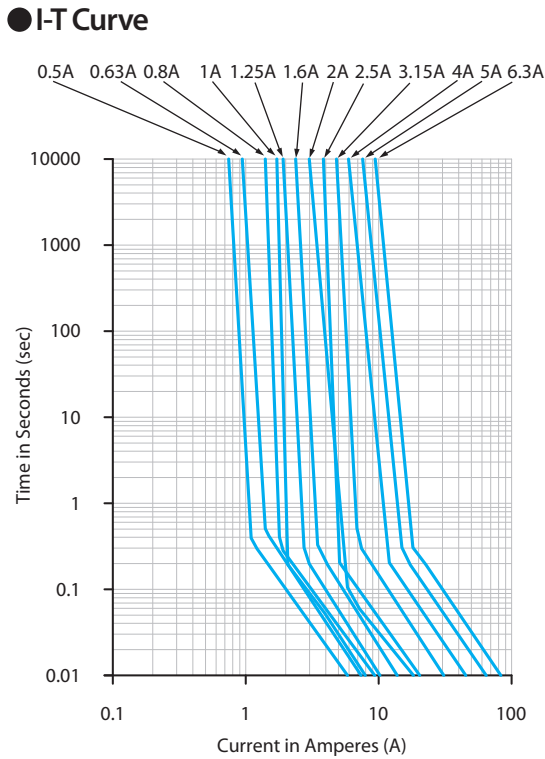
●Performance

Test Items	Performance Requirements	Test Methods
Carrying Capacity	No fusing	Rated current, 4hr
Interrupting Ability	No Mechanical damages	After the fuse is interrupted, rated voltage applied for 30sec again
Bending Test	No Mechanical damages	Distance between holding points : 90mm, Bending : 3mm, 1time, 30sec
Resistance to Solder Heat	±20%	260℃ ±5℃, 10seconds ± 1second
Solder Ability	95% coverage minimum	235℃ ±5℃, 2 ± 0.5second 245℃ ±5℃, 2 ± 0.5second(Lead Free)
Temperature Rise	<75℃	100% of its rated current, Measure of surface temperature
Resistance to Dry Heat	±20%	105℃ ± 5℃, 1000hrs
Resistance to Solvent	No evident damages on protective coating and marking	23℃ ±5℃ of Isopropyl alcohol 90second
Insulation Resistance	10 ^{kΩ} and more	Measure DC resistance after fusing
Thermal Shock	ΔR<10%	-20℃/+25℃/+125℃/+25℃, 10cycle

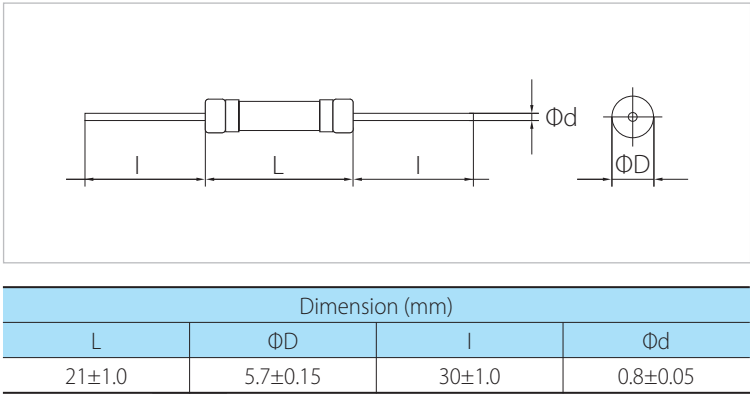


SFC, Abnormal condition of the circuit to protect the circuit from the device is effective.
This product is IEC 60127-2, Std Sheet 1 compliant SMART manufactured by a fuse for circuit protection, return SFC Series. On the overall technical requirements shall be against.

- Features
- Provides fast response to faulty current
 - Recognized by UL,VDE,CCC
 - Good inrush current characteristics
 - DC interrupting current



● Dimension



● Type Designation

SFC	250	F	H	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	F : Fast-Acting Type	H: High	1A00:1A A800:800mA

● Electrical Characteristics

% of Ampere Rating		Opening Time
275%	210%	30min, Max.
	50mA ~ 4A	10ms, min : 2sec, Max.
	Above 4A ~ 6.3A	10ms, min : 3sec, Max.
400%		3ms, min : 300ms, Max.
1000%		20ms, Max.

● Agency Approval

- IEC 60127-2/1 : VDE approved through 6.3 amps.

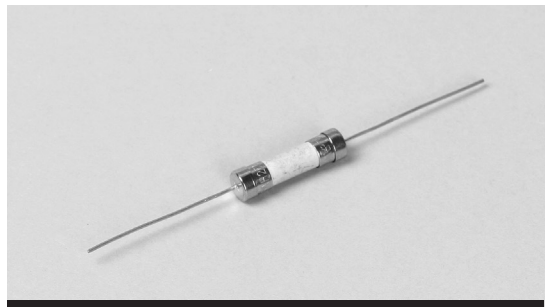
Agency	Item	File No.
	0.5A ~ 6.3A	E238986
	0.5A, 1.25A, 2.5A, 3.15A, 4A, 5A, 6.3A	40031746
	0.5A, 1.25A, 2.5A, 3.15A, 4A, 5A, 6.3A	2011010207480326
	0.5A, 1.25A, 2.5A, 3.15A, 4A, 5A, 6.3A	CQC11012059801
	0.5A	SG05001-11007
	1.25A, 2.5A	SG05001-11006
	3.15A, 4A, 5A, 6.3A	SG05001-11008

● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Normal Melting I ² T (A ² sec)	Maximum Voltage Drop (mV)
A500	500m	250	0.33	1800
A630	630m		0.56	1500
A800	800m		0.90	1200
1A00	1		0.60	1000
1A25	1.25		0.91	800
1A60	1.6		1.74	600
2A00	2		2.80	500
2A50	2.5		3.75	400
3A15	3.15		9.92	350
4A00	4		19.84	300
5A00	5		42.50	250
6A30	6.3		65.09	200

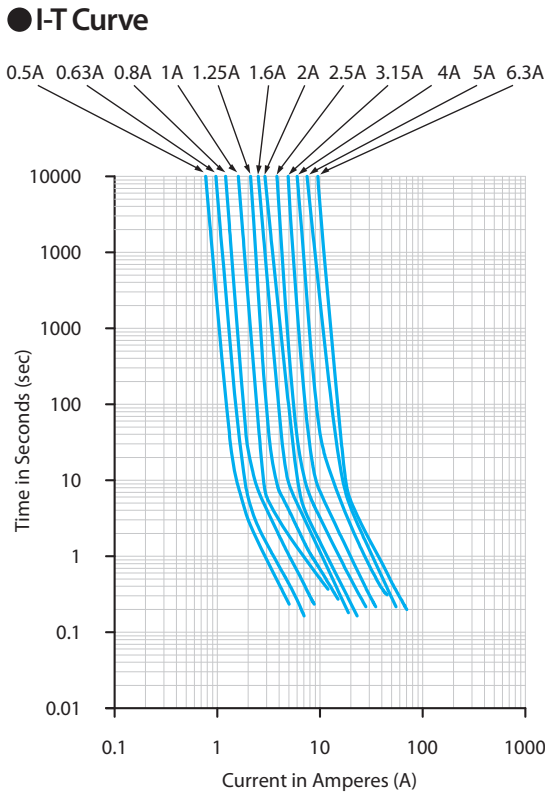
● Performance

Test Items	Performance Requirements	Test Methods
Voltage Drop	Max. Voltage Drop (mV)	After rated current was applied, if it show inside of 2% deference of former value when both Terminals voltage drop was measured every a minute, it is stable state. The value of the voltage drop should not exceed the value of a standard list.
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 °C ~ 35 °C for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton
Test at Temperature	Not operate	Rated current at 70 °C ambient temperature for 1 hours burn-fuse behavior should not be experimented with.
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of 1.2 times rated current (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr (for ratings above 6.3A 30min) at 1.5 In.
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	To examine performance of fuse, apply 1500A current
Insulation	0.1MΩ minimum measured by 500V dc Insulation tester	After overload test or Breaking Capacity test

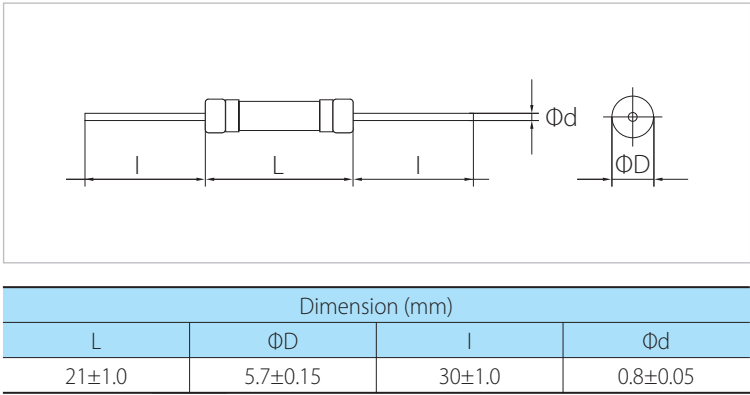


STC, Abnormal condition of the circuit to protect the circuit from the device is effective. This product is IEC 60127-2, Std Sheet 6 compliant SMART manufactured by a fuse for circuit protection, return STC Series. On the overall technical requirements shall be against.

- Features
- Provides fast response to faulty current
 - Recognized by UL,VDE,CCC
 - Good inrush current characteristics
 - DC interrupting current



● Dimension



● Type Designation

STC	250	T	H	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	T : Time-Lag Type	H: High	1A00:1A A800:800mA

● Electrical Characteristics

% of Ampere Rating		Opening Time
210%		30min, Max.
275%	500mA ~ 800mA	250ms, Min. : 80sec, Max.
	Above 800mA ~ 6.3A	750ms, Min. : 80sec, Max.
400%	500mA ~ 3.15A	50ms, Min. : 5sec, Max.
	Above 800mA ~ 3.15A	95ms, Min. : 5sec, Max.
	Above 3.15A ~ 6.3A	150ms, Min. : 5sec, Max.
1000%	500mA ~ 800mA	5ms, Min. : 150ms, Max.
	Above 800mA ~ 6.3A	10ms, Min. : 150ms, Max.

● Agency Approval

- IEC 60127-2/5 : VDE approved through 6.3 amps.

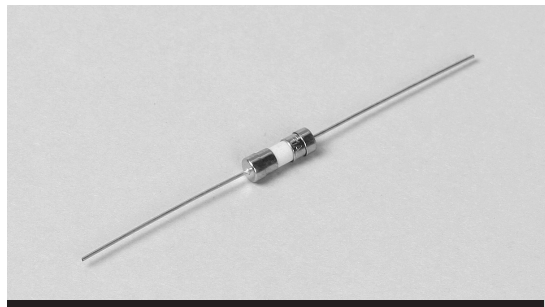
Agency	Item	File No.
	0.25A ~ 6.3A	E238986
	0.5A, 0.8A, 1.25A, 1.6A, 2A, 2.5A, 3.15A, 4A, 5A, 6.3A	40031932
	0.5A, 0.8A, 1.25A, 1.6A, 2A, 2.5A, 3.15A, 4A, 5A, 6.3A	2011010207480325
	0.5A, 0.8A, 1.25A, 1.6A, 2A, 2.5A, 3.15A, 4A, 5A, 6.3A	CQC11012059800
	0.5A, 0.8A	SG05001-11009
	1.25A, 1.6A, 2A, 2.5A	SG05001-11004
	3.15A, 4A, 5A, 6.3A	SG06002-11010

● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Normal Melting I ² T (A ² sec)	Maximum Voltage Drop (mV)
A500	500m	250	3.50	900
A630	630m		5.75	300
A800	800m		11.52	250
1A00	1		13.60	150
1A25	1.25		34.37	150
1A60	1.6		38.90	150
2A00	2		62.40	150
2A50	2.5		101.25	120
3A15	3.15		170.67	100
4A00	4		356.00	100
5A00	5		402.00	100
6A30	6.3		599.00	100

● Performance

Test Items	Performance Requirements	Test Methods
Voltage Drop	Max. Voltage Drop (mV)	After rated current was applied, if it show inside of 2% deference of former value when both Terminals voltage drop was measured every a minute, it is stable state. The value of the voltage drop should not exceed the value of a standard list.
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 °C ~ 35 °C for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton
Test at Temperature	Not operate	Rated current at 70 °C ambient temperature for 1 hours burn-fuse behavior should not be experimented with.
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of 1.2 times rated current (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr (for ratings above 6.3A 30min) at 1.5 In.
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	To examine performance of fuse, apply 1500A current
Insulation	0.1MΩ minimum measured by 500V dc Insulation tester	After overload test or Breaking Capacity test



Axial Lead type 4 x 11mm
End cap type 3 X 10mm time-lag Fuse

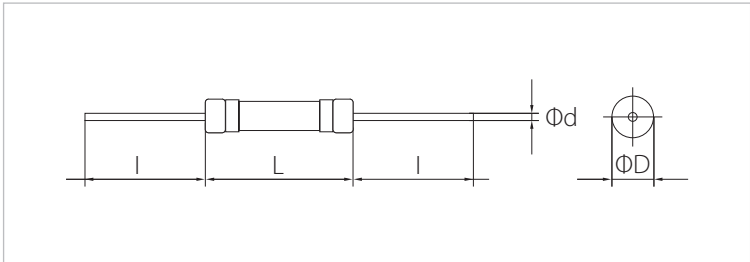
● Features

- In accordance with UL standard 248-14
- Available in cartridge and axial lead format and with various forming dimensions
- RoHS requirement and lead free

● Electrical Characteristics

% of Ampere Rating	Opening Time	
	Minimum	Maximum
150%	1 hr	N/A
210%	N/A	120 sec
275%	400 ms	10 sec
400%	150 ms	3 sec
1000%	20 ms	150 ms

● Dimension



Dimension (mm)			
L	ΦD	I	Φd
11.5max	4±0.15	30±1.0	0.6±0.05

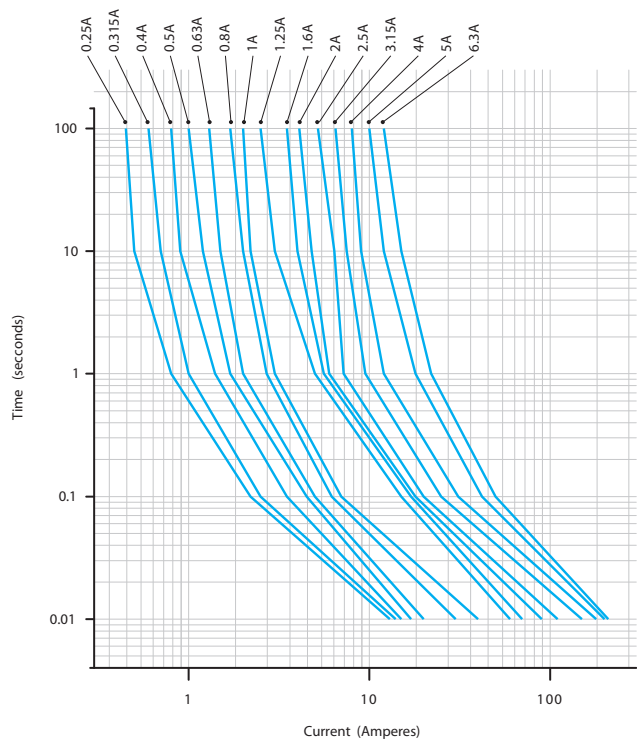
● Type Designation

3TC	250	T	L	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	T:Time-Lag	L:Low	1A00:1A

● Agency Approval

Agency	Item	File No.
	0.25A ~ 6.3A	E238986

● Average Time Current Curve

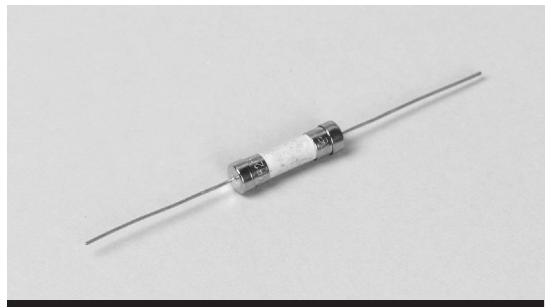


● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Norminal Melting I²T (A²sec)	Norminal Resistance Cold (Ω)
3TC250TLA250	250m	250	0.627	1.5186
3TC250TLA315	315m		0.936	0.5738
3TC250TLA400	400m		1.376	0.3804
3TC250TLA500	500m		1.415	0.3050
3TC250TLA630	630m		2.73	0.1826
3TC250TLA800	800m		4.18	0.1469
3TC250TL1A00	1		7.34	0.0900
3TC250TL1A25	1.25		17.54	0.0605
3TC250TL1A60	1.6		21.19	0.0424
3TC250TL2A00	2		28.8	0.0343
3TC250TL2A50	2.5		38.125	0.0243
3TC250TL2A15	3.15		62.9	0.0161
3TC250TL4A00	4		95.68	0.0135
3TC250TL5A00	5		184.5	0.0088
3TC250TL6A30	6.3		241.3	0.0077

● Performance

Test Items	Performance Requirements	Test Methods	
Operation Temperature	Not operate	-40℃ ±5℃, to +85℃ ±5℃	
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 ℃ ~ 35 ℃ for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton	
Test at Temperature	Not operate	Rated current at 70 ℃ ambient temperature for 1 hours burnfuse behavior should not be experimented with.	
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of rated current 1.2In (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.	
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	0.25A~6.3A	250V AC / 35A or 10 In
Insulation	0.1MΩ minimum	500V dc Insulation tester	



5x20mm fast acting ceramic body cartridge fuse designed to UL specification.

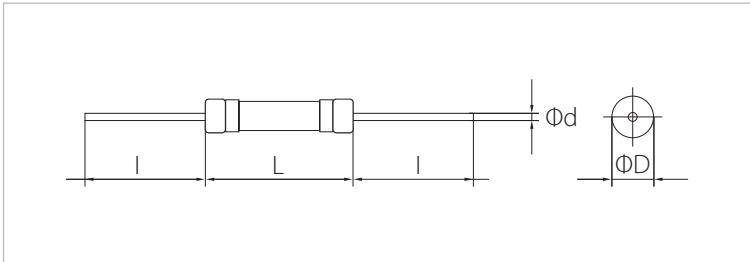
● Features

- In accordance with UL standard 248-14
- Available in cartridge and axial lead format and with various forming dimensions
- RoHS requirement and lead free

● Electrical Characteristics

% of Ampere Rating	Opening Time	
	Minimum	Maximum
100%	4 hr	N/A
135%	N/A	1800 sec
200%	N/A	5 sec

● Dimension



Dimension (mm)			
L	ΦD	I	Φd
21±1.0	5.7±0.15	30±2.0	0.65±0.05

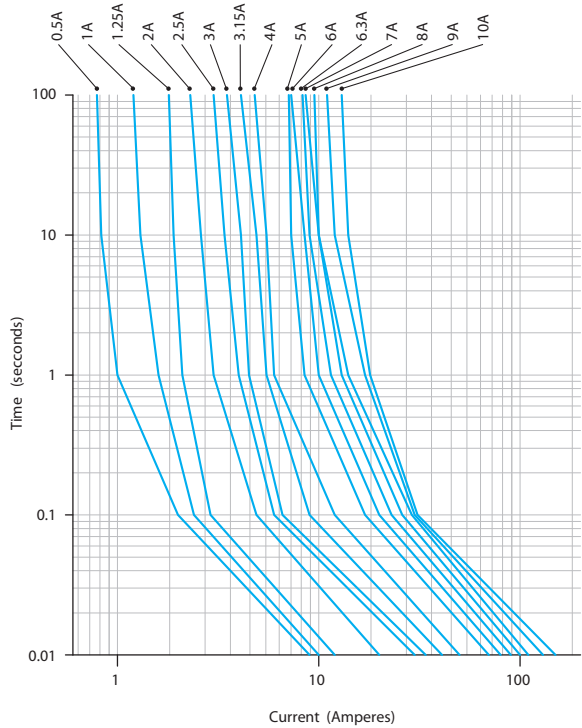
● Type Designation

GC5	250	F	H/L	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	F:Fast-Acting	L : Low H : High	1A00:1A

● Agency Approval

Agency	Item	File No.
	0.5A ~ 10A	E238986

● Average Time Current Curve

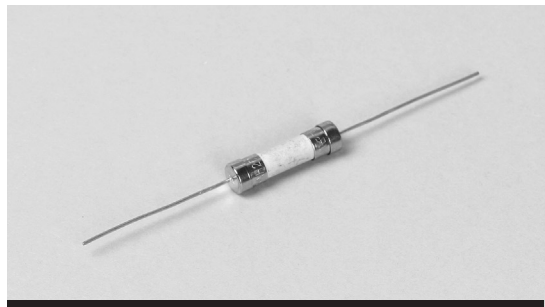


● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Normal Melting I²T (A²sec)	Normal Resistance Cold (Ω)
5GC250FLA500	500m	250	0.57	0.2578
5GC250FL1A00	1		1.02	0.1617
5GC250FH1A25	1.25		1.58	0.1128
5GC250FH2A00	2		4.24	0.0690
5GC250FH2A50	2.5		7.17	0.0533
5GC250FH3A00	3		12.15	0.0369
5GC250FH3A15	3.15		13.89	0.0349
5GC250FH4A00	4		22.4	0.02626
5GC250FH5A00	5		40	0.0199
5GC250FH6A00	6		57.6	0.0162
5GC250FH6A30	6.3		63.5	0.0151
5GC250FH7A00	7		66.15	0.0147
5GC250FH8A00	8		102.4	0.0120
5GC250FH9A00	9		123.9	0.0115
5GC250FH10A0	10		125	0.0109

● Performance

Test Items	Performance Requirements	Test Methods	
Operation Temperature	Not operate	-40℃ ±5℃, to +85℃ ±5℃	
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 ℃ ~ 35 ℃ for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton	
Test at Temperature	Not operate	Rated current at 70 ℃ ambient temperature for 1 hours burnfuse behavior should not be experimented with.	
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of rated current 1.2In (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.	
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	0.5A~1A	250V / 35A
		1.25A~3.5A	250V / 100A
		4A~15A	250V / 200A
		0.5A~15A	125V / 1000A
Insulation	0.1MΩ minimum	500V dc Insulation tester	



5x20mm slow-blow ceramic body cartridge fuse designed to UL specification.

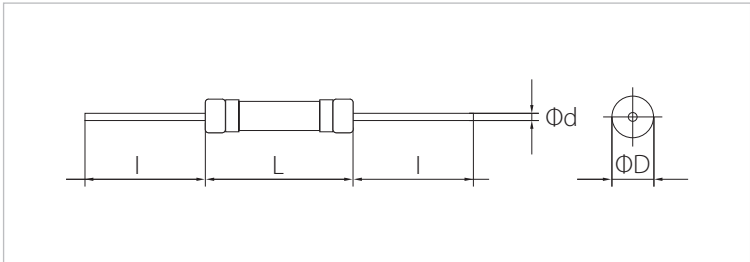
● Features

- In accordance with UL standard 248-14
- Available in cartridge and axial lead format and with various forming dimensions
- RoHS requirement and lead free

● Electrical Characteristics

% of Ampere Rating	Opening Time	
	Minimum	Maximum
100%	4 hr	N/A
135%	N/A	1800 sec
200%	N/A	120 sec

● Dimension



Dimension (mm)			
L	ΦD	I	Φd
21±1.0	5.7±0.15	30±2.0	0.65±0.05

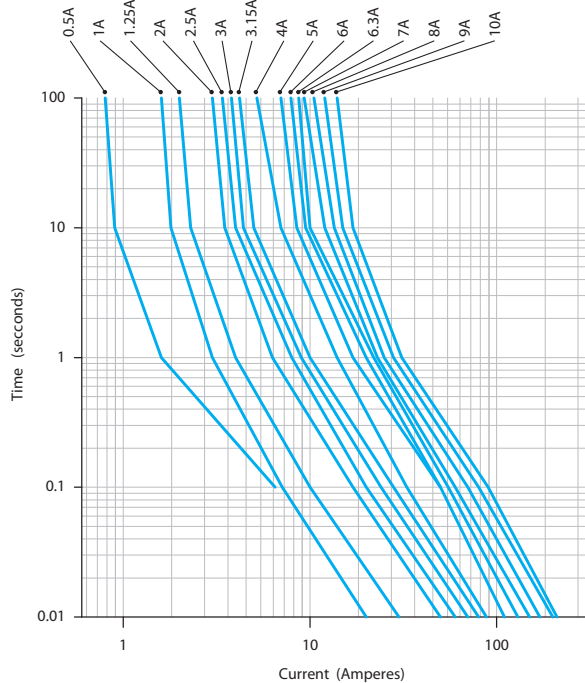
● Type Designation

5SC	250	S	L/H	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	S:Slow-Blow	L : Low H : High	1A00:1A

● Agency Approval

Agency	Item	File No.
	0.5A ~ 10A	E238986

● Average Time Current Curve

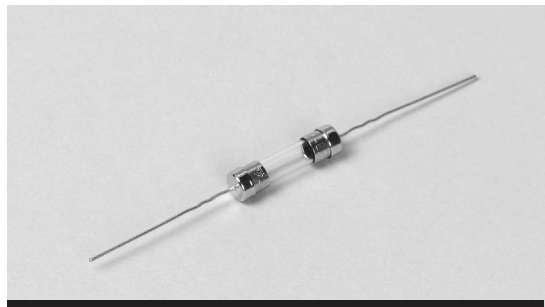


● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Normal Melting I²T (A²sec)	Normal Resistance Cold (Ω)
5SC250SLA500	500m	250	3.45	0.8037
5SC250SL1A00	1		4.2	0.2485
5SC250SH1A25	1.25		10.6	0.1635
5SC250SH2A00	2		24	0.0754
5SC250SH2A50	2.5		25	0.0512
5SC250SH3A00	3		77.4	0.0412
5SC250SH3A15	3.15		78.4	0.0406
5SC250SH4A00	4		115.2	0.0290
5SC250SH5A00	5		222.5	0.0228
5SC250SH6A00	6		252.4	0.0174
5SC250SH6A30	6.3		309.5	0.0159
5SC250SH7A00	7		372.4	0.0176
5SC250SH8A00	8		430.4	0.0128
5SC250SH9A00	9		526.5	0.0106
5SC250SH10A0	10		780	0.0092

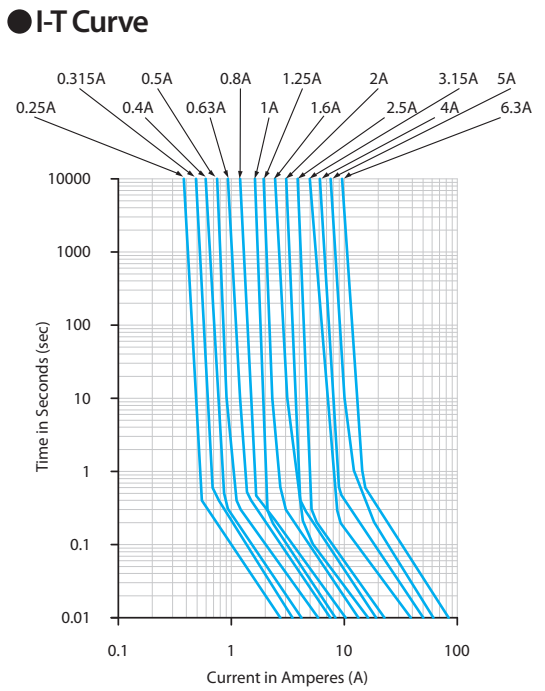
● Performance

Test Items	Performance Requirements	Test Methods	
Operation Temperature	Not operate	-40℃ ±5℃, to +85℃ ±5℃	
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 ℃ ~ 35 ℃ for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton	
Test at Temperature	Not operate	Rated current at 70 ℃ ambient temperature for 1 hours burnfuse behavior should not be experimented with.	
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of rated current 1.2In (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.	
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	0.5A~1A	250V / 35A
		1.25A~3.5A	250V / 100A
		4A~15A	250V / 200A
		0.5A~15A	125V / 1000A
Insulation	0.1MΩ minimum	500V dc Insulation tester	

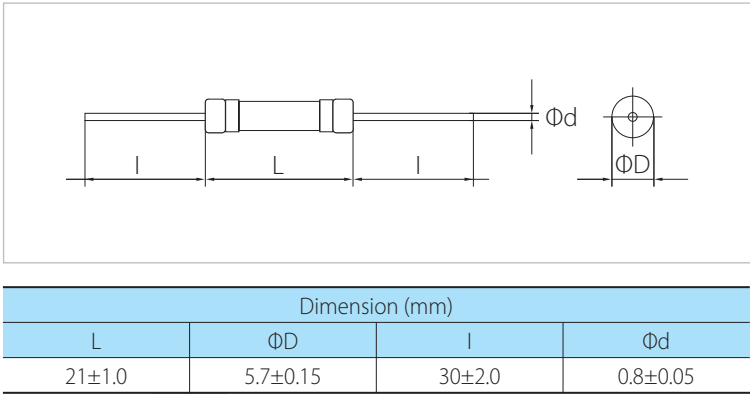


SFG, Abnormal condition of the circuit to protect the circuit from the device is effective. This product is IEC 60127-2, Std Sheet 2 compliant SMART manufactured by a fuse for circuit protection, return SFG Series. On the overall technical requirements shall be against.

- Features
- Provides fast response to faulty current
 - Recognized by UL,VDE,CCC
 - Good inrush current characteristics
 - DC interrupting current



● Dimension



● Type Designation

SFG	250	F	L	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	F : Fast-Acting Type	L : Low	1A00:1A A800:800mA

● Agency Approval

• IEC 60127-2/2 : VDE approved through 6.3 amps.

Agency	Item	File No.
	0.5A ~ 6.3A	E238986
	0.25A ~ 6.3A	40031951
	0.25A ~ 6.3A	2011010207455529
	0.25A ~ 6.3A	CQC11012055225
	0.25A, 0.315A, 0.4A, 0.5A	SG05001-11011
	1.25A, 1.6A, 2A, 2.5A	SG05001-11005
	3.15A, 4A, 5A, 6.3A	SG05001-11012

● Electrical Characteristics

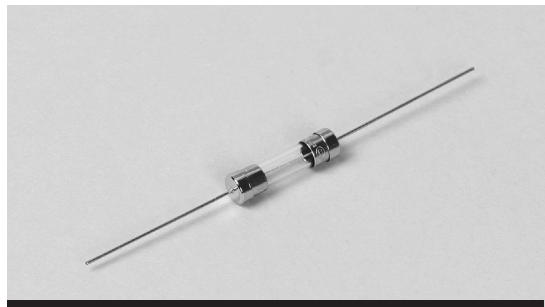
% of Ampere Rating	Opening Time
210%	30min, Max.
275%	50ms, Min. : 2sec, Max.
400%	10ms, Min. : 300ms, Max.
1000%	20ms, Max.

● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Normal Melting I ² T (A ² sec)	Maximum Voltage Drop (mV)
A250	250m	250	0.074	1400
A315	315m		0.128	1300
A400	400m		0.176	1200
A500	500m		0.325	1000
A630	630m		0.556	650
A800	800m		0.998	240
1A00	1		0.700	200
1A25	1.25		1.560	200
1A60	1.6		2.300	190
2A00	2		3.600	170
2A50	2.5		4.750	170
3A15	3.15		13.890	150
4A00	4		23.680	130
5A00	5		37.000	130
6A30	6.3		63.000	130

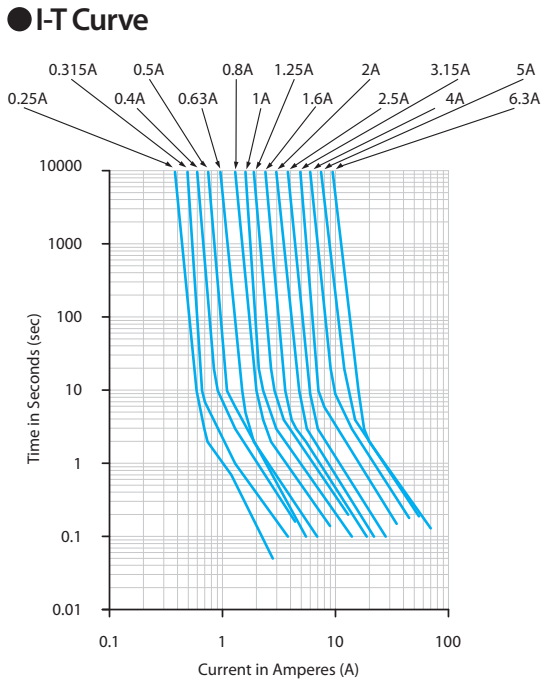
● Performance

Test Items	Performance Requirements	Test Methods
Voltage Drop	Max. Voltage Drop (mV)	After rated current was applied, if it show inside of 2% deference of former value when both Terminals voltage drop was measured every a minute, it is stable state. The value of the voltage drop should not exceed the value of a standard list.
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 °C ~ 35 °C for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton
Test at Temperature	Not operate	Rated current at 70 °C ambient temperature for 1 hours burn-fuse behavior should not be experimented with.
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of 1.2 times rated current (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr (for ratings above 6.3A 30min) at 1.5 In.
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	To examine performance of fuse, apply 35A or 10 IN, which is greater. For breaking capacity rated currents above 6.3A shall be tested at 125V.
Insulation	0.1MΩ minimum measured by 500V dc Insulation tester	After overload test or Breaking Capacity test

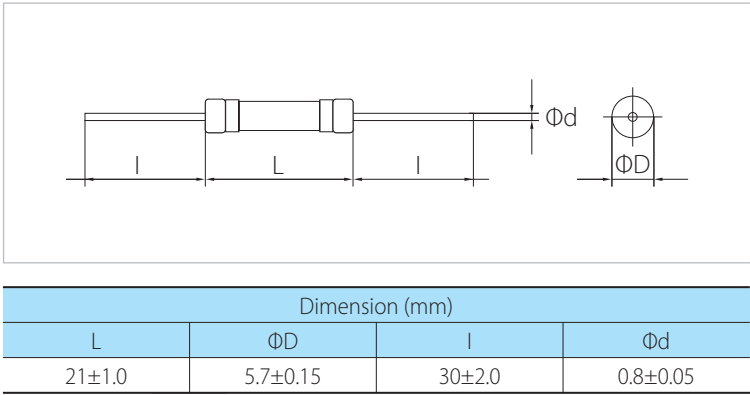


STG Abnormal condition of the circuit to protect the circuit from the device is effective.
This product is IEC 60127-2, Std Sheet 3 compliant SMART manufactured by a fuse for circuit protection, return STG Series. On the overall technical requirements shall be against.

- Features
- Provides fast response to faulty current
 - Recognized by UL,VDE,CCC
 - Good inrush current characteristics
 - DC interrupting current



● Dimension



● Type Designation

STG	250	T	L	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	T : Time-Lag Type	L : Low	1A00:1A A800:800mA

● Agency Approval

- IEC 60127-2/3 : VDE approved through 6.3 amps.

Agency	Item	File No.
	0.5A ~ 6.3A	E238986
	0.25A ~ 5A	40031990
	0.25A ~ 5A	2011010207455530
	0.25A ~ 5A	CQC11012055226
	0.25A, 0.315A, 0.4A, 0.5A, 0.63A, 0.8A	SG05001-11002
	1A, 1.25A, 1.6A, 2A, 2.5A	SG05001-11003
	3.15A, 4A, 5A	SG05001-11001

● Electrical Characteristics

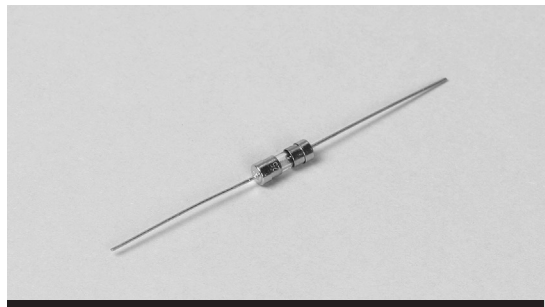
% of Ampere Rating	Opening Time
210%	2min, Max.
275%	600ms, Min. : 10sec, Max.
400%	150ms, Min. : 3sec, Max.
1000%	20ms, Min. : 300ms, Max.

● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Normal Melting I ² T (A ² sec)	Maximum Voltage Drop (mV)
A250	250m	250	0.431	1300
A315	315m		1.349	1100
A400	400m		2.912	1000
A500	500m		3.15	900
A630	630m		4.98	300
A800	800m		10.24	250
1A00	1		17.00	150
1A25	1.25		32.03	150
1A60	1.6		36.35	150
2A00	2		49.20	150
2A50	2.5		82.50	120
3A15	3.15		182.97	100
4A00	4		348.80	100
5A00	5		580.00	100
6A30	6.3		666.79	100

● Performance

Test Items	Performance Requirements	Test Methods
Voltage Drop	Max. Voltage Drop (mV)	After rated current was applied, if it show inside of 2% deference of former value when both Terminals voltage drop was measured every a minute, it is stable state. The value of the voltage drop should not exceed the value of a standard list.
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 °C ~ 35 °C for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton
Test at Temperature	Not operate	Rated current at 70 °C ambient temperature for 1 hours burn-fuse behavior should not be experimented with.
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of 1.2 times rated current (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr (for ratings above 6.3A 30min) at 1.5 In.
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	To examine performance of fuse, apply 35A or 10 IN, which is greater. For breaking capacity rated currents above 6.3A shall be tested at 125V.
Insulation	0.1MΩ minimum measured by 500V dc Insulation tester	After overload test or Breaking Capacity test



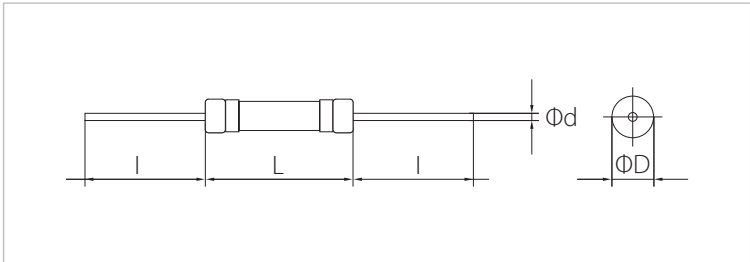
Axial lead type
End cap type 3 X 10mm fast acting Fuse.

- **Features**
- Provides fast response to faulty current
 - Recognized by UL,VDE,CCC
 - Good inrush current characteristics
 - DC interrupting current

● **Electrical Characteristics**

% of Ampere Rating	Opening Time	
	Minimum	Maximum
100%	4 hr	N/A
200%	N/A	5 sec

● **Dimension**



Dimension (mm)			
L	ΦD	I	Φd
11.5max	4±0.15	30±1.0	0.6±0.05

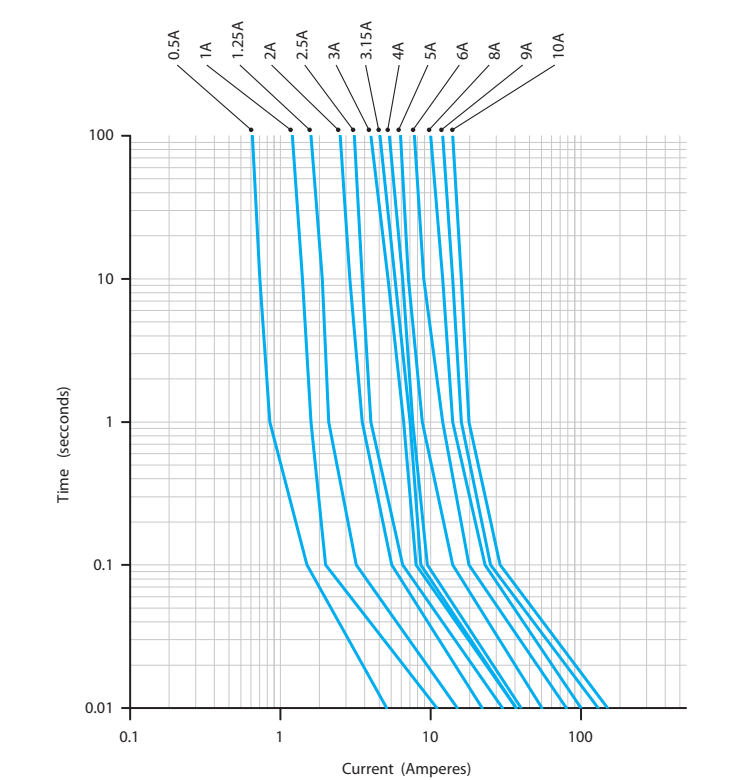
● **Type Designation**

3GG	250	F	L	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	F: Fast-Acting	L : Low	1A00:1A

● **Agency Approval**

Agency	Item	File No.
	0.5A ~ 6.3A	E238986

● **Average Time Current Curve**

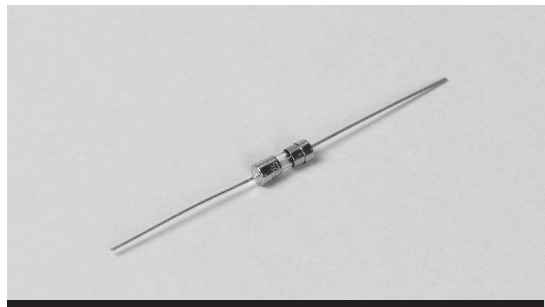


● **Characteristic**

Part Number	Ampere Rating (A)	Voltage Rating (V)	Normal Melting I²T (A²sec)	Normal Resistance Cold (Ω)
3GG 250FLA500	500m	250	0.187	1.5540
3GG 250FL1A00	1		0.75	0.0927
3GG 250FL1A25	1.25		1.171	0.0788
3GG 250FL2A00	2		3.11	0.0345
3GG 250FL2A50	2.5		4.68	0.0320
3GG 250FL3A00	3		6.75	0.0244
3GG 250FL3A15	3.15		7.44	0.0243
3GG 250FL4A00	4		12	0.0197
3GG 250FL5A00	5		18.7	0.0148
3GG 250FL6A00	6		27	0.0114
3GG 250FL8A00	8		48	0.0091
3GG 250FL9A00	9		60.75	0.0081
3GG 250FL10A0	10		75	0.0760

● **Performance**

Test Items	Performance Requirements	Test Methods	
Operation Temperature	Not operate	-40℃ ±5℃, to +85℃ ±5℃	
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 ℃ ~ 35 ℃ for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton	
Test at Temperature	Not operate	Rated current at 70 ℃ ambient temperature for 1 hours burnfuse behavior should not be experimented with.	
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of rated current 1.2In (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.	
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	0.5A~10A	250V AC / 50A
Insulation	0.1MΩ minimum	500V dc Insulation tester	



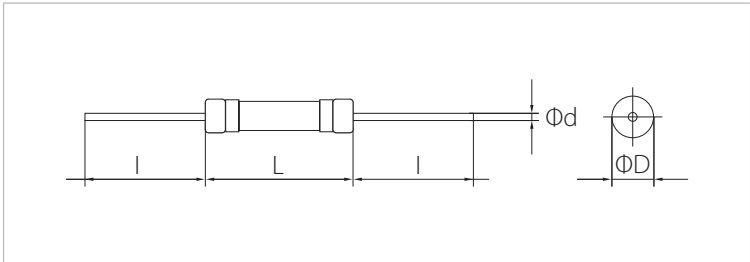
Axial lead type
End cap type 3 X 10mm fast acting Fuse.

- Features
- In accordance with UL standard 248-14
 - Available in cartridge and axial lead format and with various forming dimensions
 - RoHS requirement and lead free

● Electrical Characteristics

% of Ampere Rating	Opening Time	
	Minimum	Maximum
100%	4 hr	N/A
200%	N/A	60 sec

● Dimension



Dimension (mm)			
L	ΦD	I	Φd
11.5max	4±0.15	30±1.0	0.6±0.05

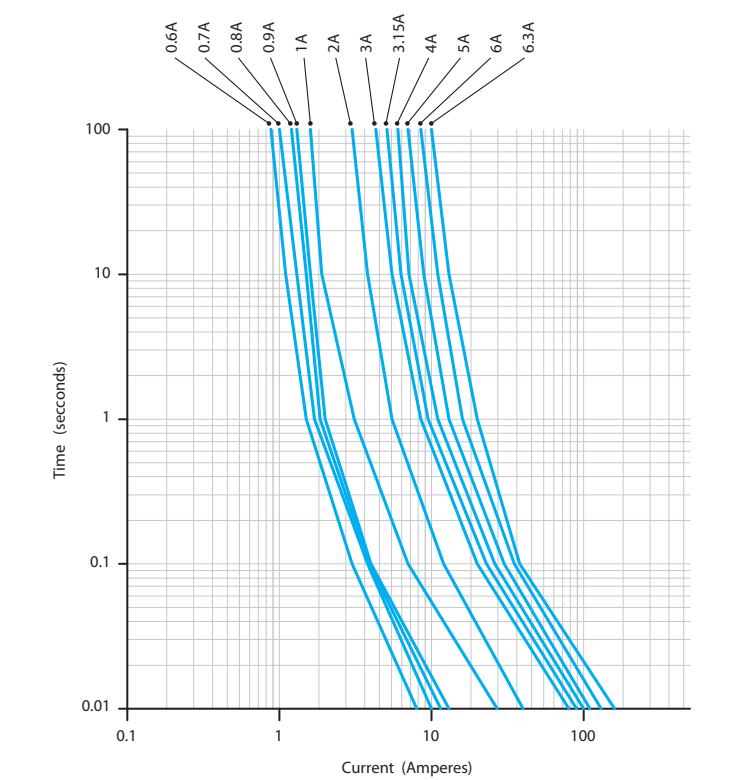
● Type Designation

3GS	250	S	L	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250V	S: Slow-Blow	L: Low	1A00:1A

● Agency Approval

Agency	Item	File No.
	0.5A ~ 6.3A	E238986

● Average Time Current Curve

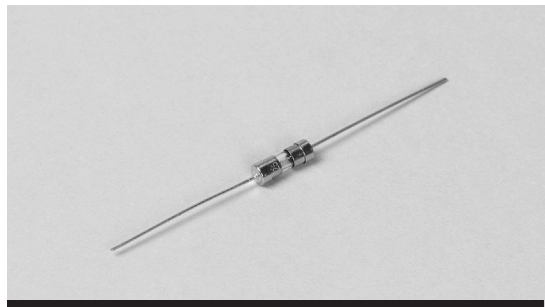


● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Normal Melting I²T (A²sec)	Normal Resistance Cold (Ω)
3SG250SLA600	600m	250	0.43	0.2592
3SG250SLA700	700m		0.59	0.1865
3SG250SLA800	800m		2.03	0.1828
3SG250SLA900	900m		0.97	0.1390
3SG250SL1A00	1		1.2	0.1034
3SG250SL2A00	2		4.8	0.0378
3SG250SL3A00	3		10.8	0.0211
3SG250SL3A15	3.15		21.8	0.0210
3SG250SL4A00	4		28.7	0.0209
3SG250SL5A00	5		30	0.0165
3SG250SL6A00	6		43.2	0.0173
3SG250SL6A30	6.3		47.6	0.0089

● Performance

Test Items	Performance Requirements	Test Methods	
Operation Temperature	Not operate	-40℃ ±5℃, to +85℃ ±5℃	
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 ℃ ~ 35 ℃ for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton	
Test at Temperature	Not operate	Rated current at 70 ℃ ambient temperature for 1 hours burnfuse behavior should not be experimented with.	
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of rated current 1.2In (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.	
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	0.6A~6.3A	250V AC / 50A
Insulation	0.1MΩ minimum	500V dc Insulation tester	

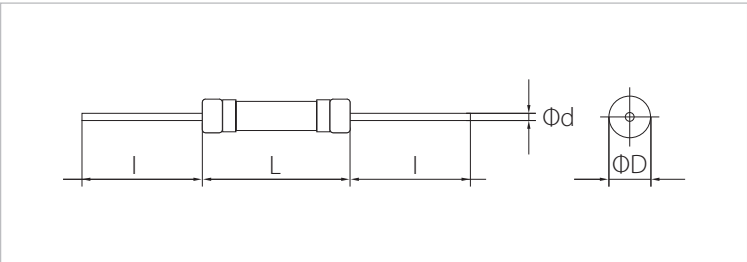


Axial lead type
End cap type 3 X 10mm Time Lag Fuse.

● Features

- In accordance with UL standard 248-14
- Available in cartridge and axial lead format and with various forming dimensions
- RoHS requirement and lead free

● Dimension



Dimension (mm)			
L	ΦD	I	Φd
11.5max	4±0.15	30±1.0	0.6±0.05

● Type Designation

3TG	250	T	L	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	T : Time -Lag	L : Low	1A00:1A

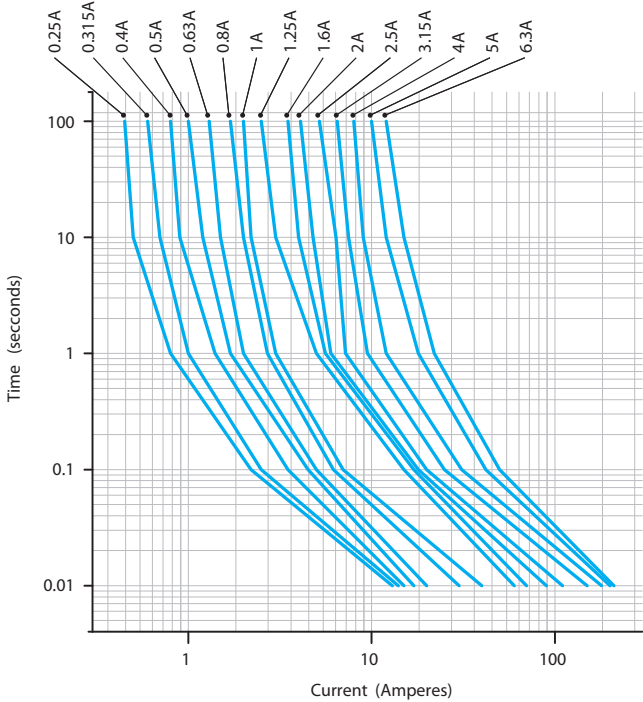
● Electrical Characteristics

% of Ampere Rating	Opening Time	
	Minimum	Maximum
150%	1 hr	N/A
210%	N/A	120 sec
275%	400 ms	10 sec
400%	150 ms	3 sec
1000%	20 ms	150 ms

● Agency Approval

Agency	Item	File No.
	0.25A ~ 6.3A	E238986

● Average Time Current Curve

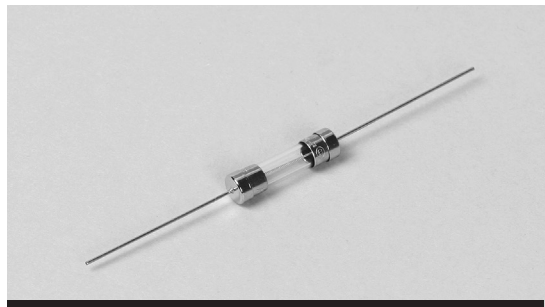


● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Normal Melting I²T (A²sec)	Normal Resistance Cold (Ω)
3TG250TLA250	250m	250	0.627	1.5186
3TG250TLA315	315m		0.936	0.5738
3TG250TLA400	400m		1.376	0.3752
3TG250TLA500	500m		1.415	0.33343
3TG250TLA630	630m		2.73	0.1978
3TG250TLA800	800m		4.18	0.1687
3TG250TL1A00	1		7.34	0.0952
3TG250TL1A25	1.25		17.53	0.0512
3TG250TL1A60	1.6		21.1968	0.0419
3TG250TL2A00	2		28.8	0.0345
3TG250TL2A50	2.5		38.125	0.0230
3TG250TL3A15	3.15		62.988	0.0163
3TG250TL4A00	4		95.68	0.0132
3TG250TL5A00	5		184.5	0.0091
3TG250TL6A30	6.3		241.3	0.0075

● Performance

Test Items	Performance Requirements	Test Methods	
Operation Temperature	Not operate	-40℃ ±5℃, to +85℃ ±5℃	
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 ℃ ~ 35 ℃ for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton	
Test at Temperature	Not operate	Rated current at 70 ℃ ambient temperature for 1 hours burnfuse behavior should not be experimented with.	
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of rated current 1.2In (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.	
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	0.5A~10A	250V AC / 50A
Insulation	0.1MΩ minimum	500V dc Insulation tester	



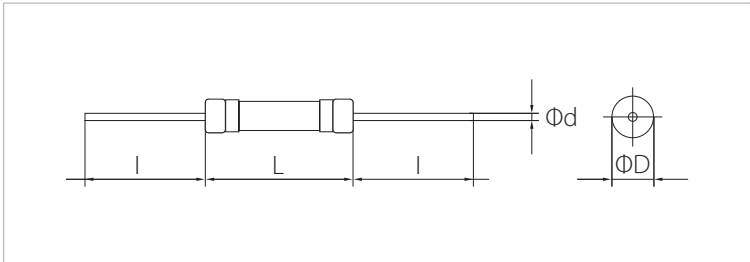
5x20mm fast acting Glass body cartridge fuse designed to UL specification.

- Features
- In accordance with UL standard 248-14
 - Available in cartridge and axial lead format and with various forming dimensions
 - RoHS requirement and lead free

● Electrical Characteristics

% of Ampere Rating	Opening Time	
	Minimum	Maximum
100%	4 hr	N/A
135%	N/A	1800 sec
200%	N/A	5 sec

● Dimension



Dimension (mm)			
L	ΦD	I	Φd
21±1	5.7±0.15	30±2.0	0.6±0.05

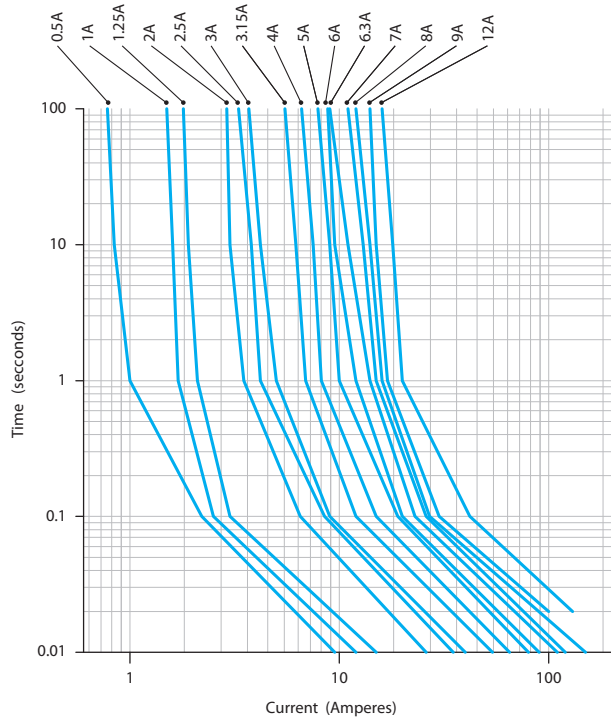
● Type Designation

5GG	250	F	L/H	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250:250V	F:Fast-Acting	L:Low H:High	1A00:1A

● Agency Approval

Agency	Item	File No.
	0.5A ~ 1A, 2A ~ 3.15A, 4A ~ 7A	E238986

● Average Time Current Curve



● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Norminal Melting I²T (A²sec)	Norminal Resistance Cold (Ω)
5GG250FLA500	500m	250	0.288	0.2582
5GG250FL1A00	1		1.15	0.1317
5GG250FH1A25	1.25		1.66	0.0946
5GG250FH2A00	2		4.6	0.0591
5GG250FH2A50	2.5		7.2	0.0422
5GG250FH3A00	3		10.37	0.0342
5GG250FH3A15	3.15		11.43	0.0316
5GG250FH4A00	4		18.43	0.0228
5GG250FH5A00	5		28.8	0.0182
5GG250FH6A00	6		41.47	0.0158
5GG250FH6A30	6.3		45.72	0.0149
5GG250FH7A00	7		56.45	0.0124
5GG250FH8A00	8		73.72	0.0108
5GG250FH9A00	9		93.3	0.0094
5GG250FH12A0	12		133.1	0.0063

● Performance

Test Items	Performance Requirements	Test Methods	
Operation Temperature	Not operate	-40℃ ±5℃, to +85℃ ±5℃	
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 ℃ ~ 35 ℃ for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton	
Test at Temperature	Not operate	Rated current at 70 ℃ ambient temperature for 1 hours burnfuse behavior should not be experimented with.	
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of rated current 1.2In (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.	
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	0.5A~1A	250V / 35A
		1.25A~3.5A	250V / 100A
		4A~15A	250V / 200A
		0.5A~15A	125V / 1000A
Insulation	0.1MΩ minimum	500V dc Insulation tester	



The 6GG Fast acting Fuse with glass body construction permits higher interrupting ratings and voltage ratings. Ideal for applications where high current loads are expected.

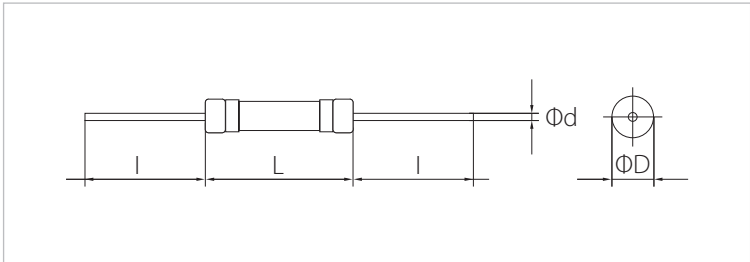
● Features

- In accordance with UL standard 248-14
- Available in cartridge and axial lead format and with various forming dimensions
- RoHS requirement and lead free

● Electrical Characteristics

% of Ampere Rating	Opening Time	
	Minimum	Maximum
100%	4 hr	N/A
135%	N/A	1800 sec
200%	N/A	5 sec

● Dimension



Dimension (mm)			
L	ΦD	I	Φd
32.4±1	6.8±0.5	30±2.0	0.8±0.1

● Type Designation

6GG	250	F	H/L	1A00
Products Code	Voltage Rating	Characteristic	Style (Breaking)	Ampere Rating
	250V	F:Fast-Acting	L:Low H:High	1A

● Agency Approval

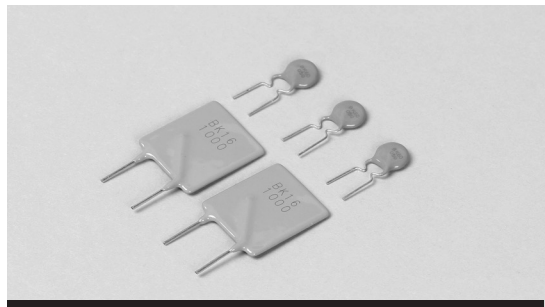
Agency	Item	File No.
	1A, 2.5A	E238986

● Characteristic

Part Number	Ampere Rating (A)	Voltage Rating (V)	Norminal Melting I²T (A²sec)	Norminal Resistance Cold (Ω)
6GG250FLA500	500m	250	0.11	1280
6GG250FL1A00	1		1.4	160
6GG250FH1A25	1.25		2.5	110
6GG250FH1A60	1.6		4.4	80
6GG250FH2A00	2		7.6	63
6GG250FH2A50	2.5		13	47
6GG250FH3A00	3		23	35
6GG250FH3A50	3.5		31	30
6GG250FH4A00	4		40	26
6GG250FH5A00	5		70	20
6GG250FH6A00	6		123	15
6GG250FH7A00	7		162	13
6GG250FH8A00	8		214	11
6GG250FH10A0	10		372	9
6GG250FH12A00	12		597	7
6GG250FH15A0	15		1023	6

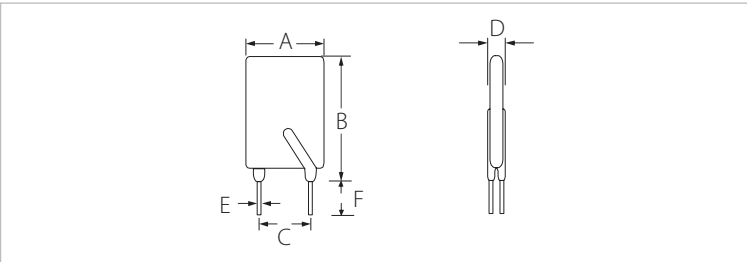
● Performance

Test Items	Performance Requirements	Test Methods	
Operation Temperature	Not operate	-40℃ ±5℃, to +85℃ ±5℃	
Tensile Strength Test	Mustn't be loosed or separated	Sample temperature between 15 ℃ ~ 35 ℃ for 24 hours in the water Immerse. Fix the body of the test product. After pull the lead wire by 10 Newton	
Test at Temperature	Not operate	Rated current at 70 ℃ ambient temperature for 1 hours burnfuse behavior should not be experimented with.	
Endurance	The voltage drop increase shall be less than 10% of the Value before the test.	100 cycles of rated current 1.2In (d .c.) carry for 1hr, then switch off for 15min. Followed by 1hr at 1.5 In.	
Breaking Capacity	It must be done without black spots on the end caps, small deformation of the end caps, and cracking of the fuse-link.	0.5A~1A	250V / 35A
		1.25A~3.5A	250V / 100A
		4A~15A	250V / 200A
		0.5A~15A	125V / 1000A
Insulation	0.1MΩ minimum	500V dc Insulation tester	



- Features
- Radial leaded devices.
 - Faster tripping, typical application in micro-motors for automobiles.
 - Protecting against over-current and over-temperature faults
 - Available in lead-free version.
- Storage Recommendations
- Storage Temperature : -10 °C ~+40°C
 - Relative Humidity : ≤80%RH
 - Keep away from corrosive atmosphere and sunlight.
 - Period of Storage: 1 year.

● Dimension



Part Number	A	B	C	D	E	F
	Max.	Max.	± 0.6	Max.	Typ.	Min.
BK 16 300	9.0	12.0	5.1	3.1	0.8	7.6
BK 16 400	10.0	13.0	5.1	3.1	0.8	7.6
BK 16 500	10.7	15.0	5.1	3.1	0.8	7.6
BK 16 600	13.5	15.0	5.1	3.1	0.8	7.6
BK 16 700	13.5	18.0	5.1	3.1	0.8	7.6
BK 16 800	14.5	20.0	5.1	3.1	0.8	7.6
BK 16 900	15.0	23.0	5.1	3.1	0.8	7.6
BK 16 1000	18.0	24.5	10.5	3.1	0.8	7.6
BK 16 1100	18.0	24.5	10.5	3.1	0.8	7.6
BK 16 1200	22.5	25.0	10.5	3.1	0.8	7.6
BK 16 1400	24.0	28.0	10.5	3.1	0.8	7.6

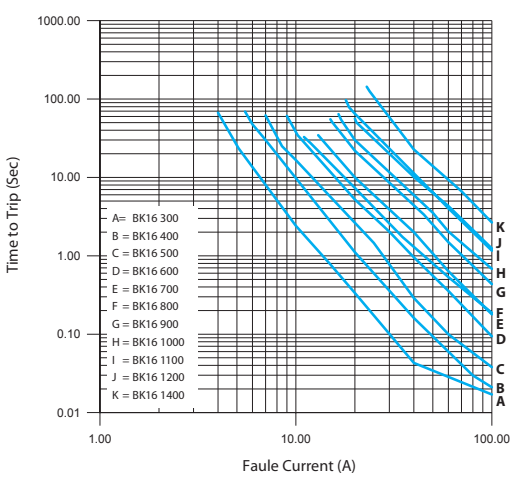
● Type Designation

PTC	BK	16	300
Products Code	Type	Rated Voltage	Ampere Rating
	BK: Bulk Lead Type	16: 16V	300 : 3A 1400 : 14A

● Thermal Derating Chart - I_H(A)

Part Number	Maximum Ambient Operating Temperatures (°C)								
	-20	0	25	30	40	50	60	70	85
BK 16 300	3.96	3.60	3.00	2.88	2.64	2.40	2.13	1.83	1.56
BK 16 400	5.28	4.80	4.00	3.84	3.52	3.20	2.84	2.44	2.08
BK 16 500	6.60	6.00	5.00	4.80	4.40	4.00	3.55	3.05	2.60
BK 16 600	7.92	7.20	6.00	5.76	5.28	4.80	4.26	3.66	3.12
BK 16 700	9.24	8.40	7.00	6.72	6.16	5.60	4.97	4.27	3.64
BK 16 800	10.56	9.60	8.00	7.68	7.04	6.40	5.68	4.88	4.16
BK 16 900	11.88	10.80	9.00	8.64	7.92	7.20	6.39	5.49	4.68
BK 16 1000	13.20	12.00	10.00	9.60	8.80	8.00	7.10	6.10	5.20
BK 16 1100	14.52	13.20	11.00	10.56	9.68	8.80	7.81	6.71	5.72
BK 16 1200	15.84	14.40	12.00	11.52	10.56	9.60	8.52	7.32	6.24
BK 16 1400	18.48	16.80	14.00	13.44	12.32	11.20	9.94	8.54	7.28

● Thermal Derating Chart - I_H(A)



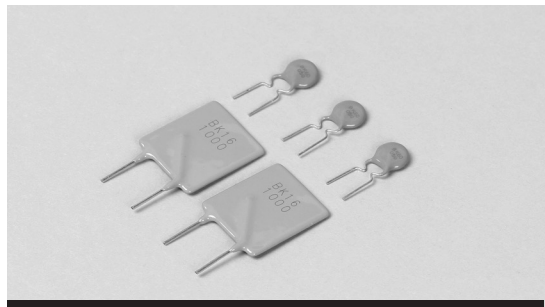
● Electrical Characteristics

Part Number	I _H (A)	V _{MAX} (V)	I _{MAX} (A)	R _{MAX} (Ω)	R _{MIN} (Ω)	P _{dtyp} (W)
BK 16 300	3.0	16	100	0.072	0.020	2.3
BK 16 400	4.0	16	100	0.043	0.018	2.4
BK 16 500	5.0	16	100	0.030	0.014	2.6
BK 16 600	6.0	16	100	0.025	0.009	2.8
BK 16 700	7.0	16	100	0.019	0.008	3.0
BK 16 800	8.0	16	100	0.0145	0.006	3.0
BK 16 900	9.0	16	100	0.012	0.004	3.3
BK 16 1000	10.0	16	100	0.011	0.004	3.7
BK 16 1100	11.0	16	100	0.010	0.003	3.7
BK 16 1200	12.0	16	100	0.009	0.003	4.2
BK 16 1400	14.0	16	100	0.008	0.003	4.2

- I_H= Hold current: maximum current at which the device will not trip at 25 °C still air.
- V_{MAX}= Maximum voltage device can withstand without damage at rated current.
- I_{MAX}= Maximum fault current device can withstand without damage at rated voltage.
- R_{MAX}= Maximum device resistance at 25 °C prior to tripping.
- R_{MIN}= Minimum device resistance at 25 °C prior to tripping.
- P_{dtyp}= Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	R _{min} ≤ R ≤ R _{max}	In still air @25
Time to Trip	T ≤ max. Time to trip(T _{trip})	Specified current, V _{max} , 25 °C
Hold Current	No trip	30 min, at I _H
Trip Cycle Life	No arcing or burning	V _{MAX} , I _{MAX} , 100 cycles
Trip Endurance	No arcing or burning	V _{MAX} , 24hours



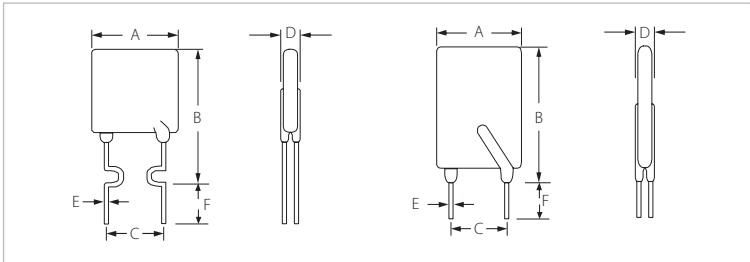
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Dimension



Part Number	A	B	C	D	E	F	style
	Max.	Max.	± 0.6	Max.	Typ.	Min.	
BK 30 090	7.4	14.2	5.1	3.1	0.5	7.6	SI/SZ
BK 30 110	7.4	14.2	5.1	3.1	0.5	7.6	SI/SZ
BK 30 135	9.2	15.8	5.1	3.1	0.5	7.6	SI
BK 30 160	9.5	16.5	5.1	3.1	0.5	7.6	SI
BK 30 185	9.8	18.6	5.1	3.1	0.5	7.6	SI
BK 30 200	15.2	17.2	5.1	3.1	0.5	7.6	SI
BK 30 250	13.2	20.5	5.1	3.1	0.5	7.6	SI
BK 30 300	13.2	17.3	5.1	3.1	0.8	7.6	SZ
BK 30 400	14.0	20.1	5.6	3.1	0.8	7.6	SZ
BK 30 500	14.0	20.1	10.5	3.1	0.8	7.6	SZ
BK 30 600	17.5	24.9	10.5	3.1	0.8	7.6	SZ
BK 30 700	17.5	24.9	10.5	3.1	0.8	7.6	SZ
BK 30 800	23.5	29.2	10.5	3.1	0.8	7.6	SZ
BK 30 900	24.3	29.7	10.5	3.1	0.8	7.6	SZ

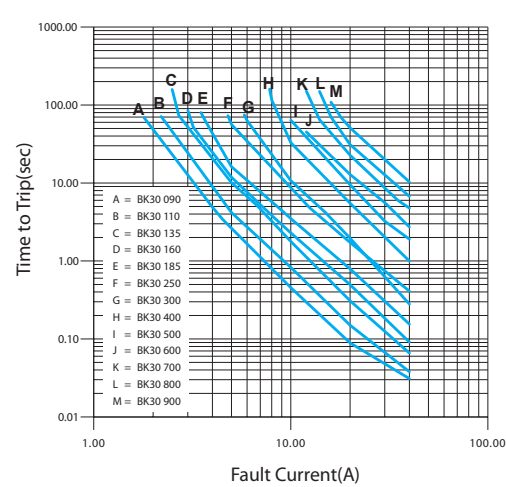
● Type Designation

PTC	BK	30	090
Products Code	Type	Rated Voltage	Ampere Rating
	BK: Bulk Lead Type	30:30V	090 : 0.9A 900 : 9A00

● Thermal Derating Chart - I_H(A)

Part Number	Maximum Ambient Operating Temperatures (°C)								
	-20	0	25	30	40	50	60	70	85
BK 30 090	1.17	1.04	0.90	0.82	0.75	0.69	0.61	0.55	0.47
BK 30 110	1.43	1.27	1.10	1.00	0.91	0.85	0.75	0.67	0.57
BK 30 135	1.76	1.55	1.35	1.23	1.12	1.04	0.92	0.82	0.70
BK 30 160	2.08	1.84	1.60	1.46	1.33	1.23	1.09	0.98	0.83
BK 30 185	2.41	2.13	1.85	1.68	1.54	1.42	1.26	1.13	0.96
BK 30 200	2.60	2.30	2.00	1.82	1.66	1.54	1.36	1.22	1.04
BK 30 250	3.25	2.88	2.50	2.28	2.08	1.93	1.70	1.53	1.30
BK 30 300	3.90	3.45	3.00	2.73	2.49	2.31	2.04	1.83	1.56
BK 30 400	5.20	4.60	4.00	3.64	3.32	3.08	2.72	2.44	2.08
BK 30 500	6.50	5.75	5.00	4.55	4.15	3.85	3.40	3.05	2.60
BK 30 600	7.80	6.90	6.00	5.46	4.98	4.62	4.08	3.66	3.12
BK 30 700	9.10	8.05	7.00	6.37	5.81	5.39	4.76	4.27	3.64
BK 30 800	10.40	9.20	8.00	7.28	6.64	6.16	5.44	4.88	4.16
BK 30 900	11.70	10.35	9.00	8.19	7.47	6.93	6.12	5.49	4.68

● Thermal Derating Chart - I_H(A)



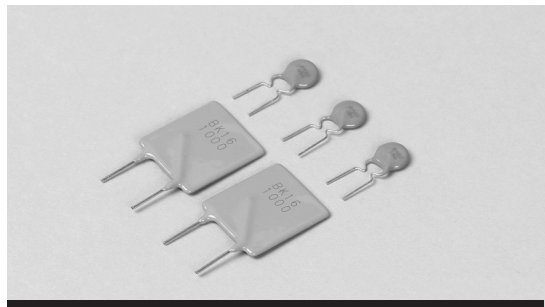
● Electrical Characteristics

Part Number	I _H (A)	V _{MAX} (V)	I _{MAX} (A)	R _{MAX} (Ω)	R _{MIN} (Ω)	Pd _{typ} (W)
BK 30 090	0.90	30	40	0.220	0.090	0.60
BK 30 110	1.10	30	40	0.200	0.070	0.70
BK 30 135	1.35	30	40	0.160	0.055	0.80
BK 30 160	1.60	30	40	0.140	0.045	0.90
BK 30 185	1.85	30	40	0.120	0.035	1.00
BK 30 200	2.00	30	40	0.100	0.040	1.20
BK 30 250	2.50	30	40	0.080	0.027	1.20
BK 30 300	3.00	30	40	0.070	0.022	2.00
BK 30 400	4.00	30	40	0.060	0.010	2.50
BK 30 500	5.00	30	40	0.050	0.010	3.00
BK 30 600	6.00	30	40	0.040	0.005	3.50
BK 30 700	7.00	30	40	0.030	0.005	3.80
BK 30 800	8.00	30	40	0.025	0.005	4.00
BK 30 900	9.00	30	40	0.020	0.005	4.20

- I_H= Hold current: maximum current at which the device will not trip at 25 °C still air.
- V_{MAX}= Maximum voltage device can withstand without damage at rated current.
- I_{MAX}= Maximum fault current device can withstand without damage at rated voltage.
- R_{MAX}= Maximum device resistance at 25 °C prior to tripping.
- R_{MIN}= Minimum device resistance at 25 °C prior to tripping.
- Pd_{typ}= Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	R _{min} ≤ R ≤ R _{max}	In still air @25
Time to Trip	T ≤ max. Time to trip(T _{trip})	Specified current, V _{max} , 25 °C
Hold Current	No trip	30 min, at I _H
Trip Cycle Life	No arcing or burning	V _{MAX} , I _{MAX} , 100 cycles
Trip Endurance	No arcing or burning	V _{MAX} , 24hours



● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

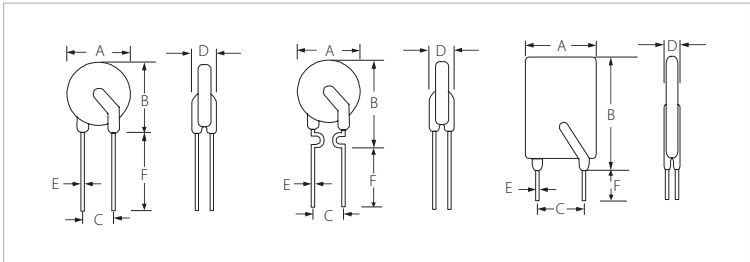
● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Thermal Derating Chart - I_H(A)

Part Number	Maximum Ambient Operating Temperatures (°C)								
	-20	0	25	30	40	50	60	70	85
BK 60 005	0.07	0.06	0.05	0.05	0.04	0.04	0.03	0.03	0.02
BK 60 010	0.14	0.12	0.10	0.09	0.08	0.07	0.06	0.15	0.04
BK 60 017	0.23	0.20	0.14	0.15	0.14	0.12	0.11	0.19	0.07
BK 60 020	0.27	0.24	0.20	0.18	0.16	0.14	0.13	0.11	0.08
BK 60 025	.034	0.30	0.25	0.23	0.20	0.18	0.16	0.14	0.10
BK 60 030	0.41	0.36	0.30	0.27	0.24	0.22	0.19	0.16	0.12
BK 60 040	0.54	0.48	0.40	0.36	0.32	0.29	0.25	0.22	0.16
BK 60 050	0.68	0.60	0.50	0.45	0.41	0.36	0.32	0.27	0.20
BK 60 065	0.88	0.77	0.65	0.59	0.53	0.47	0.41	0.35	0.26
BK 60 075	1.02	0.89	0.75	0.68	0.61	0.54	0.47	0.41	0.30
BK 60 090	1.22	1.07	0.90	0.81	0.73	0.65	0.57	0.49	0.36
BK 60 110(SZ)	1.50	1.31	1.10	0.99	0.89	0.79	0.69	0.59	0.44
BK 60 110(DZ)	1.50	1.31	1.10	0.99	0.89	0.79	0.69	0.59	0.44
BK 60 135	1.84	1.61	1.35	1.22	1.09	0.97	0.85	0.73	0.54
BK 60 160	2.18	1.90	1.60	1.44	1.30	1.15	1.01	0.86	0.64
BK 60 185	2.52	2.20	1.85	1.67	1.50	1.33	1.17	1.00	0.74
BK 60 250	3.40	2.98	2.50	2.25	2.03	1.80	1.58	1.35	1.00
BK 60 300	4.08	3.57	3.00	2.70	2.43	2.18	1.89	1.62	1.20
BK 60 375	5.10	4.46	3.75	3.38	3.04	2.70	2.36	2.03	1.50

● Dimension

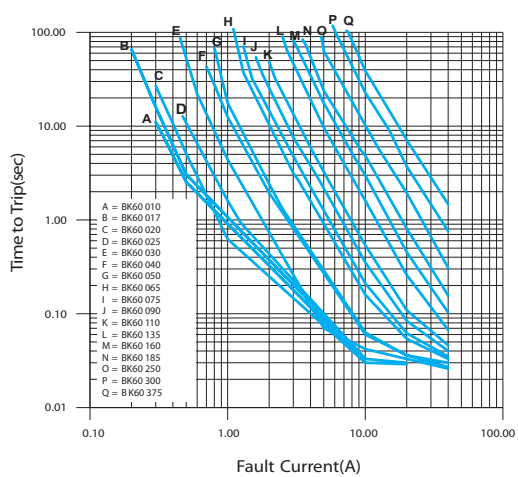


Part Number	A	B	C	D	E	F	style
	Max.	Max.	± 0.6	Max.	Typ.	Min.	
BK 60 005	6.0	8.5	5.1	3.1	0.5	7.6	DZ
BK 60 010	6.0	9.5	5.1	3.1	0.5	7.6	DZ
BK 60 017	7.4	12.7	5.1	3.1	0.5	7.6	DZ
BK 60 020	7.4	12.7	5.1	3.1	0.5	7.6	DZ
BK 60 025	7.4	12.7	5.1	3.1	0.5	7.6	DZ
BK 60 030	7.4	13.0	5.1	3.1	0.5	7.6	DZ
BK 60 040	7.4	14.2	5.1	3.1	0.5	7.6	DI
BK 60 050	7.5	14.5	5.1	3.1	0.5	7.6	DI
BK 60 065	9.4	16.1	5.1	3.1	0.5	7.6	DI
BK 60 075	10.2	16.8	5.1	3.1	0.5	7.6	DI
BK 60 090	11.2	18.0	5.1	3.1	0.5	7.6	DI
BK 60 110(SZ)	11.0	18.0	5.1	3.1	0.8	7.6	DZ
BK 60 110(DZ)	13.0	18.0	5.1	3.1	0.8	7.6	DZ
BK 60 135	14.5	19.6	5.1	3.1	0.8	7.6	DZ
BK 60 160	16.3	21.3	5.1	3.1	0.8	7.6	DZ
BK 60 185	17.5	22.9	5.1	3.1	0.8	7.6	DZ
BK 60 250	21.6	26.6	10.5	3.1	0.8	7.6	DZ
BK 60 300	24.8	30.0	10.5	3.1	0.8	7.6	DZ
BK 60 375	27.2	32.0	10.5	3.1	0.8	7.6	DZ

● Type Designation

PTC	BK	60	005
Products Code	Type	Rated Voltage	Ampere Rating
	BK:Bulk Lead Type	60:60V	005 : 0.05A 375 : 3.75A

● Thermal Derating Chart - I_H(A)



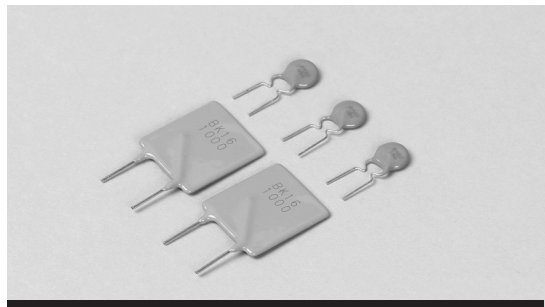
● Electrical Characteristics

Part Number	I _H (A)	V _{MAX} (V)	I _{MAX} (A)	R _{MAX} (Ω)	R _{MIN} (Ω)	P _{dtyp} (W)
BK 60 005	0.05	60	40	25.0	7.50	0.30
BK 60 010	0.10	60	40	7.50	2.50	0.38
BK 60 017	0.17	60	40	5.80	1.80	0.48
BK 60 020	0.20	60	40	3.30	1.50	0.41
BK 60 025	0.25	60	40	2.20	1.00	0.45
BK 60 030	0.30	60	40	1.55	0.70	0.49
BK 60 040	0.40	60	40	1.10	0.50	0.56
BK 60 050	0.50	60	40	0.85	0.35	0.77
BK 60 065	0.65	60	40	0.65	0.30	0.88
BK 60 075	0.75	60	40	0.55	0.25	0.92
BK 60 090	0.90	60	40	0.45	0.20	0.99
BK 60 110(SZ)	1.10	60	40	0.33	0.15	1.50
BK 60 110(DZ)	1.10	60	40	0.33	0.15	1.50
BK 60 135	1.35	60	40	0.27	0.12	1.70
BK 60 160	1.60	60	40	0.22	0.09	1.90
BK 60 185	1.85	60	40	0.18	0.08	2.10
BK 60 250	2.50	60	40	0.11	0.05	2.50
BK 60 300	3.00	60	40	0.09	0.04	2.80
BK 60 375	3.75	60	40	0.08	0.03	3.20

- I_H= Hold current: maximum current at which the device will not trip at 25 °C still air.
- V_{MAX}= Maximum voltage device can withstand without damage at rated current.
- I_{MAX}= Maximum fault current device can withstand without damage at rated voltage.
- R_{MAX}= Maximum device resistance at 25 °C prior to tripping.
- R_{MIN}= Minimum device resistance at 25 °C prior to tripping.
- P_{dtyp}= Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	R _{min} ≤ R ≤ R _{max}	In still air @25
Time to Trip	T ≤ max. Time to trip(T _{trip})	Specified current, V _{max} , 25 °C
Hold Current	No trip	30 min, at I _H
Trip Cycle Life	No arcing or burning	V _{MAX} , I _{MAX} , 100 cycles
Trip Endurance	No arcing or burning	V _{MAX} , 24hours



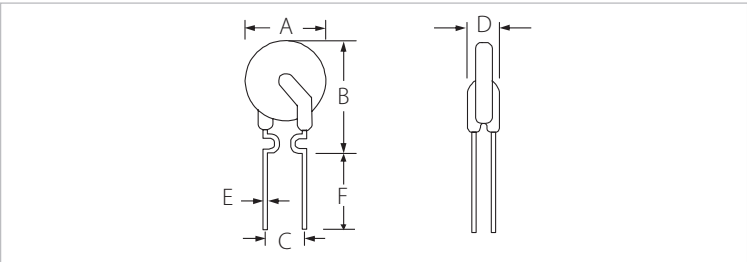
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Dimension



Part Number	A	B	C	D	E	F
	Max.	Max.	± 0.6	Max.	Typ.	Min.
BK 90 150	4.8	12.7	5.1	3.0	0.6	7.6
BK 90 200	5.4	13.0	5.1	3.0	0.6	7.6
BK 90 250	6.2	13.7	5.1	3.0	0.6	7.6
BK 90 350	7.8	14.5	5.1	3.0	0.6	7.6
BK 90 550	9.7	15.8	5.1	3.0	0.6	7.6
BK 90 750	11.2	18.0	5.1	3.0	0.6	7.6
BK 90 900	12.8	19.6	5.1	3.0	0.6	7.6

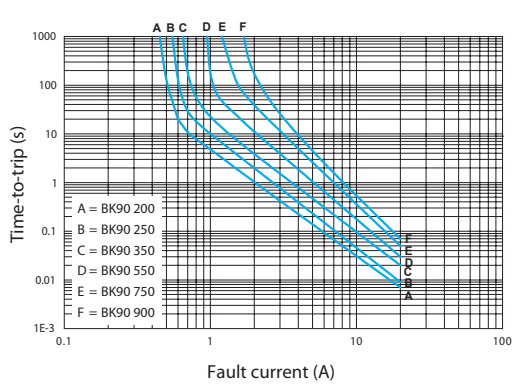
● Type Designation

PTC	BK	90	150
Products Code	Type	Rated Voltage	Ampere Rating
	BK: Bulk Lead Type	90: 90V	150 : 0.15A 900 : 0.9A

● Thermal Derating Chart - I_H(A)

Part Number	Maximum Ambient Operating Temperatures (°C)								
	-20	0	25	30	40	50	60	70	85
BK 90 150	0.204	0.179	0.150	0.138	0.122	0.108	0.095	0.081	0.060
BK 90 200	0.272	0.238	0.200	0.184	0.162	0.144	0.126	0.108	0.080
BK 90 250	0.340	0.298	0.250	0.230	0.203	0.180	0.158	0.135	0.100
BK 90 350	0.476	0.417	0.350	0.322	0.284	0.252	0.221	0.189	0.140
BK 90 550	0.748	0.655	0.550	0.506	0.446	0.396	0.347	0.297	0.220
BK 90 750	1.020	0.983	0.750	0.690	0.608	0.540	0.473	0.405	0.300
BK 90 900	1.244	1.071	0.900	0.828	0.729	0.648	0.567	0.486	0.360

● Thermal Derating Chart - I_H(A)



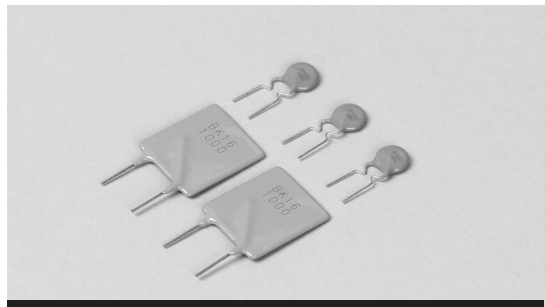
● Electrical Characteristics

Part Number	I _H	V _{MAX}	I _{MAX}	R _{MAX}	R _{MIN}	Pd _{typ}
	(A)	(V)	(A)	(Ω)	(Ω)	(W)
BK 90 150	0.15	90	20	3.00	1.50	1.65
BK 90 200	0.20	90	20	2.50	1.00	1.70
BK 90 250	0.25	90	20	2.00	0.80	1.75
BK 90 350	0.35	90	20	1.20	0.60	1.80
BK 90 550	0.55	90	20	0.90	0.35	2.00
BK 90 750	0.75	90	20	0.60	0.20	2.50
BK 90 900	0.90	90	20	0.50	0.10	3.00

- I_H= Hold current: maximum current at which the device will not trip at 25 °C still air.
- V_{MAX}= Maximum voltage device can withstand without damage at rated current.
- I_{MAX}= Maximum fault current device can withstand without damage at rated voltage.
- R_{MAX}= Maximum device resistance at 25 °C prior to tripping.
- R_{MIN}= Minimum device resistance at 25 °C prior to tripping.
- Pd_{typ}= Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

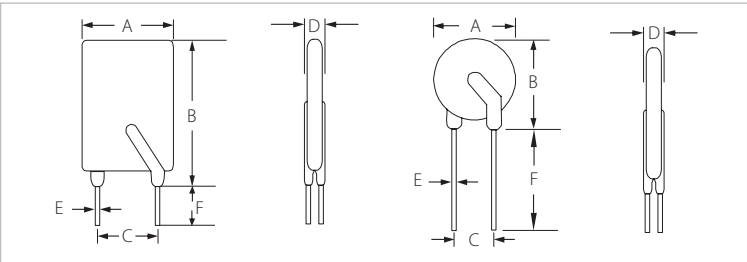
● Performance

Test Items	Performance Requirements	Test Methods
Resistance	R _{min} ≤ R ≤ R _{max}	In still air @25
Time to Trip	T ≤ max. Time to trip(T _{trip})	Specified current, V _{max} , 25 °C
Hold Current	No trip	30 min, at I _H
Trip Cycle Life	No arcing or burning	V _{MAX} , I _{MAX} , 100 cycles
Trip Endurance	No arcing or burning	V _{MAX} , 24hours



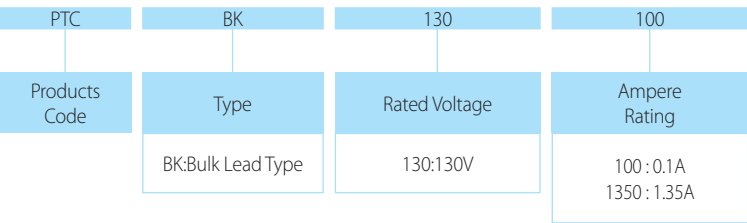
- Features
- Radial leaded devices.
 - Faster tripping, typical application in micro-motors for automobiles.
 - Protecting against over-current and over-temperature faults
 - Available in lead-free version.
- Storage Recommendations
- Storage Temperature : -10 °C ~+40°C
 - Relative Humidity : ≤80%RH
 - Keep away from corrosive atmosphere and sunlight.
 - Period of Storage: 1 year.

●Dimension



Part Number	A	B	C	D	E	F	style
	Max.	Max.	± 0.6	Max.	Typ.	Min.	
BK 130 100	8.3	10.7	5.1	3.8	0.5	7.6	DZ
BK 130 120	8.3	10.7	5.1	3.8	0.5	7.6	DZ
BK 130 160	8.5	12.5	5.1	3.8	0.5	7.6	DZ
BK 130 200	9.6	17.4	5.1	3.8	0.6	7.6	SZ
BK 130 250	9.6	17.4	5.1	3.8	0.6	7.6	SZ
BK 130 300	9.6	17.5	5.1	3.8	0.6	7.6	SZ
BK 130 400	11.4	19.5	5.1	3.8	0.6	7.6	SZ
BK 130 500	11.5	21.7	5.1	3.8	0.6	7.6	SZ
BK 130 650	14.0	21.7	5.1	3.8	0.5	7.6	SZ
BK 130 750	14.0	21.7	5.1	3.8	0.5	7.6	SZ
BK 130 900	14.0	21.7	5.1	3.8	0.5	7.6	SZ
BK 130 1100	14.0	16.2	5.1	3.8	0.8	7.6	DZ
BK 130 1350	18.0	25.0	5.1	3.8	0.8	7.6	SZ

●Type Designation



●Thermal Derating Chart - I_H(A)

Part Number	Maximum Ambient Operating Temperatures (°C)								
	-20	0	25	30	40	50	60	70	85
BK 130 100	0.14	0.12	0.10	0.09	0.08	0.07	0.06	0.05	0.04
BK 130 120	0.16	0.14	0.12	0.11	0.10	0.09	0.08	0.06	0.05
BK 130 160	0.22	0.19	0.16	0.15	0.13	0.12	0.10	0.09	0.06
BK 130 200	0.27	0.24	0.20	0.18	0.16	0.14	0.13	0.11	0.08
BK 130 250	0.34	0.30	0.25	0.23	0.21	0.18	0.16	0.14	0.10
BK 130 300	0.41	0.36	0.30	0.27	0.25	0.22	0.19	0.16	0.12
BK 130 400	0.55	0.48	0.40	0.36	0.33	0.29	0.25	0.22	0.16
BK 130 500	0.69	0.60	0.50	0.45	0.41	0.36	0.32	0.27	0.21
BK 130 650	0.89	0.77	0.65	0.59	0.53	0.47	0.41	0.35	0.27
BK 130 750	1.03	0.89	0.75	0.68	0.62	0.54	0.47	0.41	0.31
BK 130 900	1.23	1.07	0.90	0.81	0.74	0.65	0.57	0.49	0.37
BK 130 1100	1.51	1.31	1.10	0.99	0.90	0.79	0.69	0.59	0.45
BK 130 1350	1.85	1.61	1.35	1.22	1.11	0.97	0.85	0.73	0.55

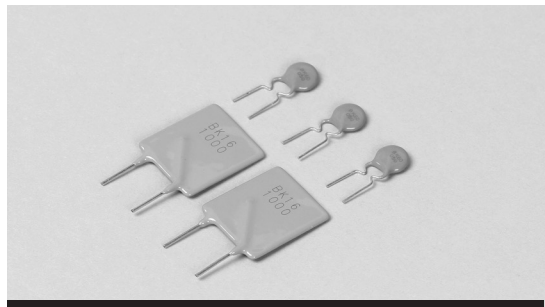
●Electrical Characteristics

Part Number	I _H	V _{MAX}	I _{MAX}	R _{MAX}	R _{MIN}
	(A)	(V)	(A)	(Ω)	(Ω)
BK 130 100	0.10	130	20	18.0	9.0
BK 130 120	0.12	130	20	12.0	6.0
BK 130 160	0.16	130	20	7.5	3.5
BK 130 200	0.20	130	20	5.0	2.5
BK 130 250	0.25	130	20	3.8	1.9
BK 130 300	0.30	130	20	2.6	1.3
BK 130 400	0.40	130	20	1.8	0.9
BK 130 500	0.50	130	20	1.6	0.8
BK 130 650	0.65	130	20	1.0	0.5
BK 130 750	0.75	130	20	0.8	0.4
BK 130 900	0.90	130	20	0.6	0.3
BK 130 1100	1.10	130	20	0.5	0.3
BK 130 1350	1.35	130	20	0.4	0.2

- I_H= Hold current: maximum current at which the device will not trip at 25 °C still air.
- V_{MAX}= Maximum voltage device can withstand without damage at rated current.
- I_{MAX}= Maximum fault current device can withstand without damage at rated voltage.
- R_{MAX}= Maximum device resistance at 25 °C prior to tripping.
- R_{MIN}= Minimum device resistance at 25 °C prior to tripping.
- Pd_{typ}= Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

●Performance

Test Items	Performance Requirements	Test Methods
Resistance	R _{min} ≤ R ≤ R _{max}	In still air @25
Time to Trip	T ≤ max. Time to trip(T _{trip})	Specified current, V _{max} , 25 °C
Hold Current	No trip	30 min, at I _H
Trip Cycle Life	No arcing or burning	V _{MAX} , I _{MAX} , 100 cycles
Trip Endurance	No arcing or burning	V _{MAX} , 24hours



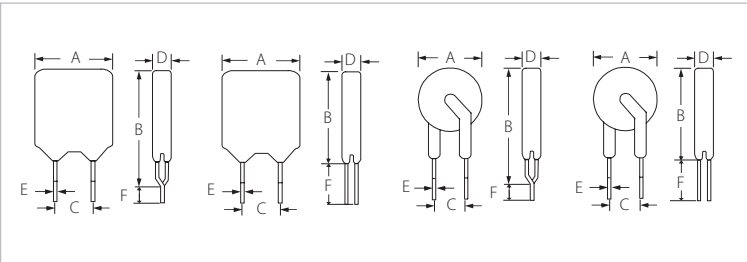
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Dimension



Part Number	A	B	C	D	E	F	style
	Max.	Max.	± 0.6	Max.	Typ.	Min.	
BK 250 030	6.0	8.0	5.1	4.6	0.6	7.6	DZ
BK 250 040	7.4	12.7	5.1	4.6	0.6	7.6	DY/DZ
BK 250 060	7.4	12.7	5.1	4.6	0.6	7.6	DY/DZ
BK 250 080	7.4	12.7	5.1	4.6	0.6	7.6	DY/DZ
BK 250 090	7.4	12.7	5.1	4.6	0.6	7.6	DY/DZ
BK 250 110	7.0	10.5	5.1	4.6	0.6	7.6	SY/SZ
BK 250 120	7.0	10.5	5.1	4.6	0.6	7.6	SY/SZ
BK 250 145	7.5	11.0	5.1	4.6	0.6	7.6	SY/SZ
BK 250 180	10.5	14.5	5.1	4.6	0.6	7.6	SY/SZ
BK 250 200	10.5	17.0	5.1	4.6	0.6	7.6	SZ/DZ
BK 250 400	11.2	17.0	5.1	4.6	0.8	7.6	SZ
BK 250 600	16.0	18.0	5.1	4.6	0.8	7.6	SZ
BK 250 800	20.0	22.0	5.1	4.6	0.8	7.6	SZ

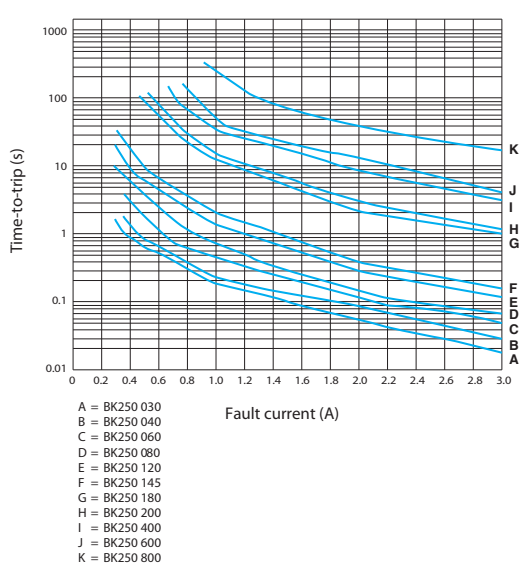
● Type Designation

PTC	BK	250	030
Products Code	Type	Rated Voltage	Ampere Rating
	BK: Bulk Lead Type	250: 250V	030: 0.03A 800: 0.8A

● Thermal Derating Chart - I_H(A)

Part Number	Maximum Ambient Operating Temperatures (°C)								
	-20	0	25	30	40	50	60	70	85
BK 250 030	0.040	0.035	0.030	0.027	0.025	0.023	0.020	0.017	0.013
BK 250 040	0.053	0.047	0.040	0.036	0.034	0.031	0.027	0.024	0.019
BK 250 060	0.079	0.070	0.060	0.055	0.051	0.046	0.041	0.037	0.029
BK 250 080	0.106	0.094	0.080	0.073	0.068	0.062	0.054	0.049	0.038
BK 250 090	0.119	0.105	0.090	0.082	0.077	0.069	0.061	0.055	0.043
BK 250 110	0.145	0.129	0.110	0.100	0.094	0.085	0.075	0.067	0.053
BK 250 120	0.158	0.140	0.120	0.109	0.102	0.092	0.082	0.073	0.058
BK 250 145	0.191	0.170	0.145	0.132	0.123	0.112	0.099	0.088	0.070
BK 250 180	0.238	0.211	0.180	0.164	0.153	0.139	0.122	0.110	0.086
BK 250 200	0.264	0.234	0.200	0.182	0.170	0.54	0.136	0.122	0.096
BK 250 400	0.528	0.468	0.400	0.365	0.340	0.308	0.272	0.244	0.192
BK 250 600	0.792	0.702	0.600	0.546	0.510	0.462	0.408	0.366	0.288
BK 250 800	1.056	0.936	0.800	0.728	0.680	0.616	0.544	0.488	0.384

● Thermal Derating Chart - I_H(A)



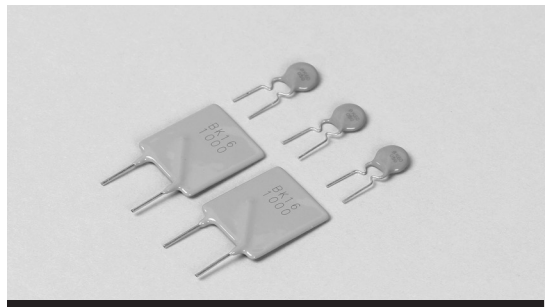
● Electrical Characteristics

Part Number	I _H (A)	V _{MAX} (V)	I _{MAX} (A)	R _{MAX} (Ω)	R _{MIN} (Ω)	Pd _{typ} (W)
BK 250 030	0.030	250	1	90.0	35.0	1.0
BK 250 040	0.040	250	3	65.0	27.0	1.0
BK 250 060	0.060	250	3	45.0	20.0	1.0
BK 250 080	0.080	250	3	22.0	10.0	1.0
BK 250 090	0.090	250	3	20.0	7.0	1.0
BK 250 110	0.110	250	3	12.0	6.0	1.0
BK 250 120	0.120	250	3	10.5	6.0	1.0
BK 250 145	0.145	250	3	6.5	3.5	1.0
BK 250 180	0.180	250	10	3.0	1.0	1.0
BK 250 200	0.200	250	10	6.0	3.0	1.0
BK 250 400	0.400	250	10	3.0	1.0	1.0
BK 250 600	0.600	250	10	2.0	0.6	1.0
BK 250 800	0.800	250	10	1.0	0.4	1.0

- I_H= Hold current: maximum current at which the device will not trip at 25 °C still air.
- V_{MAX}= Maximum voltage device can withstand without damage at rated current.
- I_{MAX}= Maximum fault current device can withstand without damage at rated voltage.
- R_{MAX}= Maximum device resistance at 25 °C prior to tripping.
- R_{MIN}= Minimum device resistance at 25 °C prior to tripping.
- Pd_{typ}= Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	R _{min} ≤ R ≤ R _{max}	In still air @25
Time to Trip	T ≤ max. Time to trip(T _{trip})	Specified current, V _{max} , 25 °C
Hold Current	No trip	30 min, at I _H
Trip Cycle Life	No arcing or burning	V _{MAX} , I _{MAX} , 100 cycles
Trip Endurance	No arcing or burning	V _{MAX} , 24hours



● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

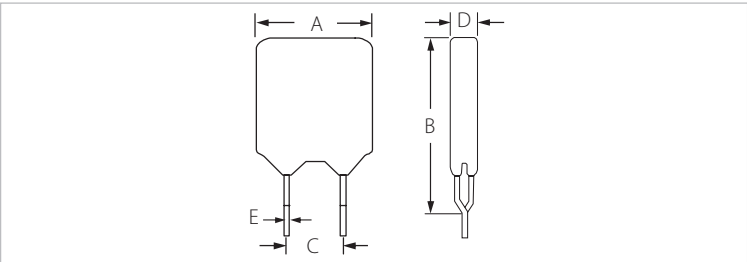
● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Thermal Derating Chart - I_H(A)

Part Number	Maximum Ambient Operating Temperatures (°C)								
	-20	0	25	30	40	50	60	70	85
BK 600 110	152	131	110	100	91	80	70	61	46
BK 600 150	207	179	150	137	125	110	96	83	63
BK 600 160	221	190	160	146	133	117	102	88	67

● Dimension

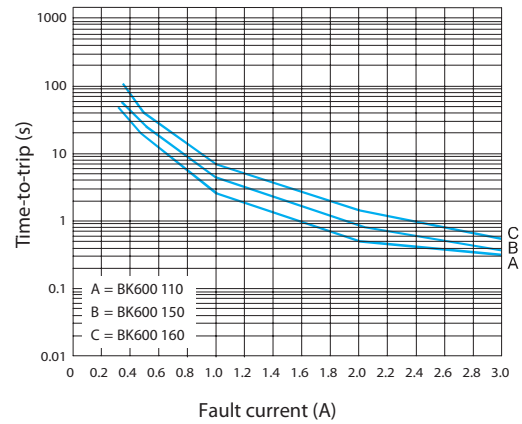


Part Number	A	B	C	D	E	style
	Max.	Max.	± 0.6	Max.	Typ.	
BK 600 110	15.0	15.0	5.1	6.5	0.6	SY
BK 600 150	15.0	15.0	5.1	6.5	0.6	SY
BK 600 160	15.0	15.0	5.1	6.5	0.6	SY

● Type Designation

PTC	BK	600	110
Products Code	Type	Rated Voltage	Ampere Rating
	BK: Bulk Lead Type	600:600V	110: 0.11A

● Thermal Derating Chart - I_H(A)



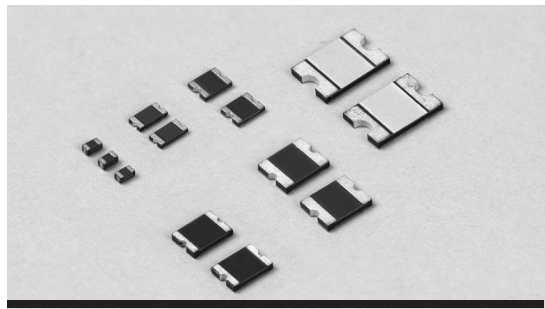
● Electrical Characteristics

Part Number	I _H	V _{MAX}	I _{MAX}	R _{MAX}	R _{MIN}	Pd _{typ}
	(A)	(V)	(A)	(Ω)	(Ω)	(W)
BK 600 110	0.110	500	3	18.0	6.0	1.0
BK 600 150	0.150	500	3	15.0	5.0	1.0
BK 600 160	0.160	500	3	12.0	4.0	1.0

- I_H= Hold current: maximum current at which the device will not trip at 25 °C still air.
- V_{MAX}= Maximum voltage device can withstand without damage at rated current.
- I_{MAX}= Maximum fault current device can withstand without damage at rated voltage.
- R_{MAX}= Maximum device resistance at 25 °C prior to tripping.
- R_{MIN}= Minimum device resistance at 25 °C prior to tripping.
- Pd_{typ}= Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	R _{min} ≤ R ≤ R _{max}	In still air @25
Time to Trip	T ≤ max. Time to trip(T _{trip})	Specified current, V _{max} , 25 °C
Hold Current	No trip	30 min, at I _H
Trip Cycle Life	No arcing or burning	V _{MAX} , I _{MAX} , 100 cycles
Trip Endurance	No arcing or burning	V _{MAX} , 24hours



Sub – Miniature Fuse

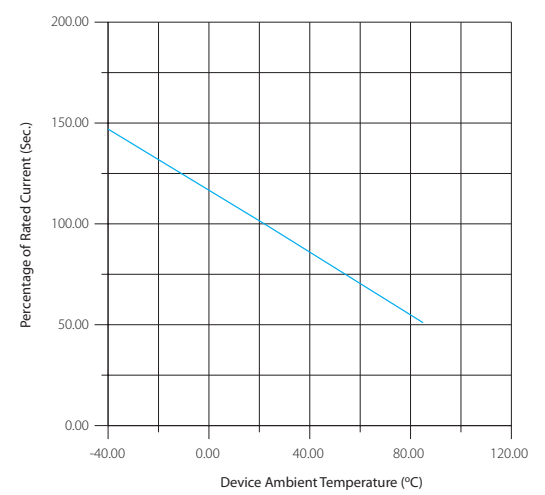
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

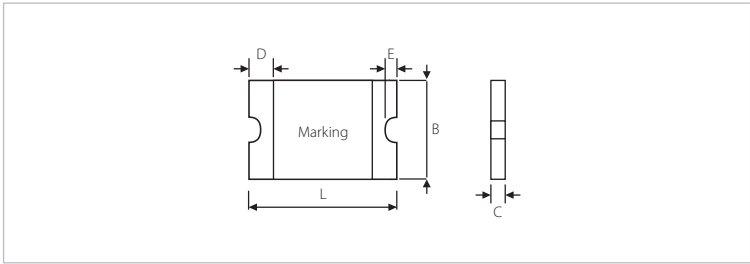
● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Thermal Derating Chart - I_H(A)



● Dimension



Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD 0603 P010	1.40	1.80	0.60	1.00	0.40	0.75	0.15	0.50	0.10	0.40
SMD 0603 P020	1.40	1.80	0.60	1.00	0.40	0.75	0.15	0.50	0.10	0.40
SMD 0603 P025	1.40	1.80	0.60	1.00	0.40	0.75	0.15	0.50	0.10	0.40
SMD 0603 P035	1.40	1.80	0.60	1.00	0.75	1.55	0.15	0.50	0.10	0.40

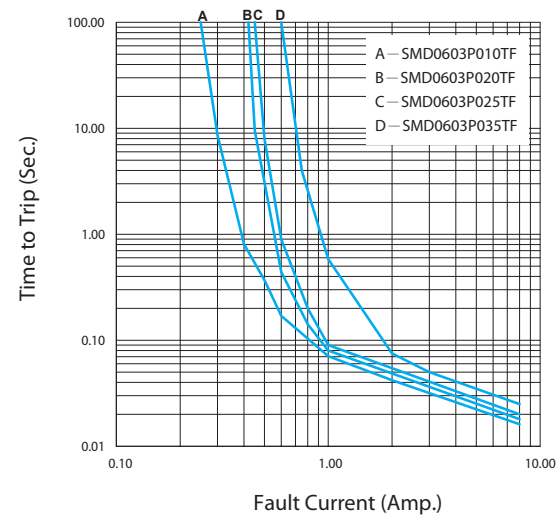
● Type Designation

PTC	SMD	06	P010
Products Code	Type	Dimensions	Ampere Rating
	Surface Mounted Devices	06:0603	P010 : 0.1A P035 : 0.35A

● Agency Approval

Agency	Item	File No.
	0.1A ~ 0.35A	E201431
	0.1A ~ 0.35A	R50099121

● Average Time-Current Curve



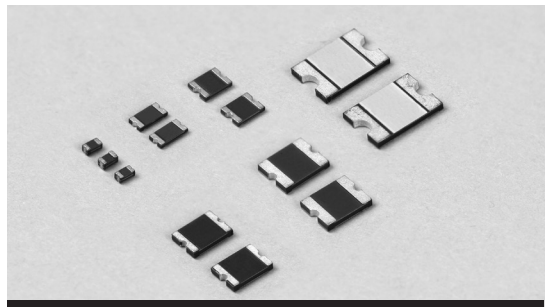
● Electrical Characteristics

Part Number	I _{hold}	I _{trip}	V _{MAX}	I _{MAX}	P _{dmax}	Maximum Time To Trip		Resistance		Operating Temperature	Maximum Device Surface Temperature in Tripped State
	(A)	(A)	(A)	(A)	(A)	Current (A)	Time (A)	R _{MAX} (A)	R _{MIN} (A)	(°C)	(A)
SMD 0603 P100	0.10	0.30	15	40	0.5	0.50	1.00	0.900	6.000	-40 ~ +85	125
SMD 0603 P200	0.20	0.50	9	40	0.5	1.00	0.60	0.550	3.500		
SMD 0603 P250	0.25	0.55	6	40	0.5	8.00	0.08	0.500	3.000		
SMD 0603 P350	0.35	0.75	6	40	0.5	8.00	0.10	0.200	1.000		

- I_{Hold} = Hold current: maximum current device will pass without tripping in 23°C still air.
- I_{trip} = Trip current: minimum current at which the device will trip in 23°C still air.
- V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})
- I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})
- P_d = Power dissipated from device when in the tripped state at 23°C still air.
- R_{min}= Minimum resistance of device in initial (un-soldered) state.
- R_{max}= Maximum resistance of device at 23°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.
- *Value specified were determined using the PWB with 0.020”*1.5oz copper traces.

● Performance

Test Items	Performance Requirements	Test Methods
Passive Aging	±5% typical resistance change	+85°C, 1000 hours
Humidity Aging	±5% typical resistance change	+85°C, 85%R.H. 1000 hours
Thermal Shock	±30% typical resistance change	MIL-STD-202 Method 107G +85°C/-40°C 20 times
Solvent Resistance	No change	MIL-STD-202, Method 215
Vibration	No change	MIL-STD-883C, Method 2007.1, Condition A



Sub – Miniature Fuse

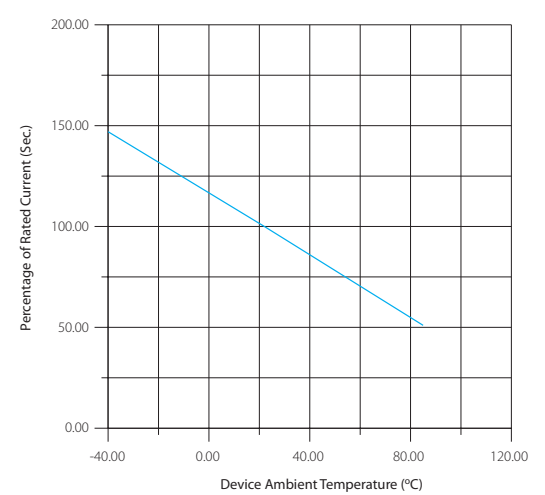
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

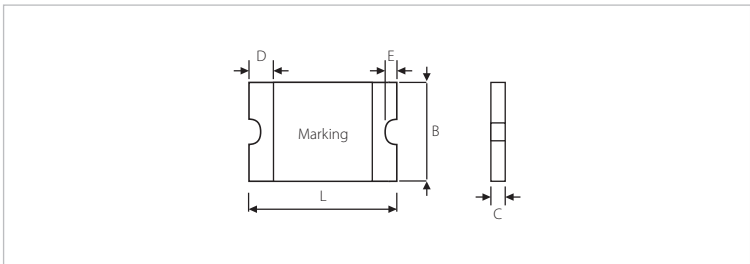
● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Thermal Derating Chart - I_H(A)



● Dimension



Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD 0805 P010	2.00	2.20	1.20	1.50	0.55	1.00	0.20	0.55	0.10	0.45
SMD 0805 P020	2.00	2.20	1.20	1.50	0.55	1.00	0.20	0.55	0.10	0.45
SMD 0805 P035	2.00	2.20	1.20	1.50	0.55	1.00	0.20	0.55	0.10	0.45
SMD 0805 P050	2.00	2.20	1.20	1.50	0.55	1.00	0.20	0.55	0.10	0.45
SMD 0805 P075	2.00	2.20	1.20	1.50	0.55	1.00	0.20	0.55	0.10	0.45
SMD 0805 P100	2.00	2.20	1.20	1.50	0.55	1.00	0.20	0.55	0.10	0.45
SMD 0805 P110	2.00	2.20	1.20	1.50	0.55	1.00	0.20	0.55	0.10	0.45

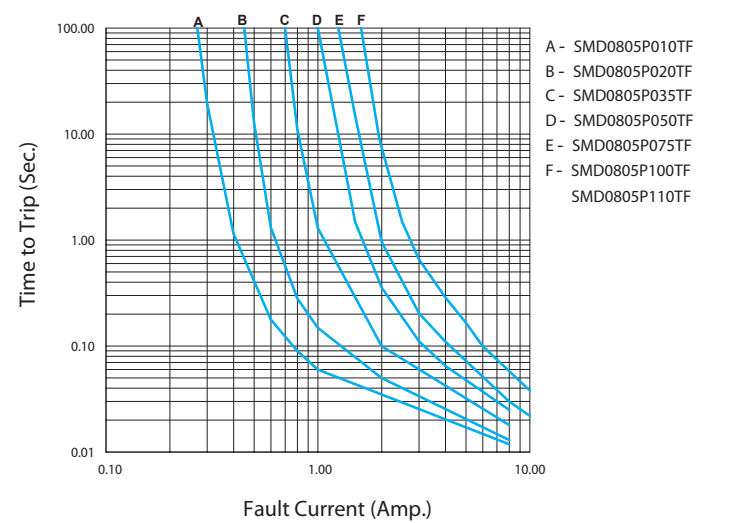
● Type Designation

PTC	SMD	08	P010
Products Code	Type	Dimensions	Ampere Rating
	Surface Mounted Devices	08:0805	P010 : 0.1A P110 : 1.1A

● Agency Approval

Agency	Item	File No.
	0.1A ~ 1.1A	E201431
	0.1A ~ 1.1A	R50099121

● Average Time-Current Curve



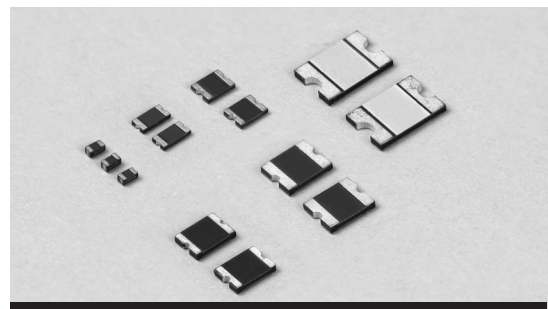
● Electrical Characteristics

Part Number	I _{hold}	I _{trip}	V _{MAX}	I _{MAX}	P _{dmax}	Maximum Time To Trip		Resistance		Operating Temperature	Maximum Device Surface Temperature in Tripped State
	(A)	(A)	(A)	(A)	(A)	Current (A)	Time (A)	R _{MAX} (A)	R _{MIN} (A)	(°C)	(A)
SMD 0805 P010	0.10	0.30	15	100	0.5	8.00	1.50	1.000	6.000	-40 ~ +85	125
SMD 0805 P020	0.20	0.50	9	100	0.5	8.00	0.02	0.650	3.500		
SMD 0805 P035	0.35	0.75	6	100	0.5	8.00	0.10	0.250	1.200		
SMD 0805 P050	0.50	1.00	6	100	0.5	8.00	0.10	0.150	0.850		
SMD 0805 P075	0.75	1.50	6	40	0.6	8.00	0.20	0.090	0.350		
SMD 0805 P100	1.00	1.95	6	40	0.6	8.00	0.30	0.060	0.210		
SMD 0805 P110	1.10	2.00	6	100	0.8	8.00	0.10	0.050	0.160		

- I_{Hold} = Hold current: maximum current device will pass without tripping in 23°C still air.
- I_{trip} = Trip current: minimum current at which the device will trip in 23°C still air.
- V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})
- I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})
- P_d = Power dissipated from device when in the tripped state at 23°C still air.
- R_{min}= Minimum resistance of device in initial (un-soldered) state.
- R_{max}= Maximum resistance of device at 23°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.
- *Value specified were determined using the PWB with 0.020"*1.5oz copper traces.

● Performance

Test Items	Performance Requirements	Test Methods
Passive Aging	±5% typical resistance change	+85°C, 1000 hours
Humidity Aging	±5% typical resistance change	+85°C, 85%R.H. 1000 hours
Thermal Shock	±30% typical resistance change	MIL-STD-202 Method 107G +85°C/-40°C 20 times
Solvent Resistance	No change	MIL-STD-202, Method 215
Vibration	No change	MIL-STD-883C, Method 2007.1, Condition A



Sub – Miniature Fuse

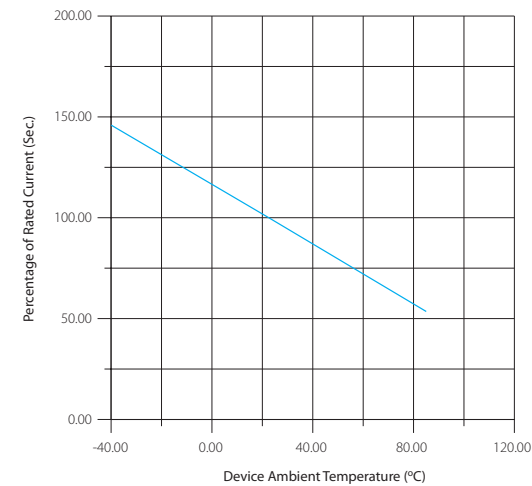
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

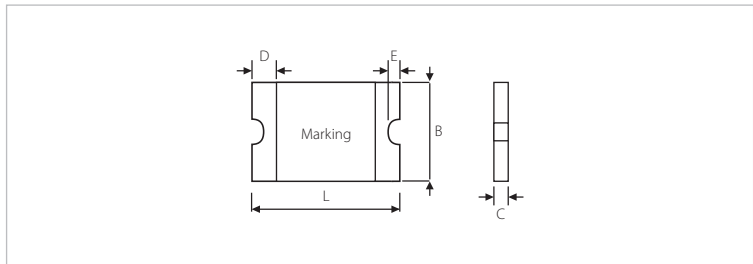
● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Thermal Derating Chart - I_H(A)



● Dimension



Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD1206P012	3.00	3.40	1.50	1.80	0.65	1.45	0.25	0.75	0.10	0.45
SMD1206P016	3.00	3.40	1.50	1.80	0.65	1.45	0.25	0.75	0.10	0.45
SMD1206P020/24	3.00	3.40	1.50	1.80	0.50	1.00	0.25	0.75	0.10	0.45
SMD1206P025	3.00	3.40	1.50	1.80	0.50	1.00	0.25	0.75	0.10	0.45
SMD1206P035/16	3.00	3.40	1.50	1.80	0.45	0.75	0.25	0.75	0.10	0.45
SMD1206P050	3.00	3.40	1.50	1.80	0.45	0.75	0.25	0.75	0.10	0.45
SMD1206P050/15	3.00	3.40	1.50	1.80	0.45	0.75	0.25	0.75	0.10	0.45
SMD1206P075	3.00	3.40	1.50	1.80	0.45	0.75	0.25	0.75	0.10	0.45
SMD1206P075/13.2	3.00	3.40	1.50	1.80	0.45	1.25	0.25	0.75	0.10	0.45
SMD1206P110	3.00	3.40	1.50	1.80	0.30	0.60	0.25	0.75	0.10	0.45
SMD1206P150	3.00	3.40	1.50	1.80	0.50	1.00	0.25	0.75	0.10	0.45
SMD1206P175	3.00	3.40	1.50	1.80	0.80	1.80	0.25	0.75	0.10	0.45
SMD1206P200	3.00	3.40	1.50	1.80	0.80	1.60	0.25	0.75	0.10	0.45

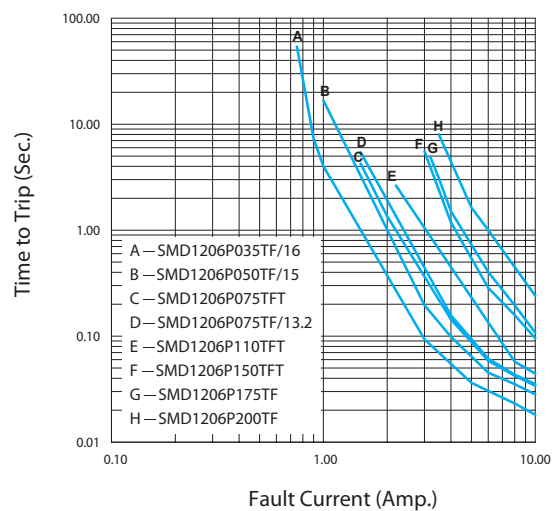
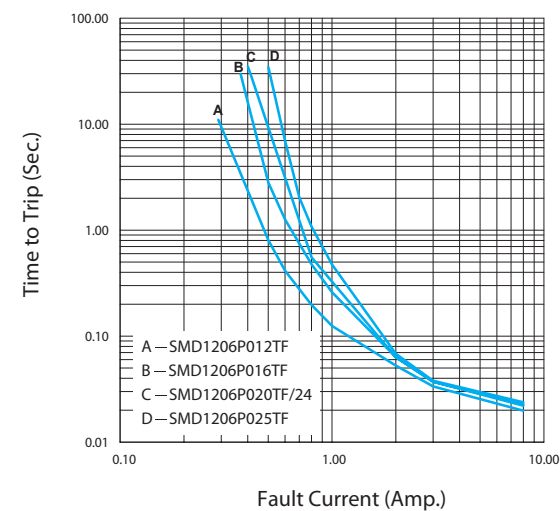
● Type Designation

PTC	SMD	12	P012
Products Code	Type	Dimensions	Ampere Rating
	Surface Mounted Devices	12:1206	P016 : 0.16A P200 : 2.0A

● Agency Approval

Agency	Item	File No.
	0.125A ~ 2.0A	E201431
	0.125A ~ 2.0A	R50099121

● Average Time-Current Curve



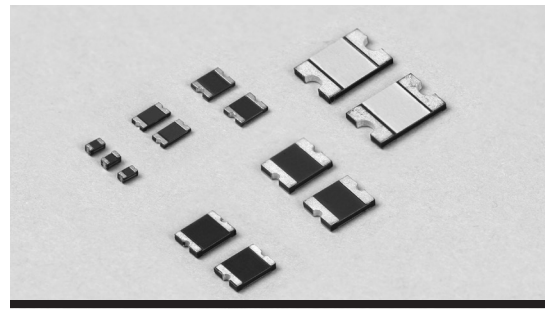
● Electrical Characteristics

Part Number	I _{hold}	I _{trip}	V _{MAX}	I _{MAX}	P _{dmax}	Maximum Time To Trip		Resistance		Operating Temperature	Maximum Device Surface Temperature in Tripped State
	(A)	(A)	(A)	(A)	(A)	Current (A)	Time (A)	R _{MAX} (A)	R _{MIN} (A)	(°C)	(A)
SMD1206P012	0.125	0.29	30	100	0.6	1.0	0.20	1500		-40 ~ +85	125
SMD1206P016	0.16	0.37	30	100	0.6	1.0	0.30	1.200			
SMD1206P020/24	0.20	0.42	24	100	0.6	8.0	0.10	0.650			
SMD1206P025	0.25	0.50	16	100	0.6	8.0	0.08	0.550	6.000		
SMD1206P035/16	0.35	0.75	16	100	0.6	8.0	0.10	0.300	3.500		
SMD1206P050	0.50	1.00	6	100	0.6	8.0	0.10	0.150	1.200		
SMD1206P050/15	0.50	1.00	15	100	0.6	8.0	0.10	0.150	0.850		
SMD1206P075	0.75	1.50	8	100	0.6	8.0	0.20	0.090	0.350		
SMD1206P075/13.2	0.75	1.50	13.2	100	0.6	8.0	0.20	0.090	0.210		
SMD1206P110	1.10	2.20	8	100	0.8	8.0	0.10	0.040	0.160		
SMD1206P150	1.50	3.00	6	100	0.8	8.0	0.30	0.040			
SMD1206P175	1.75	3.50	6	100	0.8	8.0	0.50	0.020			
SMD1206P200	2.00	3.50	6	100	0.8	8.0	1.50	0.018			

- I_{hold} = Hold current: maximum current device will pass without tripping in 23°C still air.
- I_{trip} = Trip current: minimum current at which the device will trip in 23°C still air.
- V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})
- I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})
- P_d = Power dissipated from device when in the tripped state at 23°C still air.
- R_{min}= Minimum resistance of device in initial (un-soldered) state.
- R_{max}= Maximum resistance of device at 23°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.
- *Value specified were determined using the PWB with 0.020"*1.5oz copper traces.

● Performance (Operating/Storage Temperature 40°C to +85°C, Maximum Device Surface Temperature in Tripped State 125°C)

Test Items	Performance Requirements	Test Methods
Passive Aging	±5% typical resistance change	+85°C, 1000 hours
Humidity Aging	±5% typical resistance change	+85°C, 85%R.H. 1000 hours
Thermal Shock	±30% typical resistance change	MIL-STD-202 Method 107G +85°C/-40°C 20 times
Solvent Resistance	No change	MIL-STD-202, Method 215
Vibration	No change	MIL-STD-883C, Method 2007.1, Condition A



Sub – Miniature Fuse

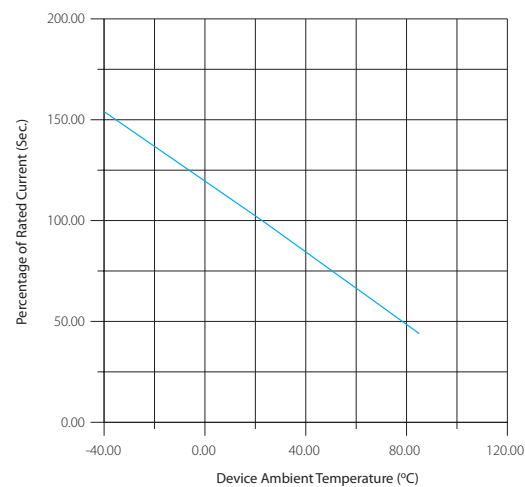
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

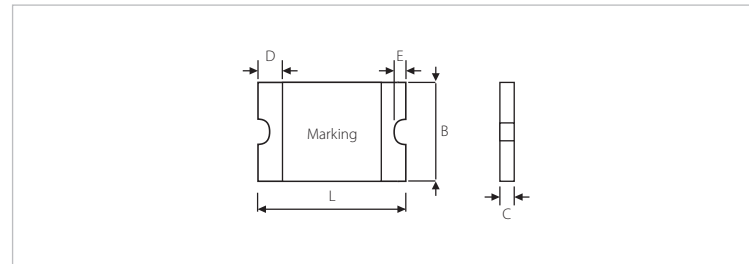
● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Thermal Derating Chart - I_H(A)



● Dimension



Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD1210P005	3.00	3.43	2.35	2.80	0.75	1.25	0.25	0.75	0.20	0.50
SMD1210P010	3.00	3.43	2.35	2.80	0.75	1.25	0.25	0.75	0.20	0.50
SMD1210P020	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.20	0.50
SMD1210P035	3.00	3.43	2.35	2.80	0.50	0.85	0.25	0.75	0.20	0.50
SMD1210P050	3.00	3.43	2.35	2.80	0.50	0.85	0.25	0.75	0.20	0.50
SMD1210P075	3.00	3.43	2.35	2.80	0.50	0.85	0.25	0.75	0.20	0.50
SMD1210P075/24	3.00	3.43	2.35	2.80	1.20	1.80	0.25	0.75	0.10	0.50
SMD1210P110	3.00	3.43	2.35	2.80	0.30	0.71	0.25	0.75	0.20	0.50
SMD1210P150	3.00	3.43	2.35	2.80	0.75	1.07	0.25	0.75	0.20	0.50
SMD1210P175	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.20	0.50
SMD1210P200	3.00	3.43	2.35	2.80	0.80	1.60	0.25	0.75	0.20	0.50
SMD1210P0260	3.00	3.43	2.35	2.80	1.20	1.80	0.25	0.75	0.10	0.50

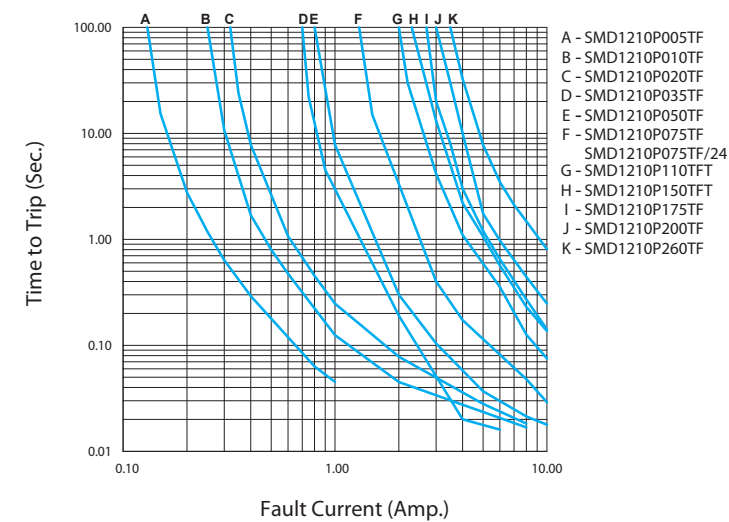
● Type Designation

PTC	SMD	10	P005
Products Code	Type	Dimensions	Ampere Rating
	Surface Mounted Devices	10:1210	P005 : 0.05A P260 : 2.6A

● Agency Approval

Agency	Item	File No.
	0.1A ~ 1.1A	E201431
	0.1A ~ 1.1A	R50099121

● Average Time-Current Curve



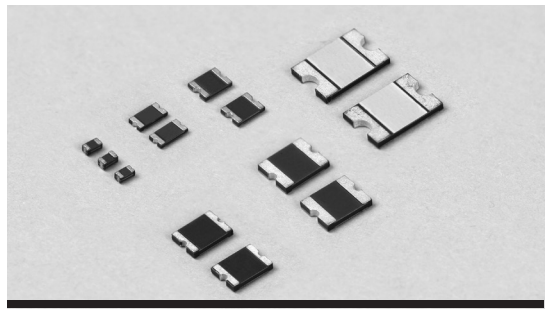
● Electrical Characteristics

Part Number	I _{hold}	I _{trip}	V _{MAX}	I _{MAX}	Pd _{max}	Maximum Time To Trip		Resistance		Operating Temperature	Maximum Device Surface Temperature in Tripped State
	(A)	(A)	(A)	(A)	(A)	Current (A)	Time (A)	R _{MAX} (A)	R _{MIN} (A)	(°C)	(A)
SMD1210P005TF	0.05	0.15	30	10	0.60	0.25	1.50	3.600	50.00	-40 ~ +85	125
SMD1210P010TF	0.10	0.30	30	10	0.60	0.50	1.50	1.600	15.00		
SMD1210P020TF	0.20	0.40	30	10	0.60	8.00	0.02	0.800	5.000		
SMD1210P035TF	0.35	0.70	6	100	0.60	8.00	0.20	0.320	1.300		
SMD1210P050TF	0.50	1.00	13.2	100	0.60	8.00	0.05	0.250	0.900		
SMD1210P075TF	0.75	1.50	6	100	0.60	8.00	0.10	0.130	0.400		
SMD1210P075TF/24	0.75	1.50	24	100	0.60	8.00	0.10	0.130	0.400		
SMD1210P110TF	1.10	2.20	8	100	0.60	8.00	0.10	0.060	0.210		
SMD1210P150TF	1.50	3.00	6	100	0.80	8.00	0.30	0.040	0.110		
SMD1210P175TF	1.75	3.50	6	100	0.80	8.00	0.60	0.020	0.080		
SMD1210P200TF	2.00	4.00	6	100	0.80	8.00	1.00	0.015	0.070		
SMD1210P0260TF	2.60	5.00	6	100	0.80	8.00	2.50	0.012	0.050		

- I_{hold} = Hold current: maximum current device will pass without tripping in 23°C still air.
- I_{trip} = Trip current: minimum current at which the device will trip in 23°C still air.
- V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})
- I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})
- Pd = Power dissipated from device when in the tripped state at 23°C still air.
- R_{min} = Minimum resistance of device in initial (un-soldered) state.
- R_{max} = Maximum resistance of device at 23°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.
- *Value specified were determined using the PWB with 0.020"×1.5oz copper traces.

● Performance

Test Items	Performance Requirements	Test Methods
Passive Aging	±5% typical resistance change	+85°C, 1000 hours
Humidity Aging	±5% typical resistance change	+85°C, 85%R.H. 1000 hours
Thermal Shock	±30% typical resistance change	MIL-STD-202 Method 107G +85°C/-40°C 20 times
Solvent Resistance	No change	MIL-STD-202, Method 215
Vibration	No change	MIL-STD-883C, Method 2007.1, Condition A



Sub – Miniature Fuse

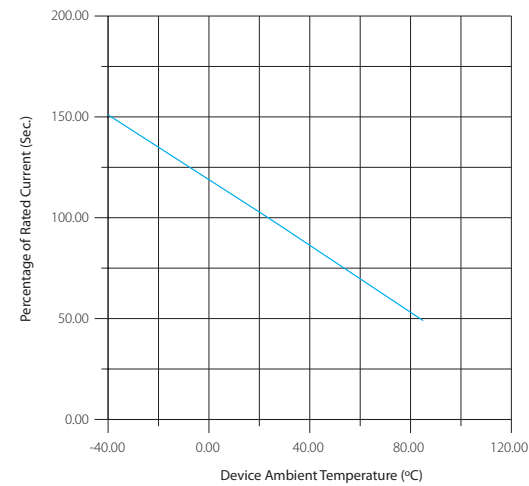
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

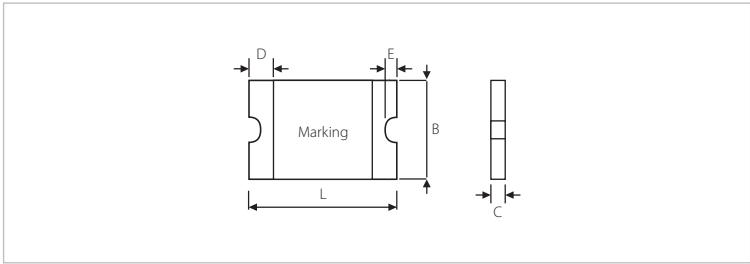
● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Thermal Derating Chart - I_H(A)



● Dimension



Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD 1812 P010	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.25	0.65
SMD 1812 P014	4.37	4.73	3.07	3.41	0.75	1.95	0.30	1.20	0.25	0.65
SMD 1812 P020	4.37	4.73	3.07	3.41	0.55	1.00	0.30	1.20	0.25	0.65
SMD 1812 P035/30	4.37	4.73	3.07	3.41	0.65	1.25	0.30	1.20	0.25	0.65
SMD 1812 P050	4.37	4.73	3.07	3.41	0.50	0.75	0.30	1.20	0.25	0.50
SMD 1812 P050/30	4.37	4.73	3.07	3.41	0.50	1.00	0.30	1.20	0.25	0.65
SMD 1812 P075	4.37	4.73	3.07	3.41	0.50	0.75	0.30	1.20	0.25	0.65
SMD 1812 P075/24	4.37	4.73	3.07	3.41	0.75	1.55	0.30	1.20	0.25	0.65
SMD 1812 P075/33	4.37	4.73	3.07	3.41	0.75	1.55	0.30	1.20	0.25	0.65
SMD 1812 P110	4.37	4.73	3.07	3.41	0.30	0.71	0.30	1.20	0.25	0.65
SMD 1812 P110/16	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.25	0.65
SMD 1812 P110/24	4.37	4.73	3.07	3.41	0.50	1.07	0.30	1.20	0.25	0.65
SMD 1812 P110/33	4.37	4.73	3.07	3.41	1.20	2.00	0.30	1.20	0.25	0.65
SMD 1812 P125/16	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.25	0.65
SMD 1812 P125/6	4.37	4.73	3.07	3.41	0.45	0.75	0.30	1.20	0.25	0.65
SMD 1812 P150/8	4.37	4.73	3.07	3.41	0.40	0.71	0.30	1.20	0.25	0.65
SMD 1812 P150/12	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.25	0.65
SMD 1812 P150/24	4.37	4.73	3.07	3.41	0.80	1.80	0.30	1.20	0.25	0.65
SMD 1812 P160/8	4.37	4.73	3.07	3.41	0.40	0.75	0.30	1.20	0.25	0.65
SMD 1812 P200	4.37	4.73	3.07	3.41	0.20	0.60	0.30	1.20	0.25	0.65
SMD 1812 P260	4.37	4.73	3.07	3.41	0.50	1.00	0.30	1.20	0.25	0.65
SMD 1812 P260/12	4.37	4.73	3.07	3.41	0.80	1.34	0.30	1.20	0.25	0.65
SMD 1812 P300	4.37	4.73	3.07	3.41	0.50	1.00	0.30	1.20	0.15	0.65

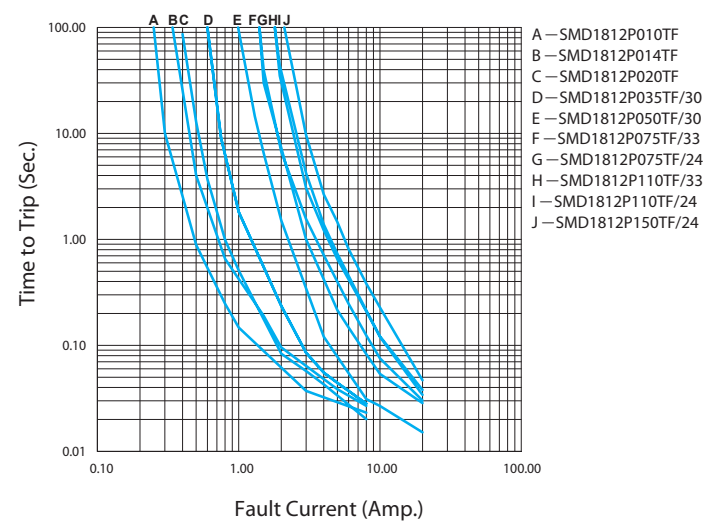
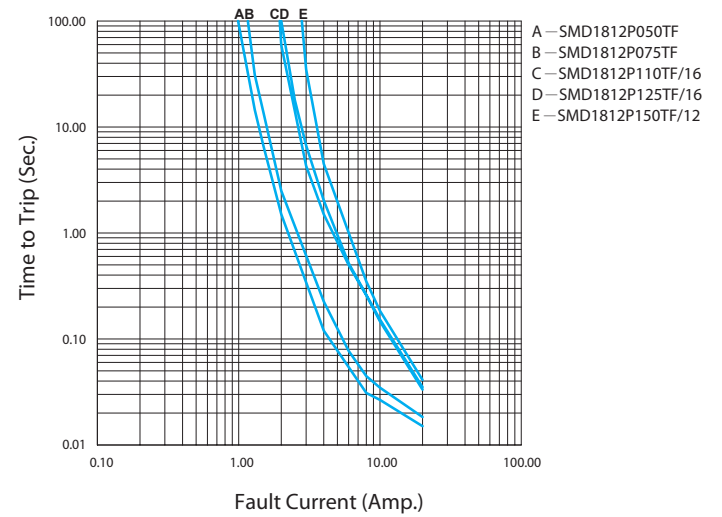
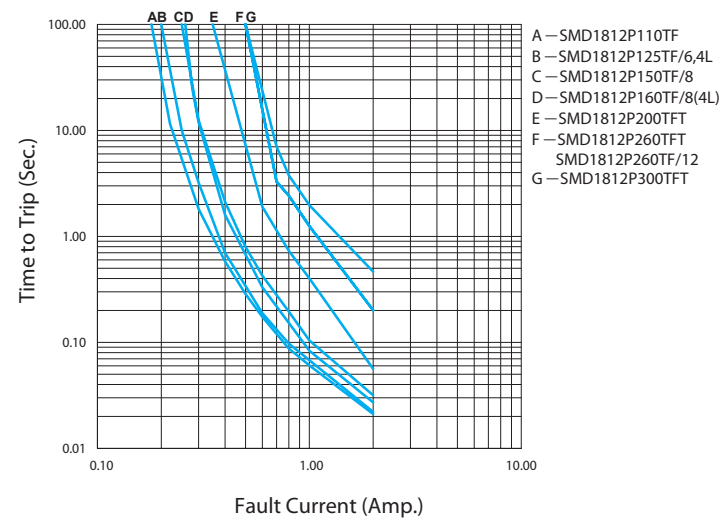
● Type Designation

PTC	SMD	18	P010
Products Code	Type	Dimensions	Ampere Rating
	Surface Mounted Devices	18:1812	P010 : 0.1A P300 : 3.0A

● Agency Approval

Agency	Item	File No.
	0.1A ~ 3.0A	E201431
	0.1A ~ 3.0A	R50099121

● Average Time-Current Curve



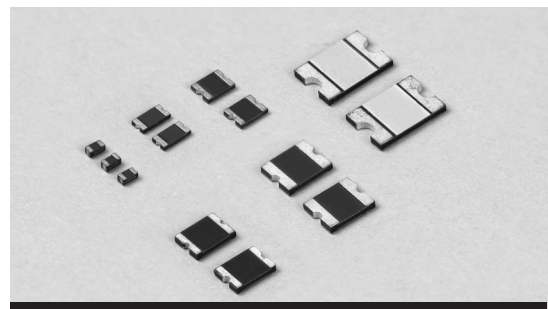
●Electrical Characteristics

Part Number	I _{hold}	I _{trip}	V _{MAX}	I _{MAX}	P _{dmax}	Maximum Time To Trip		Resistance		Operating Temperature	Maximum Device Surface Temperature in Tripped State
	(A)	(A)	(A)	(A)	(A)	Current (A)	Time (A)	R _{MAX} (A)	R _{MIN} (A)	(°C)	(A)
SMD 1812 P010	0.10	0.30	30	100	0.8	0.50	1.50	1.600	15.00	-40 ~ +85	125
SMD 1812 P014	0.14	0.34	60	10	0.8	1.50	0.15	1.500	6.000		
SMD 1812 P020	0.20	0.40	30	100	0.8	8.00	0.02	0.800	5.000		
SMD 1812 P035/30	0.35	.075	30	40	0.8	8.00	0.15	0.400	1.700		
SMD 1812 P050	0.50	1.00	15	100	0.8	8.00	0.15	0.150	1.000		
SMD 1812 P050/30	0.50	1.00	30	100	0.8	8.00	0.15	0.150	1.000		
SMD 1812 P075	0.75	1.50	13.2	100	0.8	8.00	0.20	0.100	0.450		
SMD 1812 P075/24	0.75	1.50	24	100	0.8	8.00	0.20	0.110	0.290		
SMD 1812 P075/33	0.75	1.50	33	20	0.8	8.00	0.20	0.110	0.400		
SMD 1812 P110	1.10	2.20	8	100	0.8	8.00	0.30	0.040	0.210		
SMD 1812 P110/16	1.10	1.95	16	100	0.8	8.00	0.30	0.060	0.180		
SMD 1812 P110/24	1.10	1.95	24	20	0.8	8.00	0.50	0.060	0.200		
SMD 1812 P110/33	1.10	1.95	33	20	0.8	8.00	0.50	0.060	0.200		
SMD 1812 P125/16	1.25	2.50	16	100	0.8	8.00	0.40	0.050	0.140		
SMD 1812 P125/6	1.25	2.50	6	100	0.8	8.00	0.40	0.050	0.140		
SMD 1812 P150/8	1.50	3.00	8	100	0.8	8.00	0.30	0.040	0.110		
SMD 1812 P150/12	1.50	3.00	12	100	0.8	8.00	0.50	0.040	0.110		
SMD 1812 P150/24	1.50	3.00	24	20	0.8	8.00	1.50	0.040	0.120		
SMD 1812 P160/8	1.60	2.80	8	100	0.8	8.00	1.00	0.030	0.100		
SMD 1812 P200	2.00	3.50	8	100	0.8	8.00	2.00	0.020	0.070		
SMD 1812 P260	2.60	5.00	8	100	0.8	8.00	2.50	0.015	0.047		
SMD 1812 P260/12	2.60	5.00	12	100	0.8	8.00	5.00	0.015	0.055		
SMD 1812 P300	3.00	5.00	6	100	0.8	8.00	4.00	0.012	0.040		

- I_{Hold} = Hold current: maximum current device will pass without tripping in 23°C still air.
- I_{trip} = Trip current: minimum current at which the device will trip in 23°C still air.
- V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})
- I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})
- Pd = Power dissipated from device when in the tripped state at 23°C still air.
- R_{min}= Minimum resistance of device in initial (un-soldered) state.
- R_{max}= Maximum resistance of device at 23°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.
- *Value specified were determined using the PWB with 0.020"*1.5oz copper traces.

●Performance

Test Items	Performance Requirements	Test Methods
Passive Aging	±5% typical resistance change	+85°C, 1000 hours
Humidity Aging	±5% typical resistance change	+85°C, 85%R.H. 1000 hours
Thermal Shock	±30% typical resistance change	MIL-STD-202 Method 107G +85°C/-40°C 20 times
Solvent Resistance	No change	MIL-STD-202, Method 215
Vibration	No change	MIL-STD-883C, Method 2007.1, Condition A



Sub – Miniature Fuse

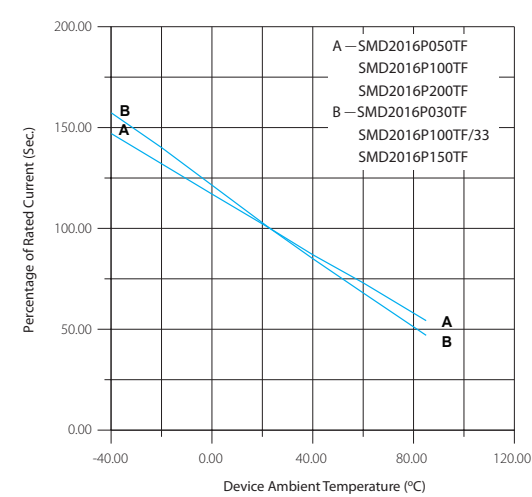
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

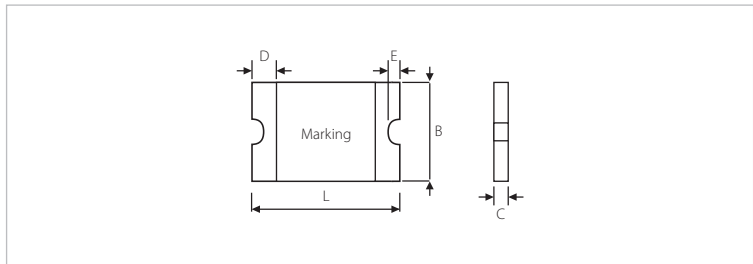
● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Thermal Derating Chart - I_H(A)



● Dimension



Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD 2016 P030	4.72	5.44	3.70	4.43	0.75	1.25	0.30	1.50	0.25	0.65
SMD 2016 P050	4.72	5.44	3.70	4.43	1.20	2.00	0.30	1.50	0.25	0.65
SMD 2016 P100	4.72	5.44	3.70	4.43	0.50	0.75	0.30	1.50	0.25	0.65
SMD 2016 P100/33	4.72	5.44	3.70	4.43	0.75	1.25	0.30	1.50	0.25	0.65
SMD 2016 P150	4.72	5.44	3.70	4.43	0.75	1.25	0.30	1.50	0.25	0.65
SMD 2016 P200	4.72	5.44	3.70	4.43	0.50	0.75	0.30	1.50	0.25	0.65

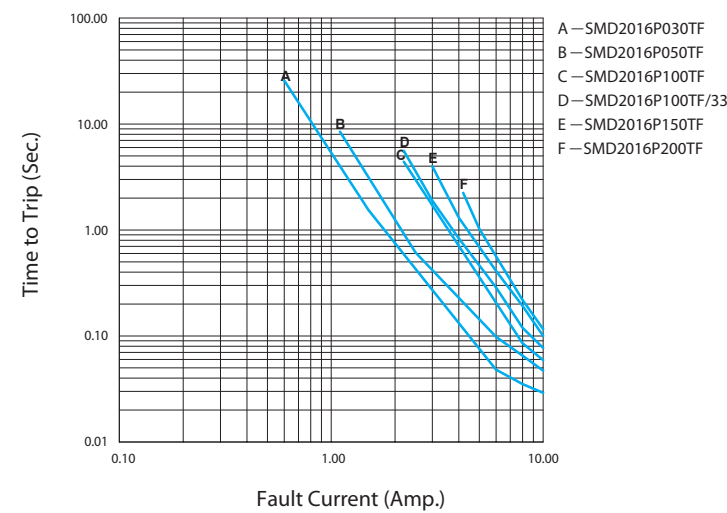
● Type Designation

PTC	SMD	20	P030
Products Code	Type	Dimensions	Ampere Rating
	Surface Mounted Devices	20:2016	P030 : 0.3A P200 : 2.0A

● Agency Approval

Agency	Item	File No.
	0.3A ~ 2.0A	E201431
	0.3A ~ 2.0A	R50099121

● Average Time-Current Curve



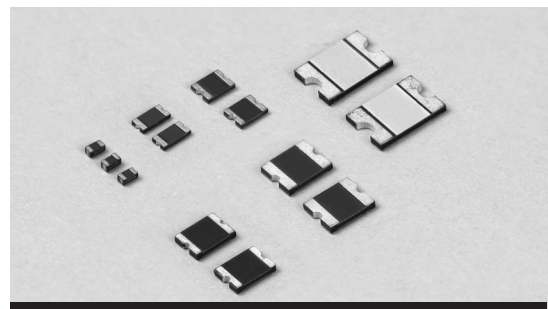
● Electrical Characteristics

Part Number	I _{hold}	I _{trip}	V _{MAX}	I _{MAX}	P _{dmax}	Maximum Time To Trip		Resistance		Operating Temperature	Maximum Device Surface Temperature in Tripped State
	(A)	(A)	(A)	(A)	(A)	Current (A)	Time (A)	R _{MAX} (A)	R _{MIN} (A)	(°C)	(A)
SMD 2016 P030	0.30	0.60	60	20	1.40	1.50	3.00	0.500	2.300	-40 ~ +85	125
SMD 2016 P050	0.55	1.10	60	20	1.40	2.50	5.00	0.200	1.000		
SMD 2016 P100	1.10	2.20	15	40	1.40	8.00	0.50	0.100	0.400		
SMD 2016 P100/33	1.10	2.20	33	40	1.40	8.00	0.50	0.100	0.400		
SMD 2016 P150	1.50	3.00	15	40	1.40	8.00	1.00	0.070	0.180		
SMD 2016 P200	2.00	4.20	6	40	1.40	8.00	3.00	0.048	0.100		

- I_{hold} = Hold current: maximum current device will pass without tripping in 23°C still air.
- I_{trip} = Trip current: minimum current at which the device will trip in 23°C still air.
- V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})
- I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})
- P_d = Power dissipated from device when in the tripped state at 23°C still air.
- R_{min}= Minimum resistance of device in initial (un-soldered) state.
- R_{max}= Maximum resistance of device at 23°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.
- *Value specified were determined using the PWB with 0.020"*1.5oz copper traces.

● Performance (Operating/Storage Temperature 40°C to +85°C, Maximum Device Surface Temperature in Tripped State 125°C)

Test Items	Performance Requirements	Test Methods
Passive Aging	±5% typical resistance change	+85°C, 1000 hours
Humidity Aging	±5% typical resistance change	+85°C, 85%R.H. 1000 hours
Thermal Shock	±30% typical resistance change	MIL-STD-202 Method 107G +85°C/-40°C 20 times
Solvent Resistance	No change	MIL-STD-202, Method 215
Vibration	No change	MIL-STD-883C, Method 2007.1, Condition A



Sub – Miniature Fuse

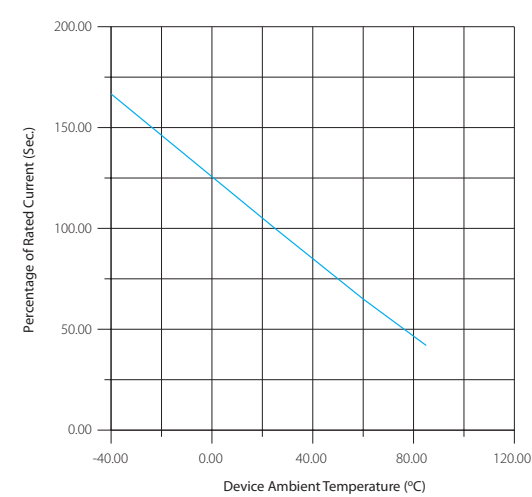
● Features

- Radial leaded devices.
- Faster tripping, typical application in micro-motors for automobiles.
- Protecting against over-current and over-temperature faults
- Available in lead-free version.

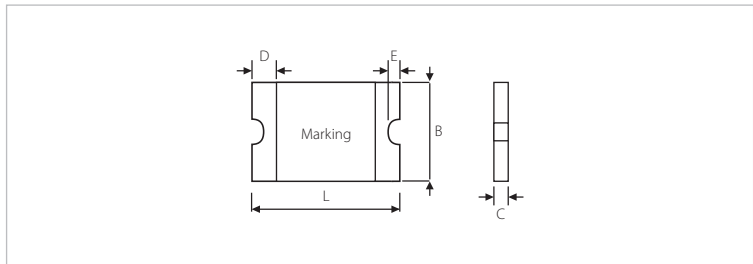
● Storage Recommendations

- Storage Temperature : -10 °C ~+40°C
- Relative Humidity : ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

● Thermal Derating Chart - I_H(A)



● Dimension



Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD 2920 P030	6.73	7.98	4.80	5.44	0.75	1.25	0.30	2.50	0.25	2.00
SMD 2920 P050	6.73	7.98	4.80	5.44	0.75	1.25	0.30	2.50	0.25	2.00
SMD 2920 P075	6.73	7.98	4.80	5.44	0.75	1.25	0.30	2.50	0.25	2.00
SMD 2920 P075/60	6.73	7.98	4.80	5.44	1.20	1.80	0.30	2.50	0.25	2.00
SMD 2920 P100	6.73	7.98	4.80	5.44	0.55	1.00	0.30	2.50	0.25	2.00
SMD 2920 P125	6.73	7.98	4.80	5.44	0.55	1.00	0.30	2.50	0.25	2.00
SMD 2920 P150	6.73	7.98	4.80	5.44	0.75	1.25	0.30	2.50	0.25	2.00
SMD 2920 P185	6.73	7.98	4.80	5.44	0.75	1.25	0.30	2.50	0.25	2.00
SMD 2920 P200	6.73	7.98	4.80	5.44	0.75	1.25	0.30	2.50	0.25	2.00
SMD 2920 P200/24	6.73	7.98	4.80	5.44	0.75	1.25	0.30	2.50	0.25	2.00
SMD 2920 P250	6.73	7.98	4.80	5.44	0.75	1.25	0.30	2.50	0.25	2.00
SMD 2920 P260	6.73	7.98	4.80	5.44	0.55	1.00	0.30	2.50	0.25	2.00
SMD 2920 P300/15	6.73	7.98	4.80	5.44	0.75	1.25	0.30	2.50	0.25	2.00

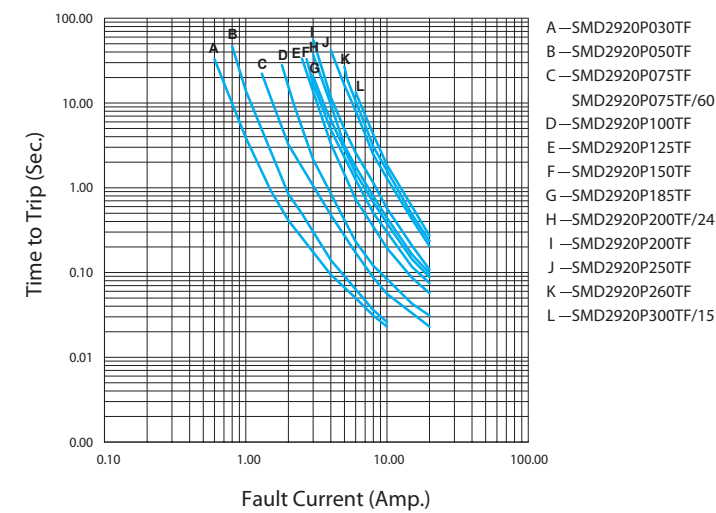
● Type Designation

PTC	SMD	29	P030
Products Code	Type	Dimensions	Ampere Rating
	Surface Mounted Devices	29:2920	P030 : 0.3A P300 : 3.0A

● Agency Approval

Agency	Item	File No.
	.3A ~ 3.0A	E201431
	.3A ~ 3.0A	R50099121

● Average Time-Current Curve



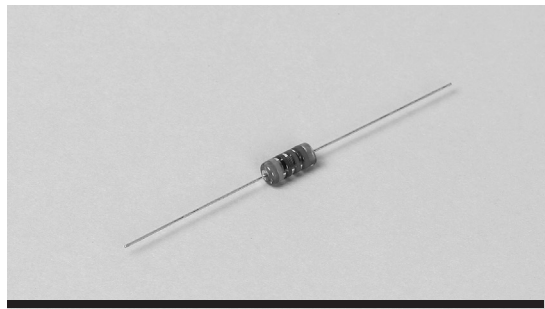
● Electrical Characteristics

Part Number	I _{hold}	I _{trip}	V _{MAX}	I _{MAX}	P _{dmax}	Maximum Time To Trip		Resistance		Operating Temperature	Maximum Device Surface Temperature in Tripped State
	(A)	(A)	(A)	(A)	(A)	Current(A)	Time(A)	R _{MAX} (A)	R _{MIN} (A)	(°C)	(A)
SMD 2920 P030	0.30	0.60	60	10	1.50	1.50	3.00	1.200	4.800	-40 ~ +85	125
SMD 2920 P050	0.50	1.00	60	10	1.50	2.50	4.00	0.350	1.400		
SMD 2920 P075	0.75	1.50	30	40	1.50	8.00	0.30	0.350	1.000		
SMD 2920 P075/60	0.75	1.50	60	10	1.50	8.00	0.30	0.300	0.950		
SMD 2920 P100	1.10	2.20	33	40	1.50	8.00	0.50	0.120	0.410		
SMD 2920 P125	1.25	2.50	15	40	1.50	8.00	2.00	0.070	0.250		
SMD 2920 P150	1.50	3.00	33	40	1.50	8.00	2.00	0.080	0.230		
SMD 2920 P185	1.85	3.70	33	40	1.50	8.00	2.50	0.065	0.150		
SMD 2920 P200	2.00	4.00	15	40	1.50	8.00	5.00	0.050	0.125		
SMD 2920 P200/24	2.00	4.00	24	40	1.50	8.00	5.00	0.050	0.125		
SMD 2920 P250	2.50	5.00	15	40	1.50	8.00	10.00	0.035	0.085		
SMD 2920 P260	2.60	5.00	6	40	1.50	8.00	10.00	0.025	0.075		
SMD 2920 P300/15	3.00	5.00	15	40	1.50	8.00	20.00	0.015	0.048		

- I_{hold} = Hold current: maximum current device will pass without tripping in 23°C still air.
- I_{trip} = Trip current: minimum current at which the device will trip in 23°C still air.
- V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})
- I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})
- P_d = Power dissipated from device when in the tripped state at 23°C still air.
- R_{min}= Minimum resistance of device in initial (un-soldered) state.
- R_{max}= Maximum resistance of device at 23°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.
- *Value specified were determined using the PWB with 0.020”*1.5oz copper traces.

● Performance

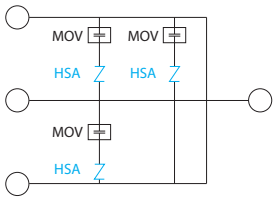
Test Items	Performance Requirements	Test Methods
Passive Aging	±5% typical resistance change	+85°C, 1000 hours
Humidity Aging	±5% typical resistance change	+85°C, 85%R.H. 1000 hours
Thermal Shock	±30% typical resistance change	MIL-STD-202 Method 107G +85°C/-40°C 20 times
Solvent Resistance	No change	MIL-STD-202, Method 215
Vibration	No change	MIL-STD-883C, Method 2007.1, Condition A



HSA is protection component to protect circuit from high voltage surge of outside HSA is used at circuit for high voltage to intercept high voltage inflow from outside to inside

- Features
- Quick response for surge voltage.
 - Stable against repeated surge voltage.

●Application



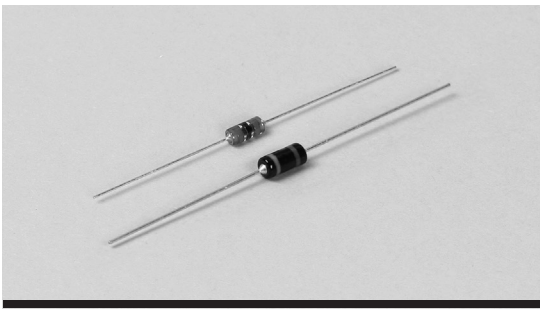
●Characteristics

Type	DC Spark-Over Voltage (V)	Insulated Resistance		Capacitance (pF)	AC Withstanding Voltage	Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type	Radial Type
		IR (MΩ)	Measure Voltage (V)						63mm	R-
272M	2160~3240	Over 100	DC 500	1Max	AC 1.2KV - 3sec	M : ±20	-40 ~ +85	20	O	O
302M	2400~3600				AC 1.5KV - 1min					
362M	2880~4320				AC 1.8KV - 3sec					
452M	3600~5400		DC 1000		AC 2KV - 1min					

●Performance

Test Items	Performance Requirements	Test Methods
Cold Resistance Test	To meet the specified value	-55±3℃, 1,000hr, measure Vs, IR, C
Heat Resistance Test	To meet the specified value	125±2℃, 1,000hr, measure Vs, IR, C
Humidity Test	To meet the specified value	85±2℃, 85%RH, 1,000hr, measure Vs, IR, C
Temperature Cycle	To meet the specified value	-55±3℃,(30min), Room temp(3min) 125±2℃,(30min), Room temp(3min) -55±3℃,(30min), 200 times, measure Vs, IR, C
Surge Life Test	ΔVs/Vs ≤ 30%	After 300 cycle operating measures a quality from 8/20μs 100A.
Surge Current Capacity	Within ±30%	Form 8/20μs 2000A not must be above in operations 5 cycle or more.

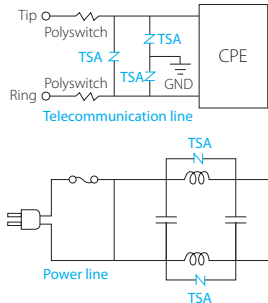
Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.



TSA is protects telecommunication system as absorbing the incoming noise of voltage and current deriving from the power and telecommunication signal line or the induced surge of lightening strikes. BC type of TSA shuts off the lighting on discharging.

- Features
- Quick response for surge voltage.
 - Stable against repeated surge voltage.

●Application



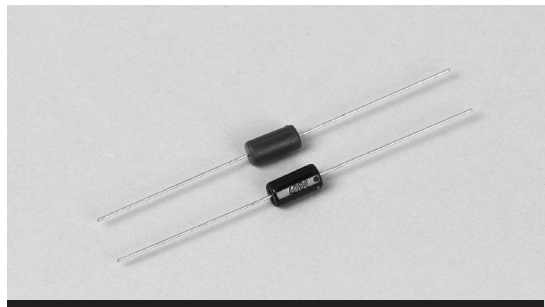
●Characteristics

Type	DC Spark-Over Voltage (V)	Insulated Resistance		Capacitance (pF)	Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type	Radial Type
		IR (MΩ)	Measure Voltage (V)					52mm	R-
201M	160~240	Over 100	DC 100	1Max	L : ±15 M : ±20 N : ±30	-40 ~ +85	20	O	O
301L	255~345								
301M	240~360								
401M	320~480								
501M	400~600								
601M	480~720								

●Performance

Test Items	Performance Requirements	Test Methods
Cold Resistance Test	To meet the specified value	-55±3℃, 1,000hr, measure Vs, IR, C
Heat Resistance Test	To meet the specified value	125±2℃, 1,000hr, measure Vs, IR, C
Humidity Test	To meet the specified value	85±2℃, 85%RH, 1,000hr, measure Vs, IR, C
Temperature Cycle	To meet the specified value	-55±3℃,(30min), Room temp(3min) 125±2℃,(30min), Room temp(3min) -55±3℃,(30min), 200 times, measure Vs, IR, C
Surge Life Test	ΔVs/Vs ≤ 30%	At 10sec intervals on the 10kV 1.5nF is charged to a 200times.
Surge Current Capacity	ΔVs/Vs ≤ 20%	10/700μs 1.5kV/37.5A, ± 5times 8/20μs 1kV/500A, ± 5times

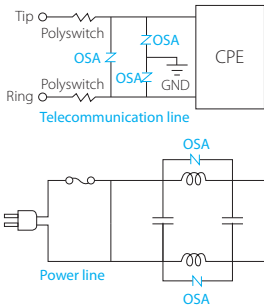
Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.



OSA is protects telecommunication system as absorbing the incoming noise of voltage and current deriving from the power and telecommunication signal line or the induced surge of lightening strikes. Shut off the lighting on discharging.

- Features
- Shut off the lighting on discharging.
 - Stable against repeated surge voltage.

●Application



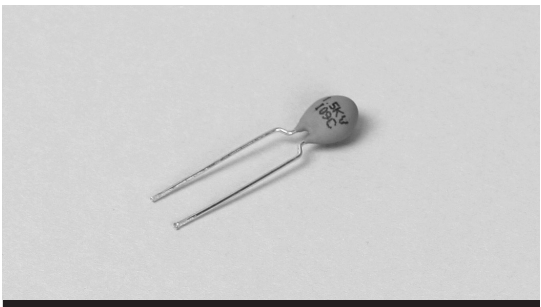
●Characteristics

Type	DC Spark-Over Voltage (V)	Insulated Resistance		Capacitance (pF)	Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type
		IR (MΩ)	Measure Voltage (V)					52mm
401	320~480	Over 100	DC 100	Below 1	M : ±20	-40 ~ +85	20	O
501	400~600							
301	480~720							

●Performance

Test Items	Performance Requirements	Test Methods
Cold Resistance Test	To meet the specified value	-55±3℃, 1,000hr, measure Vs, IR, C
Heat Resistance Test	To meet the specified value	125±2℃, 1,000hr, measure Vs, IR, C
Humidity Test	To meet the specified value	85±2℃, 85%RH, 1,000hr, measure Vs, IR, C
Temperature Cycle	To meet the specified value	-55±3℃,(30min), Room temp(3min) 125±2℃,(30min), Room temp(3min) -55±3℃,(30min), 200 times, measure Vs, IR, C
Surge Life Test	ΔVs/Vs ≤ 30%	At 10sec intervals on the 10KV 1.5nF is charged to a 200times.
Surge Current Capacity	Within ±30%	10/700μs 1.5kV/37.5A, ± 5times 8/20μs 1kV/500A, ± 5times

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.



SSG absorbs surge by discharging and is manufactured with special paint coating after forming lead wire into specific shape and cutting at a definite rate. There components are ideal for protecting from electrostatic discharges in CRT, CPD and so on.

- Features
- Quick response for surge voltage.
 - Low capacitance and high insulation resistance
 - Stable against repeated surge voltage.

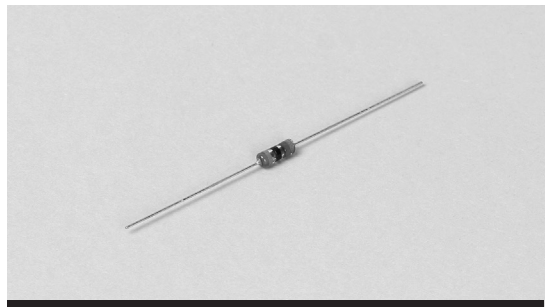
●Characteristics

Type	DC Spark-Over Voltage (V)	Insulated Resistance		Capacitance (pF)	Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)
		IR (MΩ)	Measure Voltage (V)				
102	700~1,300	Over 500	DC 500	1Max	N : ±30	-40 ~ +85	20
152	1,050~1,950						

●Performance

Test Items	Performance Requirements	Test Methods
Cold Resistance Test	To meet the specified value	-25℃, 96hr, measure Vs, IR, C
Heat Resistance Test	To meet the specified value	Temperature : 70±2℃ After applying DC 500V for 72hr, leave it at the normal temp and humidity. 4 hr later measure Vs, IR, C
Humidity Test	To meet the specified value	Temperature : 40±2℃, Relative humidity : 90~95% After applying DC 500V for 72hr, Then measure Vs, IR, C at normal temp and humidity
Temperature Cycle	To meet the specified value	-40±3℃,(30min), Room temp(3min) 85±3℃,(30min), 200 times, measure Vs, IR, C
Reliability Test	To meet the specified value	Apply DC 2kV 10,000 times at 2.5sec interval with below circuit

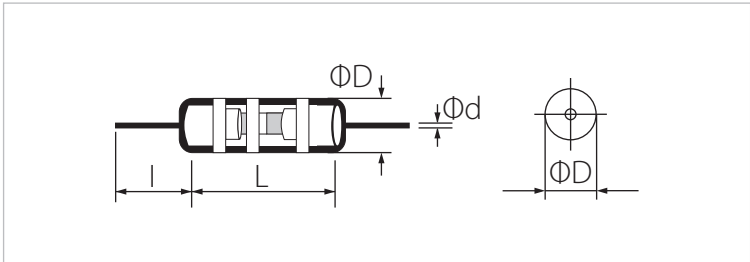
Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.



SSA is ideal for protecting from electrostatic discharge in monitor, TV, electronic and communication equipment and other industrial devices.

- Features
- Quick response for surge voltage.
 - Low capacitance and high insulation resistance
 - Stable against repeated surge voltage.

●Dimension

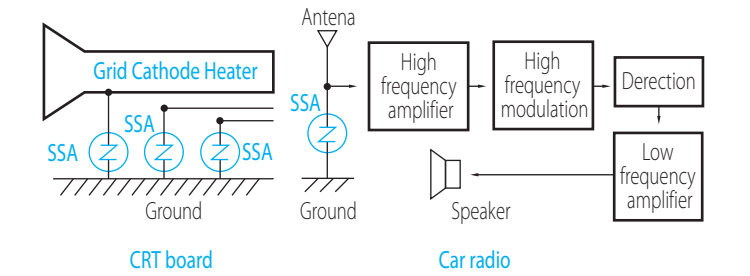


Dimension (mm)			
L±0.5	L1±3.0	ΦD±0.5	ΦD1±0.05
7.1	28.0	2.6	0.5

●Type Designation

TSA	301	M	A	1
Products Code	DC Spark-Over Voltage	Tolerance	Style	Taping
	201 : 200V 351 : 350V 102 : 1,000V	M : ±20%	A : Axial Type R : Radial Type	0 : Bulk 1 : 52mm

●Application

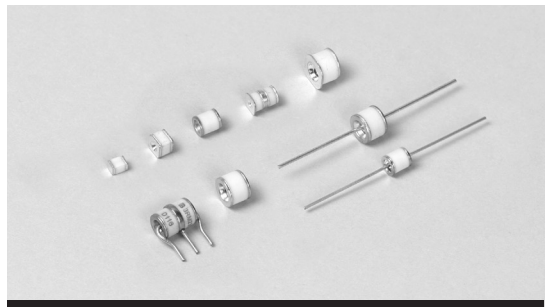


●Characteristics

Type	DC Spark-Over Voltage (V)	Insulated Resistance		Capacitance (pF)	Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type	Radial Type
		IR (MΩ)	Test Voltage (V)					52mm	R-
201M	160 ~ 240	Over 100	DC 100	Below 1	M : ±20 N : ±30	-40 ~ +85	20	O	O
201N	140 ~ 260								
301M	240 ~ 360								
301N	210 ~ 390								
351M	280 ~ 420								
401N	280 ~ 520								
501N	350 ~ 650		DC 250						
751N	525 ~ 975								
102N	700 ~ 1300		DC 500						
122N	840 ~ 1560								
152N	1050 ~ 1950								
182N	1260 ~ 2340								

●Performance

Test Items	Performance Requirements	Test Methods
Cold Resistance Test	To meet the specified value	-55±3℃, 1,000hr, measure Vs, IR, C
Heat Resistance Test	To meet the specified value	125±2℃, 1,000hr, measure Vs, IR, C
Humidity Test	To meet the specified value	85±2℃, 85%RH, 1,000hr, measure Vs, IR, C
Temperature Cycle	To meet the specified value	-55±3℃,(30min), Room temp(3min) 125±2℃,(30min), Room temp(3min) -55±3℃,(30min), 200 times, measure Vs, IR, C
Surge Life Test	ΔVs/Vs ≤ 30%	After 300 cycle operating measures a quality from 8/20μs 100A.



A tube be consisted with gas made up by inert gases and Arrangement of isolated electrode in Gas Discharge Tube. GDT that helps protect circuit from a voltage spikes.

● Features

- Very high surge current capability
- Low capacitance
- Very high Isolation resistance

● Application

- Repeaters, modems
- Telephone interface, line cards
- Data communication equipment
- Line test equipment

● Performance

Test Items	Performance Requirements	Test Methods
Dump Heat, Steady State	To meet the specified value	-55±3℃,(30min), Room temp(3min) 125±2℃,(30min), Room temp(3min) -55±3℃,(30min), 200 times, measure Vs, IR, C
Humidity	To meet the specified value	85±2℃, 85%RH, 1,000 hours 1.5hours On/0.5 hours Off, measure Vs, IR, C
Heat Resistance	To meet the specified value	125±2℃, 1,000 hours, measure Vs, IR, C
Cold Resistance	To meet the specified value	-55±3℃, 1,000 hours, measure Vs, IR, C
Max. Impulse Spark-Over Voltage	To meet the specified value	The maximum impulse breakdown voltage is measured with a rise time of dv/dt=1000V/μs
Nominal Impulse Discharge Current	ΔVs/Vs ≤ 25%	After the A surge stated each product shall apply cross terminals of products, measure rate of a change in the discharge voltage.
Alternating Discharge Current	ΔVs/Vs ≤ 25%	Rated RMS value of AC current at 50Hz, 1sec, 10times, intervals 3min.
Impulse Life Test	To meet the specified value	10/1000μs, 100A, 300cycle, measure Vs, IR, C

● Type Designation

CSA	4532	M	Y	091
Products Code	Electrode Numbers & Dimension	Shape	Electrical Characteristics	DC Spark-over voltage
	3216 : 2-E : 3.2×1.6×1.6 4532 : 2-E : 4.5×3.2×2.7 5050 : 2-E : 5.0×5.0×4.2 2R55 : 2-E : Ø5.0×5.0 2R56 : 2-E : Ø5.5×6.0 2R64 : 2-E : Ø6.0×4.2 2R86 : 2-E : Ø8.0×6.0 3R57 : 3-E : Ø5.0×7.5 3R68 : 3-E : Ø6.0×8.5 3R81 : 3-E : Ø8.0×10.0	M : SMD S : Square Electrode SMD C : Circle Electrode SMD L : Lead Type T : T-Shape SMD F : T-Shape Lead Type	Z : 0.5KA Y : 1.0KA X : 2.0KA A : 5.0KA B : 10KA C : 20KA	071 : 70V 151 : 150V 351 : 350V 601 : 600V 801 : 800V

● Agency Approval

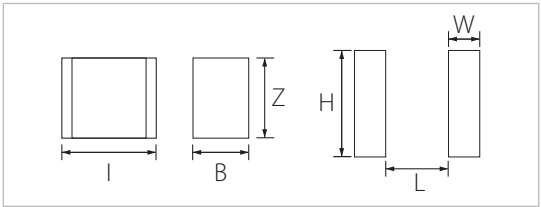
Agency	Item	File No.
	All Protector	E208457

3216 , 4532 - M Type

● Characteristics

Type (Dimension, Electrical Characteristics, DC spark-over Voltage)	DC Spark-Over Voltage		Impulse Spark-Over Voltage	Impulse Discharge Current	Insulation Resistance		Capacitance
	100V/S	V ±%	1KV/μs	8/20μs	IR	Test Voltage	1M ^{Hz} 1V
			≤V	KA	≥ GΩ	Vdc	≤ pF
3216, Z, 091	90	25	700	0.5	1	50	0.6
3216, Z, 151	150	25	700	0.5	1	50	0.6
3216, Z, 231	230	20	750	0.5	1	100	0.6
3216, Z, 351	350	20	750	0.5	1	100	0.6
3216, Z, 471	470	20	750	0.5	1	100	0.6
4532, Y / X, 091	90	25	600	1	2	50	1
4532, Y / X, 151	150	25	600	1	2	50	1
4532, Y / X, 231	230	20	650	1	2	100	1
4532, Y / X, 351	350	20	750	1	2	100	1
4532, Y / X, 471	470	20	950	1	2	100	1
4532, Y / X, 601	600	20	1,050	1	2	100	1

● Dimension



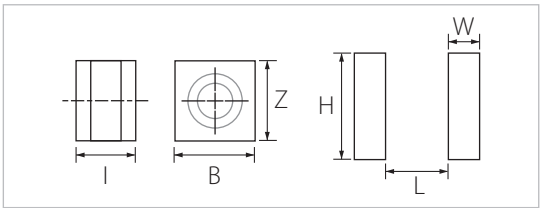
Division	Dimension (mm)					
	T±0.3	B±0.3	Z±0.3	L	H	W
3216	3.2	1.6	1.6	2.0	1.8	1.2
4532	4.5	3.2	2.7	3.5	3.5	0.975

5050 - M Type

● Characteristics

Type (Dimension, Electrical Characteristics, DC spark-over Voltage)	DC Spark-Over Voltage		Impulse Spark-Over Voltage	Impulse Discharge Current	Insulation Resistance		Capacitance
	100V/S	V ±%	1KV/μs	8/20μs	IR	Test Voltage	1M ^{Hz} 1V
			≤V	KA	≥ GΩ	Vdc	≤ pF
5050, A, 071	70	25	600	5	1	25	1
5050, A, 091	90	25	600	5	1	50	1
5050, A, 151	150	25	600	5	1	50	1
5050, A, 231	230	20	650	5	1	100	1
5050, A, 351	350	20	750	5	1	100	1
5050, A, 471	470	20	850	5	1	100	1
5050, A, 601	600	20	950	5	1	100	1

● Dimension



Division	Dimension (mm)					
	T±0.3					
5050	4.2	5.0	5.0	3.0	5.5	0.975

2-Electrode

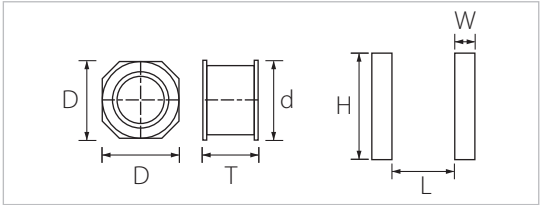
● Characteristics

Type (Dimension, Electrical Characteristics, DC spark-over Voltage)	DC Spark-Over Voltage		Impulse Spark-Over Voltage	Impulse Discharge Current		Insulation Resistance		Capacitance
	100V/S	V ±%	1KV/μs	8/20μs		IR	Test Voltage	1M ^{Hz} 1V
			≤V	KA		≥ GΩ	Vdc	≤ pF
2R55,A, 075	75	25	600	5		1	25	1
2R55, A, 091	90	25	600	5		1	50	1
2R55, A, 151	150	25	600	5		1	50	1
2R55, A, 231	230	20	650	5		1	100	1
2R55, A, 351	350	20	750	5		1	100	1
2R55, A, 471	470	20	850	5		1	100	1
2R55, A, 601	600	20	950	5		1	100	1
2R56, A / B, 075	75	25	600	5	10	1	25	1
2R56, A / B, 091	90	25	600	5	10	1	50	1
2R56, A / B, 151	150	25	600	5	10	1	50	1
2R56, A / B, 231	230	20	650	5	10	1	100	1
2R56, A / B, 351	350	20	750	5	10	1	100	1
2R56, A / B, 471	470	20	850	5	10	1	100	1
2R56, A / B, 601	600	20	950	5	10	1	100	1
2R56, A / B, 801	800	20	1,300	5	10	1	100	1
2R64, A, 075	75	25	600	5		1	25	1
2R64, A, 091	90	25	600	5		1	50	1
2R64, A, 151	150	25	600	5		1	50	1
2R64, A, 231	230	20	650	5		1	100	1
2R64, A, 351	350	20	750	5		1	100	1
2R64, A, 471	470	20	850	5		1	100	1
2R64, A, 601	600	20	950	5		1	100	1
2R86, B / C, 075	75	25	600	10	20	1	25	1
2R86, B / C, 091	90	25	600	10	20	1	50	1
2R86, B / C, 151	150	25	600	10	20	1	50	1
2R86, B / C, 231	230	20	650	10	20	1	100	1
2R86, B / C, 351	350	20	750	10	20	1	100	1
2R86, B / C, 471	470	20	850	10	20	1	100	1
2R86, B / C, 601	600	20	950	10	20	1	100	1
2R86 B / C 801	800	20	1 300	10	20	1	100	1

2-Electrode

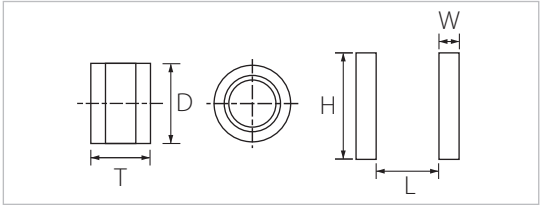
● Dimension

- S Type



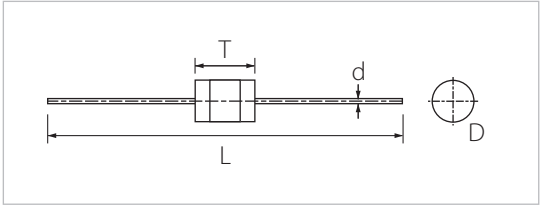
Division	Dimension (mm)						
	D±0.3	D1±0.3	T±0.5	d±0.5	L	H	W
2R55	5.0	5.0	4.7	5.0	3.3	5.8	1.2
2R64	6.2	6.2	4.2	6.0	2.2	5.0	1.3
2R86	8.3	8.3	6.0	8.3	4.4	9.0	1.2

- C Type



Division	Dimension (mm)				
	D±0.3	T±0.5	L	H	W
2R55	5.0	5.0	3.3	5.8	1.2
2R56	5.5	6.0	4.0	6.8	1.2
2R64	6.0	4.2	2.2	5.0	1.3
2R86	8.0	6.0	4.4	9.0	1.2

- L Type



Division	Dimension (mm)			
	D±0.3	T±0.5	d±0.05	L±3.0
2R55	5.0	5.0	0.8	57.0
2R56	5.5	6.0	0.8	57.0
2R64	6.0	4.2	0.8	55.0
2R86	8.0	6.0	1.0	57.0

3-Electrode

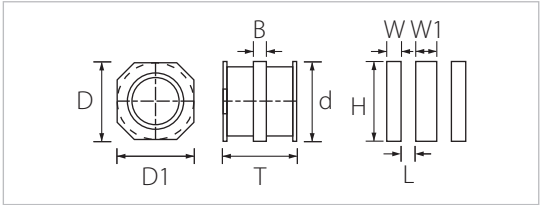
● Characteristics

Type (Dimension, Electrical Characteristics, DC spark-over Voltage)	DC Spark-Over Voltage		Impulse Spark-Over Voltage	Impulse Discharge Current		Insulation Resistance		Capacitance
	100V/S	V ±%	1KV/ μ s	8/20 μ s		IR	Test Voltage	1M ^{Hz} 1V
			≤V	KA		≥ GΩ	Vdc	≤ pF
3R57, A / B, 071	70	25	650	5	10	1	25	1
3R57, A / B, 091	90	25	650	5	10	1	50	1
3R57, A / B, 151	150	25	600	5	10	1	50	1
3R57, A / B, 231	230	20	600	5	10	1	100	1
3R57, A / B, 351	350	20	750	5	10	1	100	1
3R57, A / B, 421	420	20	800	5	10	1	100	1
3R57, A / B, 471	470	20	850	5	10	1	100	1
3R57, A / B, 601	600	20	950	5	10	1	100	1
3R68, A / B, 071	70	25	650	5	10	1	25	1
3R68, A / B, 091	90	25	650	5	10	1	50	1
3R68, A / B, 151	150	25	600	5	10	1	50	1
3R68, A / B, 231	230	20	600	5	10	1	100	1
3R68, A / B, 351	350	20	750	5	10	1	100	1
3R68, A / B, 421	420	20	800	5	10	1	100	1
3R68, A / B, 471	470	20	850	5	10	1	100	1
3R68, A / B, 601	600	20	950	5	10	1	100	1
3R81, B / C, 071	70	25	650	10	20	1	25	1
3R81, B / C, 091	90	25	650	10	20	1	50	1
3R81, B / C, 151	150	25	600	10	20	1	50	1
3R81, B / C, 231	230	20	600	10	20	1	100	1
3R81, B / C, 351	350	20	750	10	20	1	100	1
3R81, B / C, 421	420	20	800	10	20	1	100	1
3R81, B / C, 471	470	20	850	10	20	1	100	1
3R81, B / C, 601	600	20	950	10	20	1	100	1

3-Electrode

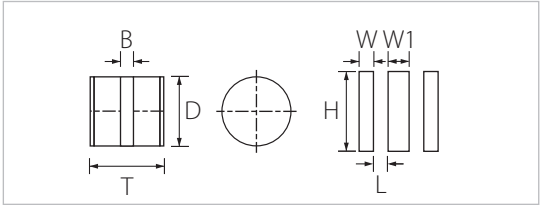
● Dimension

- S Type

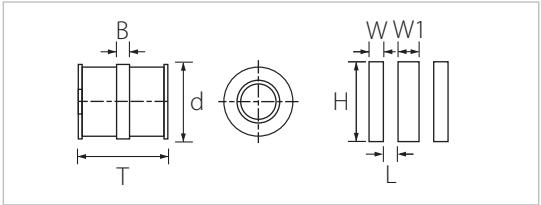


Division	Dimension (mm)								
	D±0.3	D1±0.3	B±0.2	T±0.5	d±0.3	L	H	W	W1
3R57	5.0	5.0	1.5	7.5	5.0	2.0	5.0	1.5	2.5

- C Type

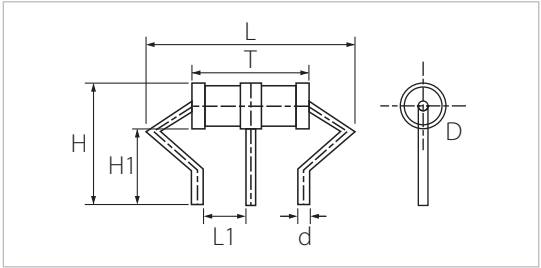


Division	Dimension (mm)						
	D±0.3	B±0.2	T±0.5	L	H	W	W1
3R68	6.0	1.5	8.5	2.0	6.0	1.5	2.5



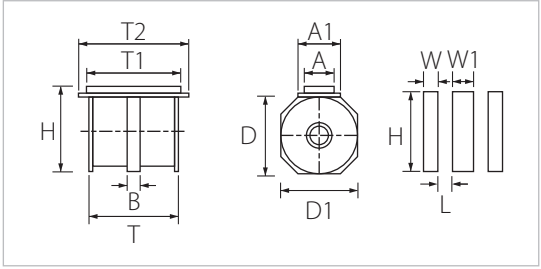
Division	Dimension (mm)						
	D±0.3	B±0.2	T±0.5	L	H	W	W1
3R81	8.0	1.5	10.0	2.0	8.0	1.5	2.5

- L Type



Division	Dimension (mm)						
	D±0.3	L	T±0.5	H	H1±0.5	L1±0.3	D±0.05
3R57	5.0	12.0MAX	7.5	11.0MAX	5.0	4.4	0.8
3R68	6.0	13.0MAX	8.5	12.5MAX	6.2	4.4	1.0
3R81	8.0	14.5MAX	10.0	17.0MAX	8.0	4.4	1.0

- T Type



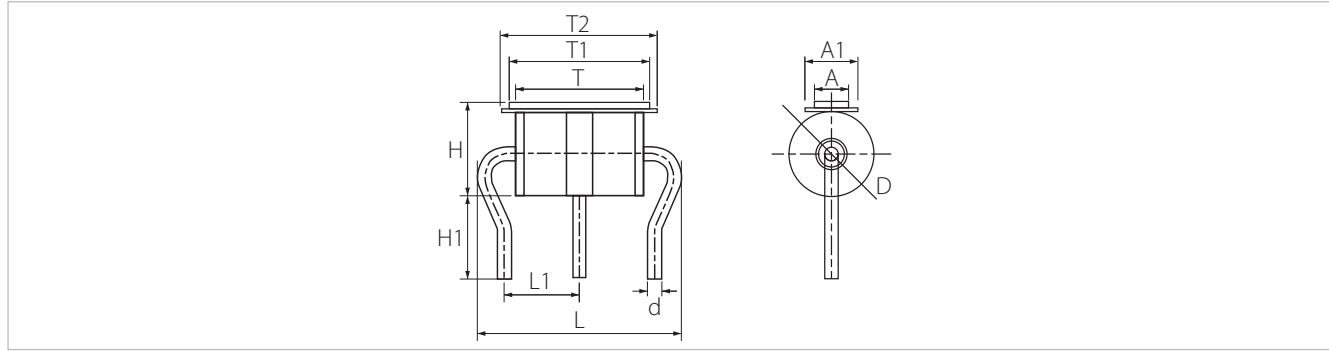
Division	Dimension (mm)					
	D±0.3	D1±0.3	A±0.1	A1±0.1	H±0.3	T±0.5
3R57	5.0	5.0	2.0	3.1	5.6	7.5

Dimension (mm)						
T1±0.2	T2±0.2	B±0.2	L	H	W	W1
8.3	9.2	1.5	2.0	5.0	1.5	2.5

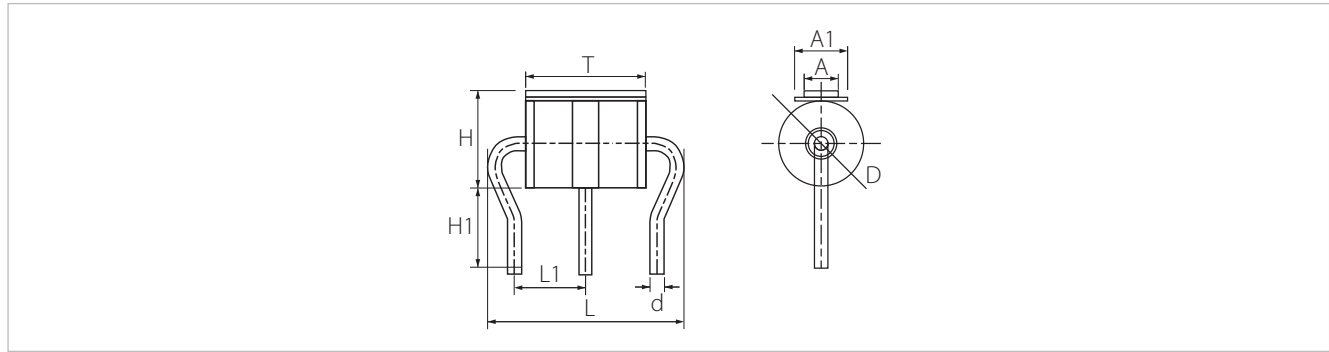
3-Electrode

● Dimension

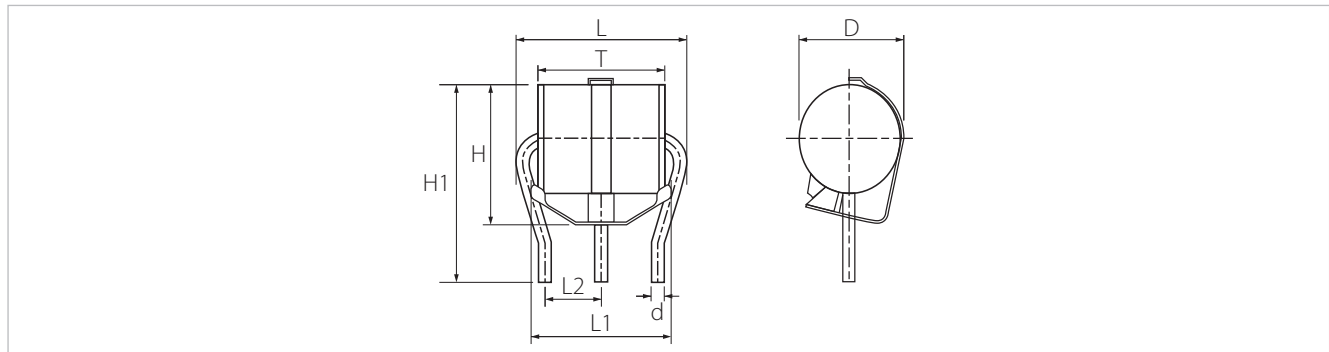
- F Type



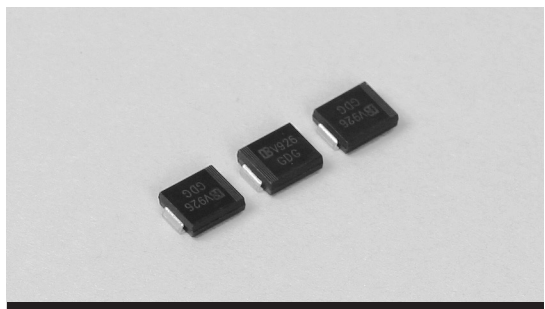
Division	Dimension (mm)										
	D±0.3	A±0.1	A1±0.1	T±0.5	T1±0.2	T2±0.2	L	L1±0.3	H±0.8	H1±0.5	D±0.05
3R57	5.0	2.0	3.1	7.5	8.3	9.2	12.0 MAX	4.4	5.6	5.0	0.8



Division	Dimension (mm)								
	D±0.3	A±0.1	A1±0.1	T±0.5	L	L1±0.3	H±0.8	H1±0.5	d±0.05
3R68	6.0	2.0	3.1	8.5	13.0 MAX	4.4	6.6	6.2	1.0



Division	Dimension (mm)							
	D±0.3	T±0.5	L	L1±0.3	L2±0.3	H	H1±1.0	D±0.05
3R81	8.0	10.0	14.5 MAX	11.5	4.4	10.9 MAX	15.5	1.0

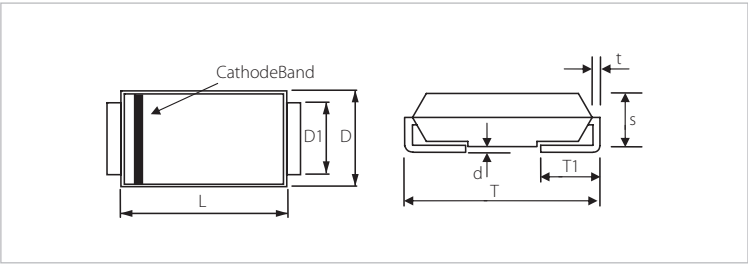


STV is a type of voltage suppressing device, also known as TVP or ABD They can limit, or clamp, an over-voltage spike to within a safe range in pica-seconds, protecting circuits from damage.

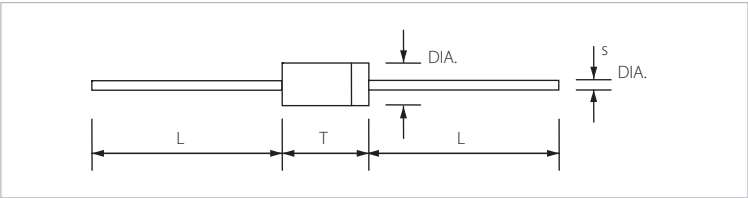
● Features

- For surface mounted applications in order to optimize board space.
- Low profile package.
- Built-in strain relief.
- Glass passivated junction.
- Low inductance.
- Excellent clamping capability.
- Repetition Rate (duty cycle):0.01%.
- Fast response time: typically less than 1.0ps from 0 Volts to VBR for unidirectional types.
- Typical IR less than 1μA above 10V.
- High Temperature soldering: 260°C/10 seconds at terminals.
- Plastic package has Underwriters Laboratory Flammability 94V-O.

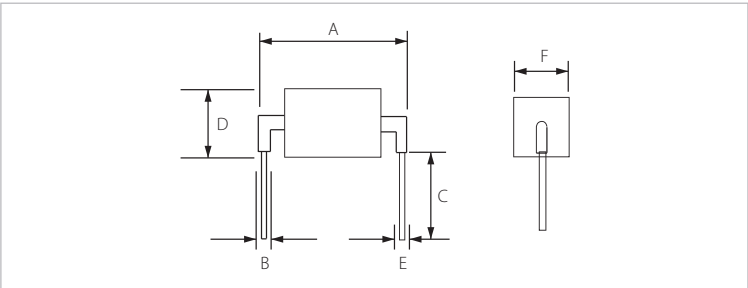
● Dimension



Type	Dimension (mm)							
	L±0.5	D±0.5	D1±0.5	T±0.5	T1±0.5	d (Max)	s±0.5	t ±0.1
SMAJ P4SMA	4.25	2.65	1.45	5.1	1.15	0.25	2.15	0.25
SMBJ P6SMB	4.3	3.6	2.1	5.4	1.15	0.25	2.3	0.25
SMCJ								
SMDJ	6.85	5.9	3.05	8.0	1.15	0.25	2.35	0.25
1.5SMC								
5.0SMD								



Type	Dimension (mm)			
	L±0.5	L±0.5	L±0.5	L±0.5
P4KE	25.5	4.65	2.35	0.8
SA / P6KE / SAC	25.5	6.7	3.1	0.8
1.5KE / LCE	25.5	8.35	5.05	1.0
3KP / 5KP / 15KPA				
20KPA / 30KPA	25.5	8.85	8.85	1.4



Type	Dimension (mm)					
	A (20%)	B (20%)	C (reference)	D (Max)	E (20%)	F (Max)
HFA / B-L	24.15	2.5	6.0	13.0	1.28	13.0
HFC / D-L	24.15	2.5	6.0	14.8	1.28	14.8

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SMAJ5.0A	SMAJ5.0CA	AE	WE	5.0	6.40	7.00	10	9.2	43.5	800
SMAJ6.0A	SMAJ6.0CA	AG	WG	6.0	6.67	7.37	10	10.3	38.8	800
SMAJ6.5A	SMAJ6.5CA	AK	WK	6.5	7.22	7.98	10	11.2	35.7	500
SMAJ7.0A	SMAJ7.0CA	AM	WM	7.0	7.78	8.60	10	12.0	33.3	200
SMAJ7.5A	SMAJ7.5CA	AP	WP	7.5	8.33	9.21	1	12.9	31.0	100
SMAJ8.0A	SMAJ8.0CA	AR	WR	8.0	8.89	9.83	1	13.6	29.4	50
SMAJ8.5A	SMAJ8.5CA	AT	WT	8.5	9.44	10.40	1	14.4	27.8	20
SMAJ9.0A	SMAJ9.0CA	AV	WV	9.0	10.00	11.10	1	15.4	26.0	10
SMAJ10A	SMAJ10CA	AX	WX	10.0	11.10	12.30	1	17.0	23.5	5
SMAJ11A	SMAJ11CA	AZ	WZ	11.0	12.20	13.50	1	18.2	22.0	1
SMAJ12A	SMAJ12CA	BE	XE	12.0	13.30	14.70	1	19.9	20.1	1
SMAJ13A	SMAJ13CA	BG	XG	13.0	14.40	15.90	1	21.5	18.6	1
SMAJ14A	SMAJ14CA	BK	XK	14.0	15.60	17.20	1	23.2	17.2	1
SMAJ15A	SMAJ15CA	BM	XM	15.0	16.70	18.50	1	24.4	16.4	1
SMAJ16A	SMAJ16CA	BP	XP	16.0	17.80	19.70	1	26.0	15.4	1
SMAJ17A	SMAJ17CA	BR	XR	17.0	18.90	20.90	1	27.6	14.5	1
SMAJ18A	SMAJ18CA	BT	XT	18.0	20.00	22.10	1	29.2	13.7	1
SMAJ20A	SMAJ20CA	BV	XV	20.0	22.20	24.50	1	32.4	12.3	1
SMAJ22A	SMAJ22CA	BX	XX	22.0	24.40	26.90	1	35.5	11.3	1
SMAJ24A	SMAJ24CA	BZ	XZ	24.0	26.70	29.50	1	38.9	10.3	1
SMAJ26A	SMAJ26CA	CE	YE	26.0	28.90	31.90	1	42.1	9.5	1
SMAJ28A	SMAJ28CA	CG	YG	28.0	31.10	34.40	1	45.4	8.8	1
SMAJ30A	SMAJ30CA	CK	YK	30.0	33.30	36.80	1	48.4	8.3	1
SMAJ33A	SMAJ33CA	CM	YM	33.0	36.70	40.60	1	53.3	7.5	1
SMAJ36A	SMAJ36CA	CP	YP	36.0	40.00	44.20	1	58.1	6.9	1
SMAJ40A	SMAJ40CA	CR	YR	40.0	44.40	49.10	1	64.5	6.2	1
SMAJ43A	SMAJ43CA	CT	YT	43.0	47.80	52.80	1	69.4	5.8	1
SMAJ45A	SMAJ45CA	CV	YV	45.0	50.00	55.30	1	72.7	5.5	1
SMAJ48A	SMAJ48CA	CX	YX	48.0	53.30	58.90	1	77.4	5.2	1
SMAJ51A	SMAJ51CA	CZ	YZ	51.0	56.70	62.70	1	82.4	4.9	1
SMAJ54A	SMAJ54CA	RE	ZE	54.0	60.00	66.30	1	87.1	4.6	1
SMAJ58A	SMAJ58CA	RG	ZG	58.0	64.40	71.20	1	93.6	4.3	1
SMAJ60A	SMAJ60CA	RK	ZK	60.0	66.70	73.70	1	96.8	4.1	1
SMAJ64A	SMAJ64CA	RM	ZM	64.0	71.10	78.60	1	103.0	3.9	1
SMAJ70A	SMAJ70CA	RP	ZP	70.0	77.80	86.00	1	113.0	3.5	1
SMAJ75A	SMAJ75CA	RR	ZR	75.0	83.30	92.10	1	121.0	3.3	1
SMAJ78A	SMAJ78CA	RT	ZT	78.0	86.70	95.80	1	126.0	3.2	1
SMAJ85A	SMAJ85CA	RV	ZV	85.0	94.40	104.00	1	137.0	2.9	1
SMAJ90A	SMAJ90CA	RX	ZX	90.0	100.00	111.00	1	146.0	2.7	1
SMAJ100A	SMAJ100CA	RZ	ZZ	100.0	111.00	123.00	1	162.0	2.5	1
SMAJ110A	SMAJ110CA	SE	VE	110.0	122.00	135.00	1	177.0	2.3	1
SMAJ120A	SMAJ120CA	SG	VG	120.0	133.00	147.00	1	193.0	2.1	1
SMAJ130A	SMAJ130CA	SK	VK	130.0	144.00	159.00	1	209.0	1.9	1
SMAJ150A	SMAJ150CA	SM	VM	150.0	167.00	185.00	1	243.0	1.6	1
SMAJ160A	SMAJ160CA	SP	VP	160.0	178.00	197.00	1	259.0	1.5	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SMAJ170A	SMAJ170CA	SR	VR	170.0	189.00	209.00	1	275.0	1.5	1
SMAJ180A	SMAJ180CA	ST	VT	180.0	201.00	222.00	1	292.0	1.4	1
SMAJ190A	SMAJ190CA	SU	YU	190.0	209.00	243.20	1	308.0	1.3	1
SMAJ200A	SMAJ200CA	SV	VV	200.0	224.00	247.00	1	324.0	1.2	1
SMAJ210A	SMAJ210CA	SW	YW	210.0	231.00	268.80	1	340.0	1.2	1
SMAJ220A	SMAJ220CA	GE	VX	220.0	246.00	272.00	1	356.0	1.1	1
SMAJ250A	SMAJ250CA	SZ	VZ	250.0	279.00	309.00	1	405.0	1.0	1
SMAJ300A	SMAJ300CA	TE	UE	300.0	335.00	371.00	1	486.0	0.8	1
SMAJ350A	SMAJ350CA	TG	UG	350.0	391.00	432.00	1	567.0	0.7	1
SMAJ400A	SMAJ400CA	TK	UK	400.0	447.00	494.00	1	648.0	0.6	1
SMAJ440A	SMAJ440CA	TM	UM	440.0	492.00	543.00	1	713.0	0.6	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

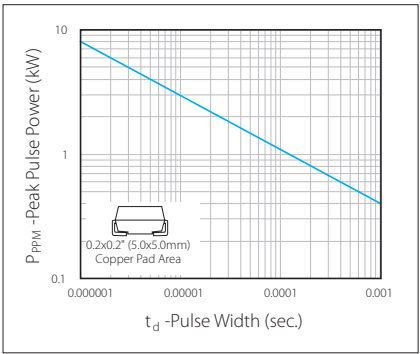


Figure 1- Peak Pulse Power Rating Curve

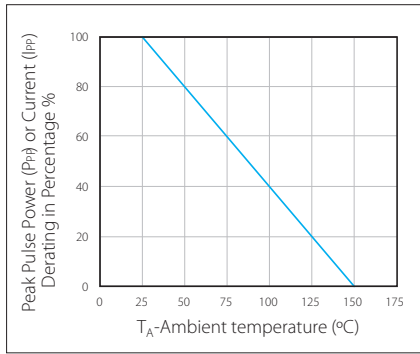


Figure 2- Pulse Derating Curve

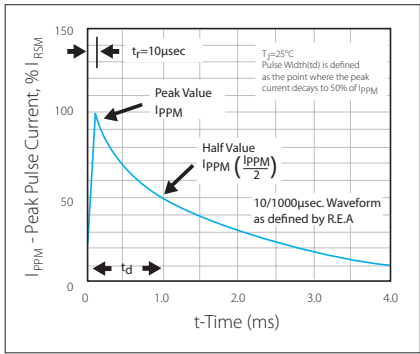


Figure 3- Pulse Waveform

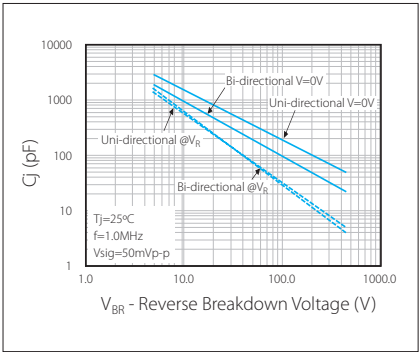


Figure 4- Typical Junction Capacitance

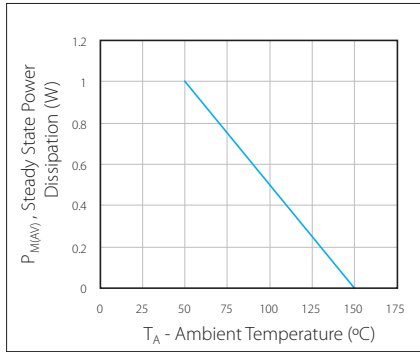


Figure 5- Steady State Power Dissipation Derating Curve

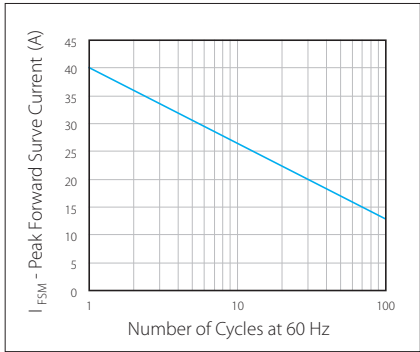


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SMBJ5.0A	SMBJ5.0CA	KE	AE	5.0	6.40	7.00	10	9.2	65.3	800
SMBJ6.0A	SMBJ6.0CA	KG	AG	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5A	SMBJ6.5CA	KK	AK	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0A	SMBJ7.0CA	KM	AM	7.0	7.78	8.60	10	12.0	50.0	200
SMBJ7.5A	SMBJ7.5CA	KP	AP	7.5	8.33	9.21	1	12.9	46.6	100
SMBJ8.0A	SMBJ8.0CA	KR	AR	8.0	8.89	9.83	1	13.6	44.2	50
SMBJ8.5A	SMBJ8.5CA	KT	AT	8.5	9.44	10.40	1	14.4	41.7	20
SMBJ9.0A	SMBJ9.0CA	KV	AV	9.0	10.00	11.10	1	15.4	39.0	10
SMBJ10A	SMBJ10CA	KX	AX	10.0	11.10	12.30	1	17.0	35.3	5
SMBJ11A	SMBJ11CA	KZ	AZ	11.0	12.20	13.50	1	18.2	33.0	1
SMBJ12A	SMBJ12CA	LE	BE	12.0	13.30	14.70	1	19.9	30.2	1
SMBJ13A	SMBJ13CA	LG	BG	13.0	14.40	15.90	1	21.5	28.0	1
SMBJ14A	SMBJ14CA	LK	BK	14.0	15.60	17.20	1	23.2	25.9	1
SMBJ15A	SMBJ15CA	LM	BM	15.0	16.70	18.50	1	24.4	24.6	1
SMBJ16A	SMBJ16CA	LP	BP	16.0	17.80	19.70	1	26.0	23.1	1
SMBJ17A	SMBJ17CA	LR	BR	17.0	18.90	20.90	1	27.6	21.8	1
SMBJ18A	SMBJ18CA	LT	BT	18.0	20.00	22.10	1	29.2	20.6	1
SMBJ20A	SMBJ20CA	LV	BV	20.0	22.20	24.50	1	32.4	18.6	1
SMBJ22A	SMBJ22CA	LX	BX	22.0	24.40	26.90	1	35.5	16.9	1
SMBJ24A	SMBJ24CA	LZ	BZ	24.0	26.70	29.50	1	38.9	15.5	1
SMBJ26A	SMBJ26CA	ME	CE	26.0	28.90	31.90	1	42.1	14.3	1
SMBJ28A	SMBJ28CA	MG	CG	28.0	31.10	34.40	1	45.4	13.3	1
SMBJ30A	SMBJ30CA	MK	CK	30.0	33.30	36.80	1	48.4	12.4	1
SMBJ33A	SMBJ33CA	MM	CM	33.0	36.70	40.60	1	53.3	11.3	1
SMBJ36A	SMBJ36CA	MP	CP	36.0	40.00	44.20	1	58.1	10.4	1
SMBJ40A	SMBJ40CA	MR	CR	40.0	44.40	49.10	1	64.5	9.3	1
SMBJ43A	SMBJ43CA	MT	CT	43.0	47.80	52.80	1	69.4	8.7	1
SMBJ45A	SMBJ45CA	MV	CV	45.0	50.00	55.30	1	72.7	8.3	1
SMBJ48A	SMBJ48CA	MX	CX	48.0	53.30	58.90	1	77.4	7.8	1
SMBJ51A	SMBJ51CA	MZ	CZ	51.0	56.70	62.70	1	82.4	7.3	1
SMBJ54A	SMBJ54CA	NE	DE	54.0	60.00	66.30	1	87.1	6.9	1
SMBJ58A	SMBJ58CA	NG	DG	58.0	64.40	71.20	1	93.6	6.5	1
SMBJ60A	SMBJ60CA	NK	DK	60.0	66.70	73.70	1	96.8	6.2	1
SMBJ64A	SMBJ64CA	NM	DM	64.0	71.10	78.60	1	103.0	5.9	1
SMBJ70A	SMBJ70CA	NP	DP	70.0	77.80	86.00	1	113.0	5.3	1
SMBJ75A	SMBJ75CA	NR	DR	75.0	83.30	92.10	1	121.0	5.0	1
SMBJ78A	SMBJ78CA	NT	DT	78.0	86.70	95.80	1	126.0	4.8	1
SMBJ85A	SMBJ85CA	NV	DV	85.0	94.40	104.00	1	137.0	4.4	1
SMBJ90A	SMBJ90CA	NX	DX	90.0	100.00	111.00	1	146.0	4.1	1
SMBJ100A	SMBJ100CA	NZ	DZ	100.0	111.00	123.00	1	162.0	3.7	1
SMBJ110A	SMBJ110CA	PE	EE	110.0	122.00	135.00	1	177.0	3.4	1
SMBJ120A	SMBJ120CA	PG	EG	120.0	133.00	147.00	1	193.0	3.1	1
SMBJ130A	SMBJ130CA	PK	EK	130.0	144.00	159.00	1	209.0	2.9	1
SMBJ150A	SMBJ150CA	PM	EM	150.0	167.00	185.00	1	243.0	2.5	1
SMBJ160A	SMBJ160CA	PP	EP	160.0	178.00	197.00	1	259.0	2.3	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SMBJ170A	SMBJ170CA	PR	ER	170.0	189.00	209.00	1	275.0	2.2	1
SMBJ180A	SMBJ180CA	PT	ET	180.0	201.00	222.00	1	292.0	2.1	1
SMBJ190A	SMBJ190CA	PA	EC	190.0	209.00	243.20	1	308.0	2.0	1
SMBJ200A	SMBJ200CA	PV	EV	200.0	224.00	247.00	1	324.0	1.9	1
SMBJ210A	SMBJ210CA	PB	ED	210.0	231.00	268.80	1	340.0	1.8	1
SMBJ220A	SMBJ220CA	PX	EX	220.0	246.00	272.00	1	356.0	1.7	1
SMBJ250A	SMBJ250CA	PZ	EZ	250.0	279.00	309.00	1	405.0	1.5	1
SMBJ300A	SMBJ300CA	QE	FE	300.0	335.00	371.00	1	486.0	1.3	1
SMBJ350A	SMBJ350CA	QG	FG	350.0	391.00	432.00	1	567.0	1.1	1
SMBJ400A	SMBJ400CA	QK	FK	400.0	447.00	494.00	1	648.0	0.9	1
SMBJ440A	SMBJ440CA	QM	FM	440.0	492.00	543.00	1	713.0	0.9	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

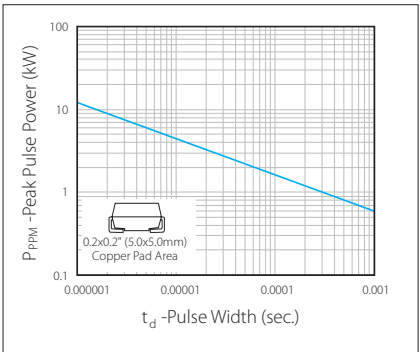


Figure 1- Peak Pulse Power Rating Curve

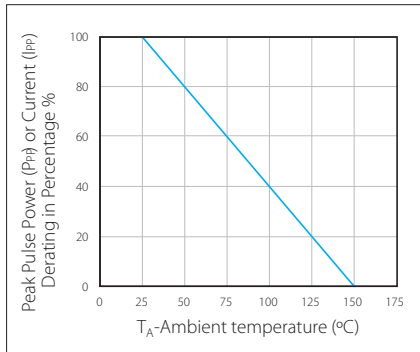


Figure 2- Pulse Derating Curve

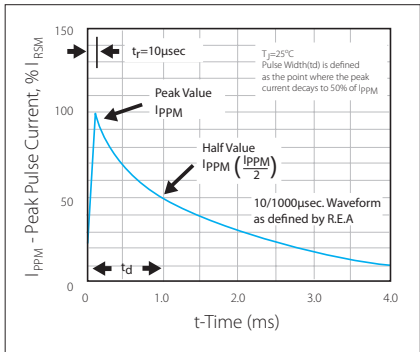


Figure 3- Pulse Waveform

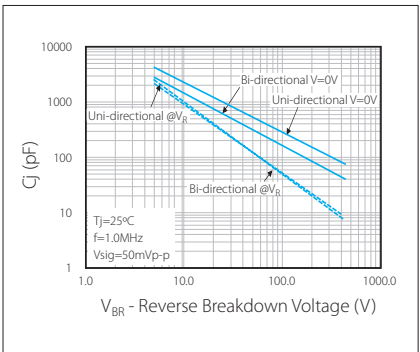


Figure 4- Typical Junction Capacitance

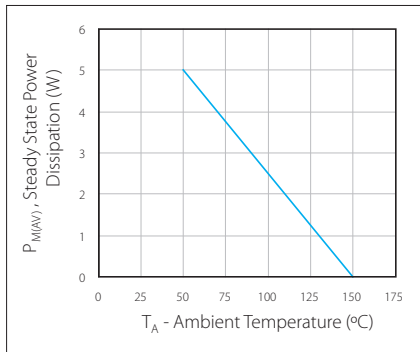


Figure 5- Steady State Power Dissipation Derating Curve

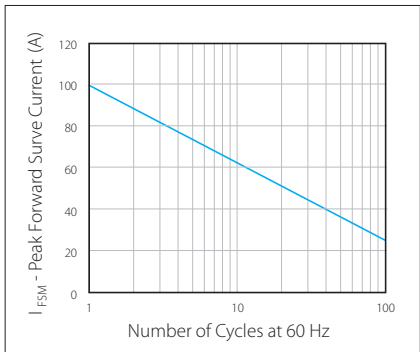


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SMCJ5.0A	SMCJ5.0CA	GDE	BDE	5.0	6.40	7.00	10	9.2	163.0	800
SMCJ6.0A	SMCJ6.0CA	GDG	BDG	6.0	6.67	7.37	10	10.3	145.7	800
SMCJ6.5A	SMCJ6.5CA	GDK	BDK	6.5	7.22	7.98	10	11.2	134.0	500
SMCJ7.0A	SMCJ7.0CA	GDM	BDM	7.0	7.78	8.60	10	12.0	125.0	200
SMCJ7.5A	SMCJ7.5CA	GDP	BDP	7.5	8.33	9.21	1	12.9	116.3	100
SMCJ8.0A	SMCJ8.0CA	GDR	BDR	8.0	8.89	9.83	1	13.6	110.3	50
SMCJ8.5A	SMCJ8.5CA	GDT	BDT	8.5	9.44	10.40	1	14.4	104.2	20
SMCJ9.0A	SMCJ9.0CA	GDV	BDV	9.0	10.00	11.10	1	15.4	97.4	10
SMCJ10A	SMCJ10CA	GDX	BDX	10.0	11.10	12.30	1	17.0	88.3	5
SMCJ11A	SMCJ11CA	GDZ	BDZ	11.0	12.20	13.50	1	18.2	82.5	1
SMCJ12A	SMCJ12CA	GEE	BEE	12.0	13.30	14.70	1	19.9	75.4	1
SMCJ13A	SMCJ13CA	GEG	BEG	13.0	14.40	15.90	1	21.5	69.8	1
SMCJ14A	SMCJ14CA	GEK	BEK	14.0	15.60	17.20	1	23.2	64.7	1
SMCJ15A	SMCJ15CA	GEM	BEM	15.0	16.70	18.50	1	24.4	61.5	1
SMCJ16A	SMCJ16CA	GEP	BEP	16.0	17.80	19.70	1	26.0	57.7	1
SMCJ17A	SMCJ17CA	GER	BER	17.0	18.90	20.90	1	27.6	54.4	1
SMCJ18A	SMCJ18CA	GET	BET	18.0	20.00	22.10	1	29.2	51.4	1
SMCJ20A	SMCJ20CA	GEV	BEV	20.0	22.20	24.50	1	32.4	46.3	1
SMCJ22A	SMCJ22CA	GEX	BEX	22.0	24.40	26.90	1	35.5	42.3	1
SMCJ24A	SMCJ24CA	GEZ	BEZ	24.0	26.70	29.50	1	38.9	38.6	1
SMCJ26A	SMCJ26CA	GFE	BFE	26.0	28.90	31.90	1	42.1	35.7	1
SMCJ28A	SMCJ28CA	GFG	BFG	28.0	31.10	34.40	1	45.4	33.1	1
SMCJ30A	SMCJ30CA	GFK	BFK	30.0	33.30	36.80	1	48.4	31.0	1
SMCJ33A	SMCJ33CA	GFM	BFM	33.0	36.70	40.60	1	53.3	28.2	1
SMCJ36A	SMCJ36CA	GFP	BFP	36.0	40.00	44.20	1	58.1	25.9	1
SMCJ40A	SMCJ40CA	GFR	BFR	40.0	44.40	49.10	1	64.5	23.3	1
SMCJ43A	SMCJ43CA	GFT	BFT	43.0	47.80	52.80	1	69.4	21.7	1
SMCJ45A	SMCJ45CA	GFV	BFV	45.0	50.00	55.30	1	72.7	20.6	1
SMCJ48A	SMCJ48CA	GFX	BFX	48.0	53.30	58.90	1	77.4	19.4	1
SMCJ51A	SMCJ51CA	GFZ	BFZ	51.0	56.70	62.70	1	82.4	18.2	1
SMCJ54A	SMCJ54CA	GGE	BGE	54.0	60.00	66.30	1	87.1	17.3	1
SMCJ58A	SMCJ58CA	GGG	BGG	58.0	64.40	71.20	1	93.6	16.1	1
SMCJ60A	SMCJ60CA	GGK	BGK	60.0	66.70	73.70	1	96.8	15.5	1
SMCJ64A	SMCJ64CA	GGM	BGM	64.0	71.10	78.60	1	103.0	14.6	1
SMCJ70A	SMCJ70CA	GGP	BGP	70.0	77.80	86.00	1	113.0	13.3	1
SMCJ75A	SMCJ75CA	GGR	BGR	75.0	83.30	92.10	1	121.0	12.4	1
SMCJ78A	SMCJ78CA	GGT	BGT	78.0	86.70	95.80	1	126.0	11.9	1
SMCJ85A	SMCJ85CA	GGV	BGV	85.0	94.40	104.00	1	137.0	11.0	1
SMCJ90A	SMCJ90CA	GGX	BGX	90.0	100.00	111.00	1	146.0	10.3	1
SMCJ100A	SMCJ100CA	GGZ	BGZ	100.0	111.00	123.00	1	162.0	9.3	1
SMCJ110A	SMCJ110CA	GHE	BHE	110.0	122.00	135.00	1	177.0	8.5	1
SMCJ120A	SMCJ120CA	GHG	BHG	120.0	133.00	147.00	1	193.0	7.8	1
SMCJ130A	SMCJ130CA	GHK	BHK	130.0	144.00	159.00	1	209.0	7.2	1
SMCJ150A	SMCJ150CA	GHM	BHM	150.0	167.00	185.00	1	243.0	6.2	1
SMCJ160A	SMCJ160CA	GHP	BHP	160.0	178.00	197.00	1	259.0	5.8	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SMCJ170A	SMCJ170CA	GHR	BHR	170.0	189.00	209.00	1	275.0	5.5	1
SMCJ180A	SMCJ180CA	GHT	BHT	180.0	201.00	222.00	1	292.0	5.1	1
SMCJ190A	SMCJ190CA	GHU	BHU	190.0	209.00	243.20	1	308.0	4.8	1
SMCJ200A	SMCJ200CA	GHV	BHV	200.0	224.00	247.00	1	324.0	4.6	1
SMCJ210A	SMCJ210CA	GHW	BHW	210.0	231.00	268.80	1	340.0	4.4	1
SMCJ220A	SMCJ220CA	GHX	BHX	220.0	246.00	272.00	1	356.0	4.2	1
SMCJ250A	SMCJ250CA	GHZ	BHZ	250.0	279.00	309.00	1	405.0	3.7	1
SMCJ300A	SMCJ300CA	GJE	BJE	300.0	335.00	371.00	1	486.0	3.1	1
SMCJ350A	SMCJ350CA	GJG	BJG	350.0	391.00	432.00	1	567.0	2.6	1
SMCJ400A	SMCJ400CA	GJK	BJK	400.0	447.00	494.00	1	648.0	2.3	1
SMCJ440A	SMCJ440CA	GJM	BJM	440.0	492.00	543.00	1	713.0	2.1	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

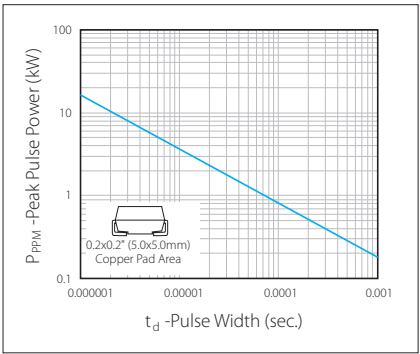


Figure 1- Peak Pulse Power Rating Curve

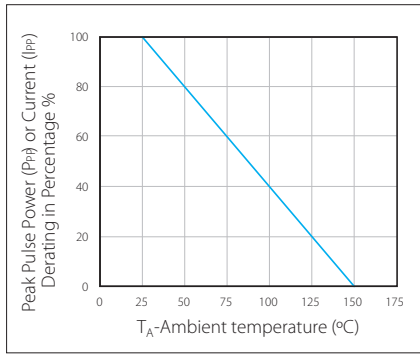


Figure 2- Pulse Derating Curve

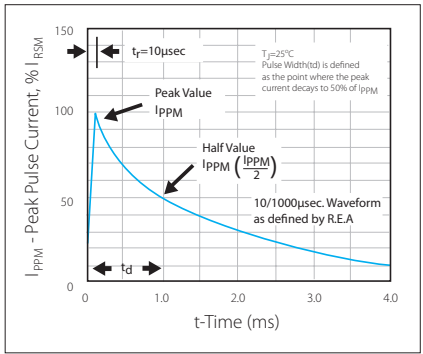


Figure 3- Pulse Waveform

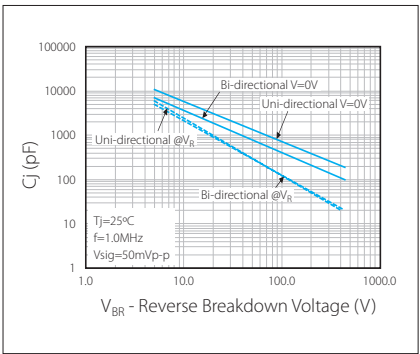


Figure 4- Typical Junction Capacitance

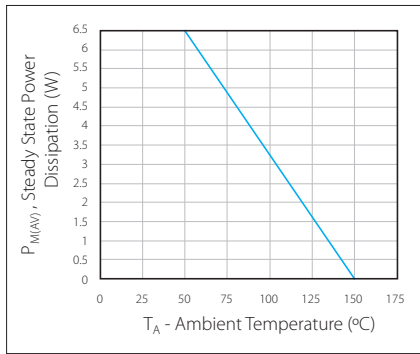


Figure 5- Steady State Power Dissipation Derating Curve

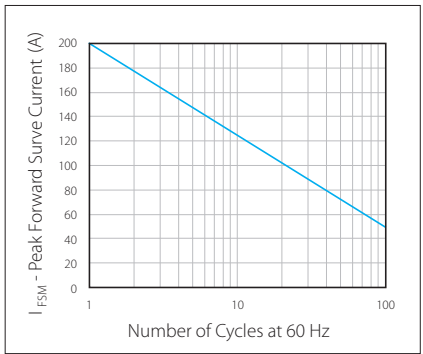


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SMDJ5.0A	SMDJ5.0CA	RDE	DDE	5.0	6.40	7.00	10	9.2	326.1	800
SMDJ6.0A	SMDJ6.0CA	RDG	DDG	6.0	6.67	7.37	10	10.3	291.3	800
SMDJ6.5A	SMDJ6.5CA	RDK	DDK	6.5	7.22	7.98	10	11.2	267.9	500
SMDJ7.0A	SMDJ7.0CA	PDM	DDM	7.0	7.78	8.60	10	12.0	250.0	200
SMDJ7.5A	SMDJ7.5CA	PDP	DDP	7.5	8.33	9.21	1	12.9	232.6	100
SMDJ8.0A	SMDJ8.0CA	PDR	DDR	8.0	8.89	9.83	1	13.6	220.6	50
SMDJ8.5A	SMDJ8.5CA	PDT	DDT	8.5	9.44	10.40	1	14.4	208.3	20
SMDJ9.0A	SMDJ9.0CA	PDV	DDV	9.0	10.00	11.10	1	15.4	194.8	10
SMDJ10A	SMDJ10CA	PDX	DDX	10.0	11.10	12.30	1	17.0	176.5	5
SMDJ11A	SMDJ11CA	PDZ	DDZ	11.0	12.20	13.50	1	18.2	164.8	2
SMDJ12A	SMDJ12CA	PEE	DEE	12.0	13.30	14.70	1	19.9	150.8	2
SMDJ13A	SMDJ13CA	PEG	DEG	13.0	14.40	15.90	1	21.5	139.5	2
SMDJ14A	SMDJ14CA	PEK	DEK	14.0	15.60	17.20	1	23.2	129.3	2
SMDJ15A	SMDJ15CA	PEM	DEM	15.0	16.70	18.50	1	24.4	123.0	2
SMDJ16A	SMDJ16CA	PEP	DEP	16.0	17.80	19.70	1	26.0	115.4	2
SMDJ17A	SMDJ17CA	PER	DER	17.0	18.90	20.90	1	27.6	108.7	2
SMDJ18A	SMDJ18CA	PET	DET	18.0	20.00	22.10	1	29.2	102.7	2
SMDJ20A	SMDJ20CA	PEV	DEV	20.0	22.20	24.50	1	32.4	92.6	2
SMDJ22A	SMDJ22CA	PEX	DEX	22.0	24.40	26.90	1	35.5	84.5	2
SMDJ24A	SMDJ24CA	PEZ	DEZ	24.0	26.70	29.50	1	38.9	77.1	2
SMDJ26A	SMDJ26CA	PFE	DFE	26.0	28.90	31.90	1	42.1	71.3	2
SMDJ28A	SMDJ28CA	PFG	DFG	28.0	31.10	34.40	1	45.4	66.1	2
SMDJ30A	SMDJ30CA	PFK	DFK	30.0	33.30	36.80	1	48.4	62.0	2
SMDJ33A	SMDJ33CA	PFM	DFM	33.0	36.70	40.60	1	53.3	56.3	2
SMDJ36A	SMDJ36CA	PFP	DFP	36.0	40.00	44.20	1	58.1	51.6	2
SMDJ40A	SMDJ40CA	PFR	DFR	40.0	44.40	49.10	1	64.5	46.5	2
SMDJ43A	SMDJ43CA	PFT	DFT	45.0	50.00	55.30	1	69.4	43.2	2
SMDJ45A	SMDJ45CA	PFV	DFV	43.0	47.80	52.80	1	72.7	41.3	2
SMDJ48A	SMDJ48CA	PEX	DFX	48.0	53.30	58.90	1	77.4	38.8	2
SMDJ51A	SMDJ51CA	PFZ	DFZ	51.0	56.70	62.70	1	82.4	36.4	2
SMDJ54A	SMDJ54CA	PGE	DGE	54.0	60.00	66.30	1	87.1	34.4	2
SMDJ58A	SMDJ58CA	PGG	DGG	58.0	64.40	71.20	1	93.6	32.1	2
SMDJ60A	SMDJ60CA	PGK	DGK	60.0	66.70	73.70	1	96.8	31.0	2
SMDJ64A	SMDJ64CA	PGM	DGM	64.0	71.10	78.60	1	103.0	29.1	2
SMDJ70A	SMDJ70CA	PGP	DGP	70.0	77.80	86.00	1	113.0	26.5	2
SMDJ75A	SMDJ75CA	PGR	DGR	75.0	83.30	92.10	1	121.0	24.8	2
SMDJ78A	SMDJ78CA	PGT	DGT	78.0	86.70	95.80	1	126.0	23.8	2
SMDJ85A	SMDJ85CA	PGV	DGV	85.0	94.40	104.00	1	137.0	21.9	2
SMDJ90A	SMDJ90CA	PGX	DGX	90.0	100.00	111.00	1	146.0	20.5	2
SMDJ100A	SMDJ100CA	PGZ	DGZ	100.0	111.00	123.00	1	162.0	18.5	2
SMDJ110A	SMDJ110CA	PHE	DHE	110.0	122.00	135.00	1	177.0	16.9	2
SMDJ120A	SMDJ120CA	PHG	DHG	120.0	133.00	147.00	1	193.0	15.5	2
SMDJ130A	SMDJ130CA	PHK	DHK	130.0	144.00	159.00	1	209.0	14.4	2
SMDJ150A	SMDJ150CA	PHM	DHM	150.0	167.00	185.00	1	243.0	12.3	2
SMDJ160A	SMDJ160CA	PHP	DHP	160.0	178.00	197.00	1	259.0	11.6	2

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SMDJ180A	SMDJ180CA	HHT	IHT	180.0	198.00	230.40	1	292.0	10.3	2
SMDJ190A	SMDJ190CA	HHV	IHV	190.0	209.00	243.20	1	308.0	9.7	2
SMDJ200A	SMDJ200CA	HHX	IHX	200.0	220.00	256.00	1	324.0	9.3	2
SMDJ210A	SMDJ210CA	HHZ	IHZ	210.0	231.00	268.80	1	340.0	8.8	2
SMDJ220A	SMDJ220CA	HIE	IIE	220.0	242.00	281.6 0	1	356.0	8.4	2

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

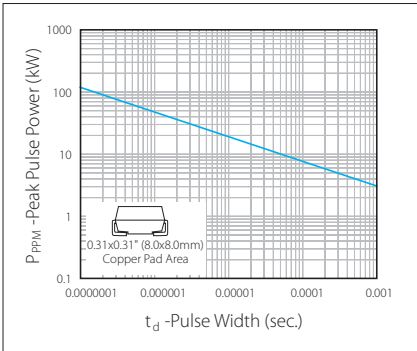


Figure 1- Peak Pulse Power Rating Curve

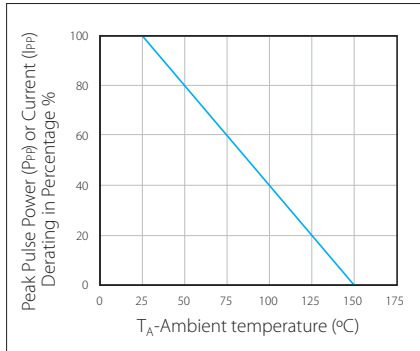


Figure 2- Pulse Derating Curve

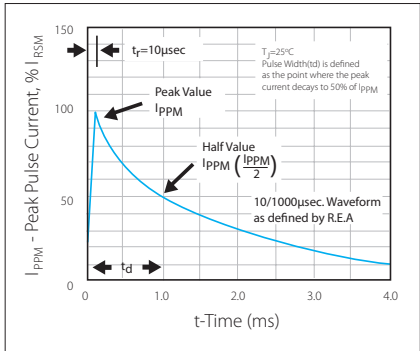


Figure 3- Pulse Waveform

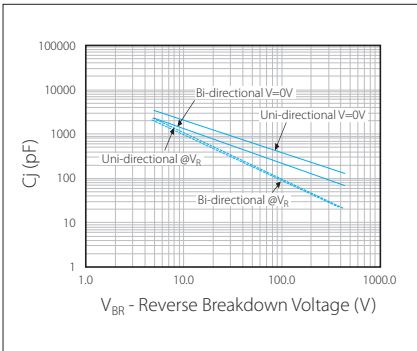


Figure 4- Typical Junction Capacitance

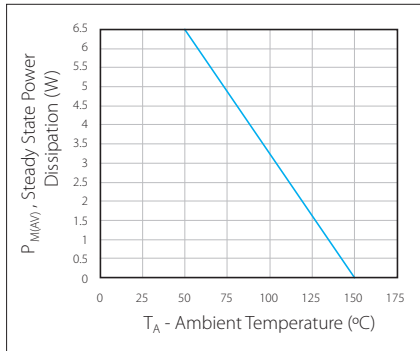


Figure 5- Steady State Power Dissipation Derating Curve

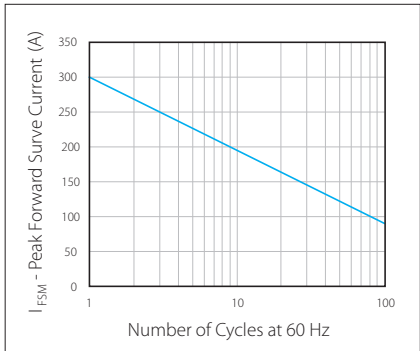


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
P4SMA6.8A	P4SMA6.8CA	6V8A	6V8C	5.80	6.45	7.14	10	10.5	39.0	1000
P4SMA7.5A	P4SMA7.5CA	7V5A	7V5C	6.40	7.13	7.88	10	11.3	36.3	500
P4SMA8.2A	P4SMA8.2CA	8V2A	8V2C	7.02	7.79	8.61	10	12.1	33.9	200
P4SMA9.1A	P4SMA9.1CA	9V1A	9V1C	7.78	8.65	9.55	1	13.4	30.6	50
P4SMA10A	P4SMA10CA	10A	10C	8.55	9.50	10.50	1	14.5	28.3	10
P4SMA11A	P4SMA11CA	11A	11C	9.40	10.50	11.60	1	15.6	26.3	5
P4SMA12A	P4SMA12CA	12A	12C	10.20	11.40	12.60	1	16.7	24.6	5
P4SMA13A	P4SMA13CA	13A	13C	11.10	12.40	13.70	1	18.2	22.5	1
P4SMA15A	P4SMA15CA	15A	15C	12.80	14.30	15.80	1	21.2	19.3	1
P4SMA16A	P4SMA16CA	16A	16C	13.60	15.20	16.80	1	22.5	18.2	1
P4SMA18A	P4SMA18CA	18A	18C	15.30	17.10	18.90	1	25.5	16.1	1
P4SMA20A	P4SMA20CA	20A	20C	17.10	19.00	21.00	1	27.7	14.8	1
P4SMA22A	P4SMA22CA	22A	22C	18.80	20.90	23.10	1	30.6	13.4	1
P4SMA24A	P4SMA24CA	24A	24C	20.50	22.80	25.20	1	33.2	12.3	1
P4SMA27A	P4SMA27CA	27A	27C	23.10	25.70	28.40	1	37.5	10.9	1
P4SMA30A	P4SMA30CA	30A	30C	25.60	28.50	31.50	1	41.4	9.9	1
P4SMA33A	P4SMA33CA	33A	33C	28.20	31.40	34.70	1	45.7	9.0	1
P4SMA36A	P4SMA36CA	36A	36C	30.80	34.20	37.80	1	49.9	8.2	1
P4SMA39A	P4SMA39CA	39A	39C	33.30	37.10	41.00	1	53.9	7.6	1
P4SMA43A	P4SMA43CA	43A	43C	36.80	40.90	45.20	1	59.3	6.9	1
P4SMA47A	P4SMA47CA	47A	47C	40.20	44.70	49.40	1	64.8	6.3	1
P4SMA51A	P4SMA51CA	51A	51C	43.60	48.50	53.60	1	70.1	5.8	1
P4SMA56A	P4SMA56CA	56A	56C	47.80	53.20	58.80	1	77.0	5.3	1
P4SMA62A	P4SMA62CA	62A	62C	53.00	58.90	65.10	1	85.0	4.8	1
P4SMA68A	P4SMA68CA	68A	68C	58.10	64.60	71.40	1	92.0	4.5	1
P4SMA75A	P4SMA75CA	75A	75C	64.10	71.30	78.80	1	103.0	4.0	1
P4SMA82A	P4SMA82CA	82A	82C	70.10	77.90	86.10	1	113.0	3.6	1
P4SMA91A	P4SMA91CA	91A	91C	77.80	86.50	95.50	1	125.0	3.3	1
P4SMA100A	P4SMA100CA	100A	100C	85.50	95.00	105.00	1	137.0	3.0	1
P4SMA110A	P4SMA110CA	110A	110C	94.00	105.00	116.00	1	152.0	2.7	1
P4SMA120A	P4SMA120CA	120A	120C	102.00	114.00	126.00	1	165.0	2.5	1
P4SMA130A	P4SMA130CA	130A	130C	111.00	124.00	137.00	1	179.0	2.3	1
P4SMA150A	P4SMA150CA	150A	150C	128.00	143.00	158.00	1	207.0	2.0	1
P4SMA160A	P4SMA160CA	160A	160C	136.00	152.00	168.00	1	219.0	1.9	1
P4SMA170A	P4SMA170CA	170A	170C	145.00	162.00	179.00	1	234.0	1.8	1
P4SMA180A	P4SMA180CA	180A	180C	154.00	171.00	189.00	1	246.0	1.7	1
P4SMA200A	P4SMA200CA	200A	200C	171.00	190.00	210.00	1	274.0	1.5	1
P4SMA220A	P4SMA220CA	220A	220C	185.00	209.00	231.00	1	328.0	1.3	1
P4SMA250A	P4SMA250CA	250A	250C	214.00	237.00	263.00	1	344.0	1.2	1
P4SMA300A	P4SMA300CA	300A	300C	256.00	285.00	315.00	1	414.0	1.0	1
P4SMA350A	P4SMA350CA	350A	350C	300.00	332.00	368.00	1	482.0	0.9	1
P4SMA400A	P4SMA400CA	400A	400C	342.00	380.00	420.00	1	548.0	0.8	1
P4SMA440A	P4SMA440CA	440A	440C	376.00	418.00	462.00	1	602.0	0.7	1
P4SMA480A	P4SMA480CA	480A	480C	408.00	456.00	504.00	1	658.0	0.6	1
P4SMA510A	P4SMA510CA	510A	510C	434.00	485.00	535.00	1	698.0	0.6	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
P4SMA530A	P4SMA530CA	530A	530C	477.00	503.50	556.50	1	725.0	0.6	1
P4SMA540A	P4SMA540CA	540A	540C	486.00	513.00	567.00	1	740.0	0.5	1
P4SMA550A	P4SMA550CA	550A	550C	495.00	522.50	577.50	1	760.0	0.5	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

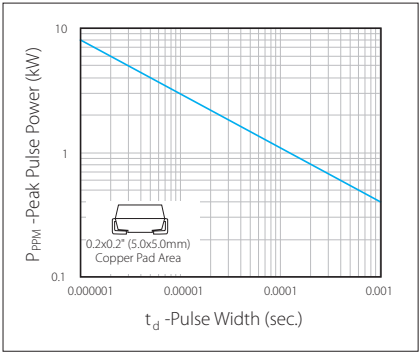


Figure 1- Peak Pulse Power Rating Curve

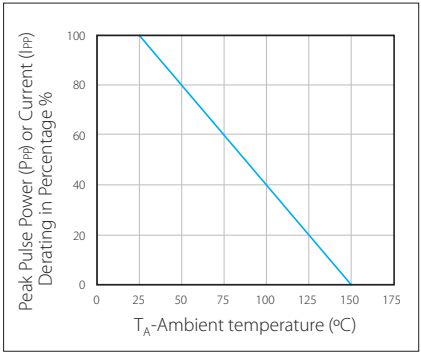


Figure 2- Pulse Derating Curve

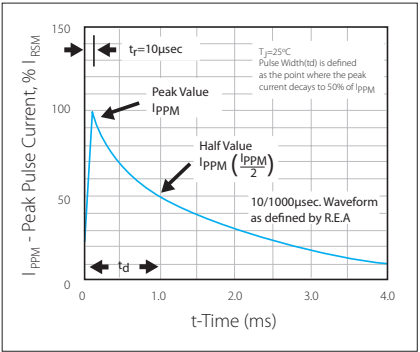


Figure 3- Pulse Waveform

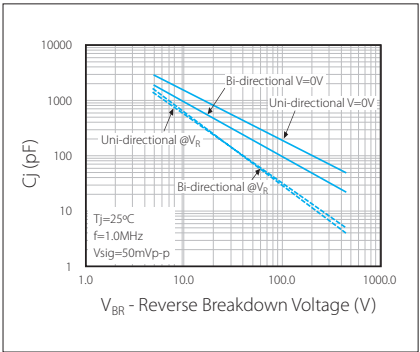


Figure 4- Typical Junction Capacitance

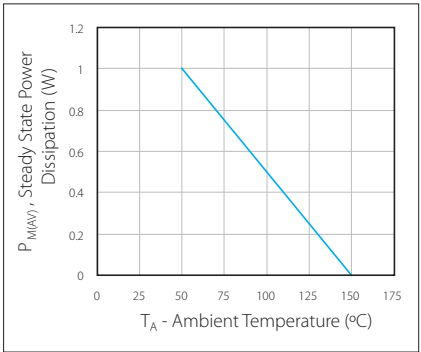


Figure 5- Steady State Power Dissipation Derating Curve

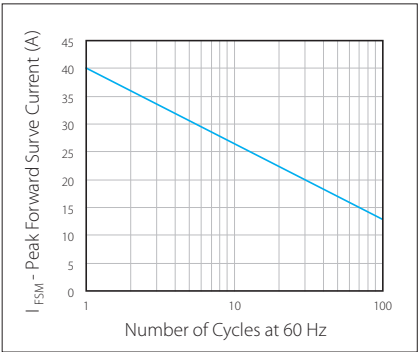


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
P6SMB6.8A	P6SMB6.8CA	6V8A	6V8C	5.80	6.45	7.14	10	10.5	58.1	1000
P6SMB7.5A	P6SMB7.5CA	7V5A	7V5C	6.40	7.13	7.88	10	11.3	54.0	500
P6SMB8.2A	P6SMB8.2CA	8V2A	8V2C	7.02	7.79	8.61	10	12.1	50.4	200
P6SMB9.1A	P6SMB9.1CA	9V1A	9V1C	7.78	8.65	9.55	1	13.4	45.5	50
P6SMB10A	P6SMB10CA	10A	10C	8.55	9.50	10.50	1	14.5	42.1	10
P6SMB11A	P6SMB11CA	11A	11C	9.40	10.50	11.60	1	15.6	39.1	5
P6SMB12A	P6SMB12CA	12A	12C	10.20	11.40	12.60	1	16.7	36.5	5
P6SMB13A	P6SMB13CA	13A	13C	11.10	12.40	13.70	1	18.2	33.5	1
P6SMB15A	P6SMB15CA	15A	15C	12.80	14.30	15.80	1	21.2	28.8	1
P6SMB16A	P6SMB16CA	16A	16C	13.60	15.20	16.80	1	22.5	27.1	1
P6SMB18A	P6SMB18CA	18A	18C	15.30	17.10	18.90	1	25.5	24.2	1
P6SMB20A	P6SMB20CA	20A	20C	17.10	19.00	21.00	1	27.7	22.0	1
P6SMB22A	P6SMB22CA	22A	22C	18.80	20.90	23.10	1	30.6	19.9	1
P6SMB24A	P6SMB24CA	24A	24C	20.50	22.80	25.20	1	33.2	18.4	1
P6SMB27A	P6SMB27CA	27A	27C	23.10	25.70	28.40	1	37.5	16.3	1
P6SMB30A	P6SMB30CA	30A	30C	25.60	28.50	31.50	1	41.4	14.7	1
P6SMB33A	P6SMB33CA	33A	33C	28.20	31.40	34.70	1	45.7	13.3	1
P6SMB36A	P6SMB36CA	36A	36C	30.80	34.20	37.80	1	49.9	12.2	1
P6SMB39A	P6SMB39CA	39A	39C	33.30	37.10	41.00	1	53.9	11.3	1
P6SMB43A	P6SMB43CA	43A	43C	36.80	40.90	45.20	1	59.3	10.3	1
P6SMB47A	P6SMB47CA	47A	47C	40.20	44.70	49.40	1	64.8	9.4	1
P6SMB51A	P6SMB51CA	51A	51C	43.60	48.50	53.60	1	70.1	8.7	1
P6SMB56A	P6SMB56CA	56A	56C	47.80	53.20	58.80	1	77.0	7.9	1
P6SMB62A	P6SMB62CA	62A	62C	53.00	58.90	65.10	1	85.0	7.2	1
P6SMB68A	P6SMB68CA	68A	68C	58.10	64.60	71.40	1	92.0	6.6	1
P6SMB75A	P6SMB75CA	75A	75C	64.10	71.30	78.80	1	103.0	5.9	1
P6SMB82A	P6SMB82CA	82A	82C	70.10	77.90	86.10	1	113.0	5.4	1
P6SMB91A	P6SMB91CA	91A	91C	77.80	86.50	95.50	1	125.0	4.9	1
P6SMB100A	P6SMB100CA	100A	100C	85.50	95.00	105.00	1	137.0	4.5	1
P6SMB110A	P6SMB110CA	110A	110C	94.00	105.00	116.00	1	152.0	4.0	1
P6SMB120A	P6SMB120CA	120A	120C	102.00	114.00	126.00	1	165.0	3.7	1
P6SMB130A	P6SMB130CA	130A	130C	111.00	124.00	137.00	1	179.0	3.4	1
P6SMB150A	P6SMB150CA	150A	150C	128.00	143.00	158.00	1	207.0	2.9	1
P6SMB160A	P6SMB160CA	160A	160C	136.00	152.00	168.00	1	219.0	2.8	1
P6SMB170A	P6SMB170CA	170A	170C	145.00	162.00	179.00	1	234.0	2.6	1
P6SMB180A	P6SMB180CA	180A	180C	154.00	171.00	189.00	1	246.0	2.5	1
P6SMB200A	P6SMB200CA	200A	200C	171.00	190.00	210.00	1	274.0	2.2	1
P6SMB220A	P6SMB220CA	220A	220C	185.00	209.00	231.00	1	328.0	1.9	1
P6SMB250A	P6SMB250CA	250A	250C	214.00	237.00	263.00	1	344.0	1.8	1
P6SMB300A	P6SMB300CA	300A	300C	256.00	285.00	315.00	1	414.0	1.5	1
P6SMB350A	P6SMB350CA	350A	350C	300.00	332.00	368.00	1	482.0	1.3	1
P6SMB400A	P6SMB400CA	400A	400C	342.00	380.00	420.00	1	548.0	1.1	1
P6SMB440A	P6SMB440CA	440A	440C	376.00	418.00	462.00	1	602.0	1.0	1
P6SMB480A	P6SMB480CA	480A	480C	408.00	456.00	504.00	1	658.0	0.9	1
P6SMB510A	P6SMB510CA	510A	510C	434.00	485.00	535.00	1	698.0	0.9	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
P6SMB530A	P6SMB530CA	530A	530C	477.00	503.50	556.50	1	725.0	0.8	1
P6SMB540A	P6SMB540CA	540A	540C	486.00	513.00	567.00	1	740.0	0.8	1
P6SMB550A	P6SMB550CA	550A	550C	495.00	522.50	577.50	1	760.0	0.8	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

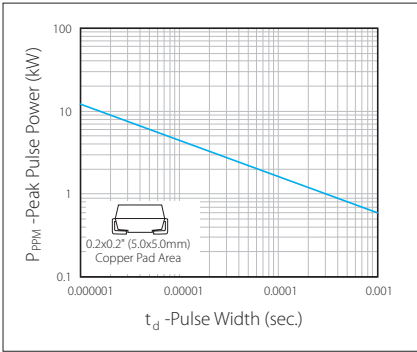


Figure 1- Peak Pulse Power Rating Curve

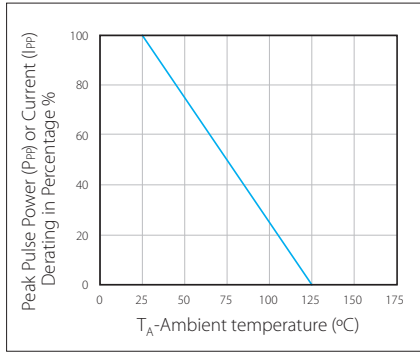


Figure 2- Pulse Derating Curve

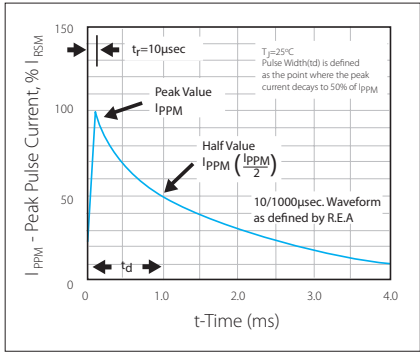


Figure 3- Pulse Waveform

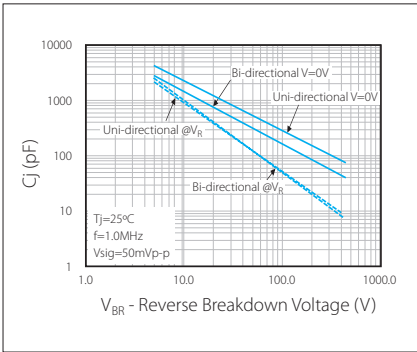


Figure 4- Typical Junction Capacitance

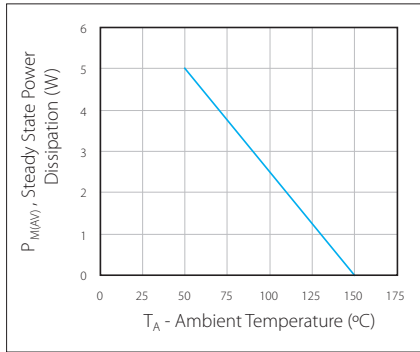


Figure 5- Steady State Power Dissipation Derating Curve

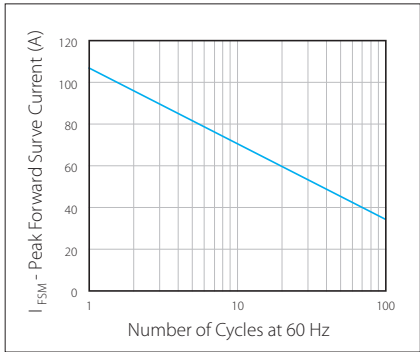


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
1.5SMC6.8A	1.5SMC6.8CA	6V8A	6V8C	5.80	6.45	7.14	10	10.5	144.8	1000
1.5SMC7.5A	1.5SMC7.5CA	7V5A	7V5C	6.40	7.13	7.88	10	11.3	134.5	500
1.5SMC8.2A	1.5SMC8.2CA	8V2A	8V2C	7.02	7.79	8.61	10	12.1	125.6	200
1.5SMC9.1A	1.5SMC9.1CA	9V1A	9V1C	7.78	8.65	9.50	1	13.4	113.4	50
1.5SMC10A	1.5SMC10CA	10A	10C	8.55	9.50	10.50	1	14.5	104.8	10
1.5SMC11A	1.5SMC11CA	11A	11C	9.40	10.50	11.60	1	15.6	97.4	5
1.5SMC12A	1.5SMC12CA	12A	12C	10.20	11.40	12.60	1	16.7	91.0	5
1.5SMC13A	1.5SMC13CA	13A	13C	11.10	12.40	13.70	1	18.2	83.5	1
1.5SMC15A	1.5SMC15CA	15A	15C	12.80	14.30	15.80	1	21.2	71.7	1
1.5SMC16A	1.5SMC16CA	16A	16C	13.60	15.20	16.80	1	22.5	67.6	1
1.5SMC18A	1.5SMC18CA	18A	18C	15.30	17.10	18.90	1	25.2	60.3	1
1.5SMC20A	1.5SMC20CA	20A	20C	17.10	19.00	21.00	1	27.7	54.9	1
1.5SMC22A	1.5SMC22CA	22A	22C	18.80	20.90	23.10	1	30.6	49.7	1
1.5SMC24A	1.5SMC24CA	24A	24C	20.50	22.80	25.20	1	33.2	45.8	1
1.5SMC27A	1.5SMC27CA	27A	27C	23.10	25.70	28.40	1	37.5	40.5	1
1.5SMC30A	1.5SMC30CA	30A	30C	25.60	28.50	31.50	1	41.4	36.7	1
1.5SMC33A	1.5SMC33CA	33A	33C	28.20	31.40	34.70	1	45.7	33.3	1
1.5SMC36A	1.5SMC36CA	36A	36C	30.80	34.20	37.80	1	49.9	30.5	1
1.5SMC39A	1.5SMC39CA	39A	39C	33.30	37.10	41.00	1	53.9	28.2	1
1.5SMC43A	1.5SMC43CA	43A	43C	36.80	40.90	45.20	1	59.3	25.6	1
1.5SMC47A	1.5SMC47CA	47A	47C	40.20	44.70	49.40	1	64.8	23.5	1
1.5SMC51A	1.5SMC51CA	51A	51C	43.60	48.50	53.60	1	70.1	21.7	1
1.5SMC56A	1.5SMC56CA	56A	56C	47.80	53.20	58.80	1	77.0	19.7	1
1.5SMC62A	1.5SMC62CA	62A	62C	53.00	58.90	65.10	1	85.0	17.9	1
1.5SMC68A	1.5SMC68CA	68A	68C	58.10	64.60	71.40	1	92.0	16.5	1
1.5SMC75A	1.5SMC75CA	75A	75C	64.10	71.30	78.80	1	103.0	14.8	1
1.5SMC82A	1.5SMC82CA	82A	82C	70.10	77.90	86.10	1	113.0	13.5	1
1.5SMC91A	1.5SMC91CA	91A	91C	77.80	86.50	95.50	1	125.0	12.2	1
1.5SM100A	1.5SMC100CA	68A	100C	85.50	95.00	105.00	1	137.0	11.1	1
1.5SMC110A	1.5SMC110CA	75A	110C	94.00	105.00	116.00	1	152.0	10.0	1
1.5SMC120A	1.5SMC120CA	120A	120C	102.00	114.00	126.00	1	165.0	9.2	1
1.5SMC130A	1.5SMC130CA	130A	130C	111.00	124.00	137.00	1	179.0	8.5	1
1.5SMC150A	1.5SMC150CA	150A	150C	128.00	143.00	158.00	1	207.0	7.3	1
1.5SMC160A	1.5SMC160CA	160A	160C	136.00	152.00	168.00	1	219.0	6.9	1
1.5SMC170A	1.5SMC170CA	170A	170C	145.00	162.00	179.00	1	234.0	6.5	1
1.5SMC180A	1.5SMC180CA	180A	180C	154.00	171.00	189.00	1	246.0	6.2	1
1.5SMC200A	1.5SMC200CA	200A	200C	171.00	190.00	210.00	1	274.0	5.5	1
1.5SMC220A	1.5SMC220CA	220A	220C	185.00	209.00	231.00	1	328.0	4.6	1
1.5SMC250A	1.5SMC250CA	250A	250C	214.00	237.00	263.00	1	344.0	4.4	1
1.5SMC300A	1.5SMC300CA	300A	300C	256.00	285.00	315.00	1	414.0	3.7	1
1.5SMC350A	1.5SMC350CA	350A	350C	300.00	332.00	368.00	1	482.0	3.2	1
1.5SMC400A	1.5SMC400CA	400A	400C	342.00	380.00	420.00	1	548.0	2.8	1
1.5SMC440A	1.5SMC440CA	440A	440C	376.00	418.00	462.00	1	602.0	2.5	1
1.5SMC480A	1.5SMC480CA	480A	480C	408.00	456.00	504.00	1	658.0	2.3	1
1.5SMC510A	1.5SMC510CA	510A	510C	434.00	485.00	535.00	1	698.0	2.1	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
1.5SMC530A	1.5SMC530CA	530A	530C	477.00	503.50	556.50	1	725.0	2.1	1
1.5SMC540A	1.5SMC540CA	540A	540C	486.00	513.00	567.00	1	740.0	2.0	1
1.5SMC550A	1.5SMC550CA	550A	550C	495.00	522.50	577.50	1	760.0	2.0	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

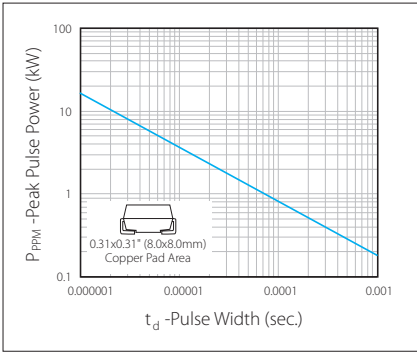


Figure 1- Peak Pulse Power Rating Curve

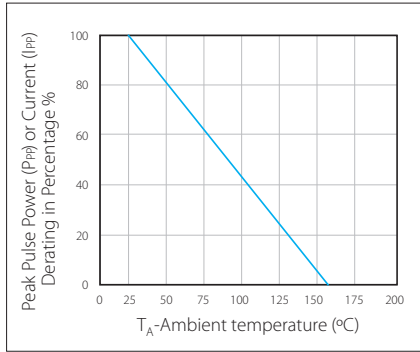


Figure 2- Pulse Derating Curve

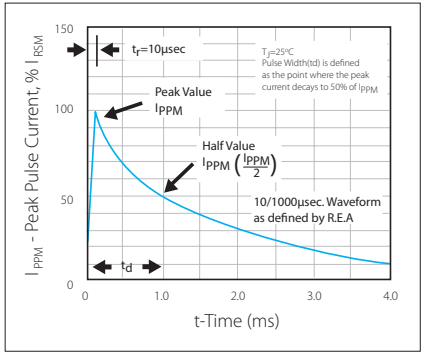


Figure 3- Pulse Waveform

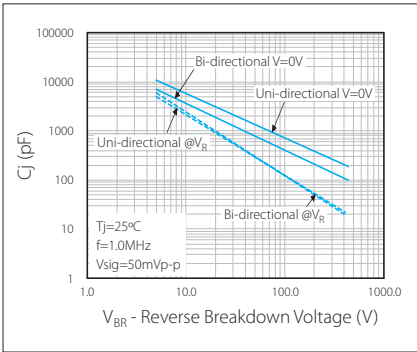


Figure 4- Typical Junction Capacitance

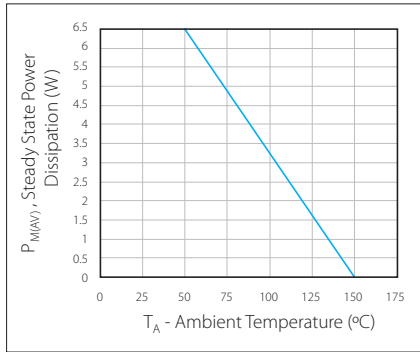


Figure 5- Steady State Power Dissipation Derating Curve

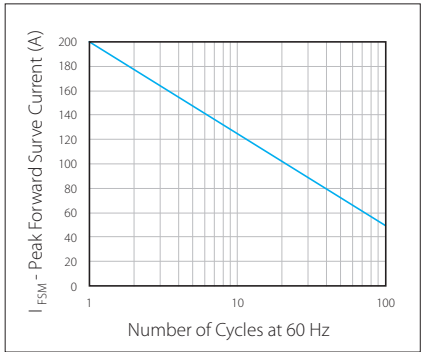


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _r	Breakdown Voltage @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	V _{RWM} (V)	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
5.0SMDJ11A	5.0SMDJ11CA	5PEN	5BEN	11.0	12.20	13.50	10	18.2	275.00	800
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	12.0	13.30	14.70	10	19.9	252.00	800
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	13.0	14.40	15.90	10	21.5	233.00	500
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	14.0	15.60	17.20	10	23.2	216.00	200
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	15.0	16.70	18.50	1	24.4	205.00	100
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	16.0	17.80	19.70	1	26.0	193.00	50
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	17.0	18.90	20.90	1	27.6	181.00	20
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	18.0	20.00	22.10	1	29.2	172.00	10
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	20.0	22.20	24.50	1	32.4	155.00	5
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	22.0	24.40	26.90	1	35.5	141.00	5
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	24.0	26.70	29.50	1	38.9	129.00	5
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	26.0	28.90	31.90	1	42.1	119.00	5
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	28.0	31.10	34.40	1	45.4	110.00	5
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	30.0	33.30	36.80	1	48.4	103.00	5
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	33.0	36.70	40.60	1	53.3	93.90	5
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	36.0	40.00	44.20	1	58.1	86.10	5
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	40.0	44.40	49.10	1	64.5	77.60	5
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	43.0	47.80	52.80	1	69.4	72.10	5
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	45.0	50.00	55.30	1	72.7	68.80	5
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	48.0	53.30	58.90	1	77.4	64.70	5
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	51.0	56.70	62.70	1	82.4	60.70	5
5.0SMDJ54A	5.0SMDJ54CA	5RGE	5BGE	54.0	60.00	66.30	1	87.1	57.50	5
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	58.0	64.40	71.20	1	93.6	53.50	5
5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	60.0	66.70	73.70	1	96.8	51.70	5
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	64.0	71.10	78.60	1	103.0	48.60	5
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGP	70.0	77.80	86.00	1	113.0	44.30	5
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	75.0	83.30	92.10	1	121.0	41.40	5
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	78.0	86.70	95.80	1	126.0	39.70	5
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	85.0	94.40	104.00	1	137.0	36.50	5
5.0SMDJ90A	5.0SMDJ90CA	5PGX	5BGX	90.0	100.00	111.00	1	146.0	34.30	5
5.0SMDJ100A	5.0SMDJ100CA	5PGZ	5BGZ	100.0	111.00	123.00	1	162.0	30.90	5
5.0SMDJ110A	5.0SMDJ110CA	5PHE	5BHE	110.0	122.00	135.00	1	177.0	28.30	5
5.0SMDJ120A	5.0SMDJ120CA	5PHG	5BHG	120.0	133.00	147.00	1	193.0	26.00	5
5.0SMDJ130A	5.0SMDJ130CA	5PHK	5BHK	130.0	144.00	159.00	1	209.0	24.00	5
5.0SMDJ150A	5.0SMDJ150CA	5PHM	5BHM	150.0	167.00	185.00	1	243.0	20.60	5
5.0SMDJ160A	5.0SMDJ160CA	5PHP	5BHP	160.0	178.00	197.00	1	259.0	19.30	5
5.0SMDJ170A	5.0SMDJ170CA	5PHR	5BHR	170.0	189.00	209.00	1	275.0	18.20	5

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

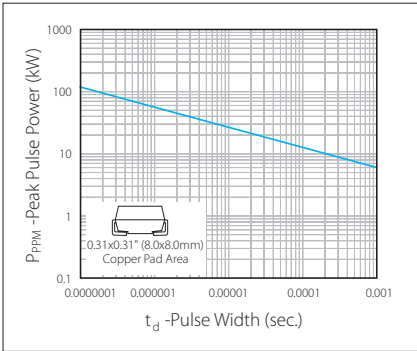


Figure 1- Peak Pulse Power Rating Curve

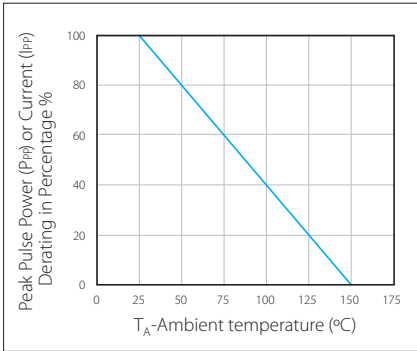


Figure 2- Pulse Derating Curve

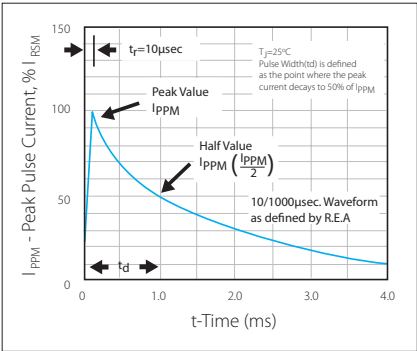


Figure 3- Pulse Waveform

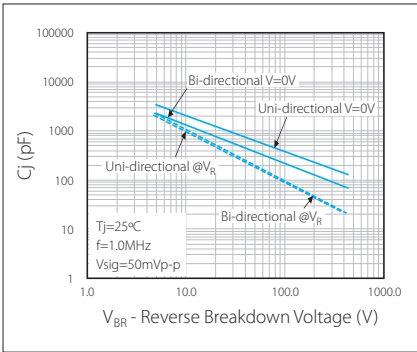


Figure 4- Typical Junction Capacitance

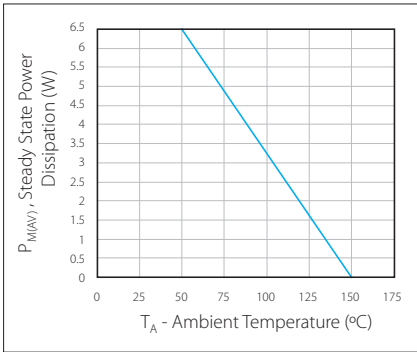


Figure 5- Steady State Power Dissipation Derating Curve

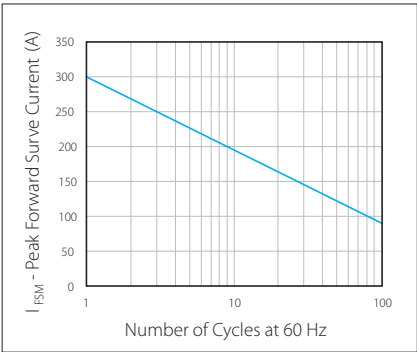


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
P4KE6.8A	P4KE6.8CA	5.80	6.45	7.14	10	10.5	39.0	1000
P4KE7.5A	P4KE7.5CA	6.40	7.13	7.88	10	11.3	36.3	500
P4KE8.2A	P4KE8.2CA	7.02	7.79	8.61	10	12.1	33.9	200
P4KE9.1A	P4KE9.1CA	7.78	8.65	9.50	1	13.4	30.6	50
P4KE10A	P4KE10CA	8.55	9.50	10.50	1	14.5	28.3	10
P4KE11A	P4KE11CA	9.40	10.50	11.60	1	15.6	26.3	5
P4KE12A	P4KE12CA	10.20	11.40	12.60	1	16.7	24.6	5
P4KE13A	P4KE13CA	11.10	12.40	13.70	1	18.2	22.5	1
P4KE15A	P4KE15CA	12.80	14.30	15.80	1	21.2	19.3	1
P4KE16A	P4KE16CA	13.60	15.20	16.80	1	22.5	18.2	1
P4KE18A	P4KE18CA	15.30	17.10	18.90	1	25.2	16.1	1
P4KE20A	P4KE20CA	17.10	19.00	21.00	1	27.7	14.8	1
P4KE22A	P4KE22CA	18.80	20.90	23.10	1	30.6	13.4	1
P4KE24A	P4KE24CA	20.50	22.80	25.20	1	33.2	12.3	1
P4KE27A	P4KE27CA	23.10	25.70	28.40	1	37.5	10.9	1
P4KE30A	P4KE30CA	25.60	28.50	31.50	1	41.4	9.9	1
P4KE33A	P4KE33CA	28.20	31.40	34.70	1	45.7	9.0	1
P4KE36A	P4KE36CA	30.80	34.20	37.80	1	49.9	8.2	1
P4KE39A	P4KE39CA	33.30	37.10	41.00	1	53.9	7.6	1
P4KE43A	P4KE43CA	36.80	40.90	45.20	1	59.3	6.9	1
P4KE47A	P4KE47CA	40.20	44.70	49.40	1	64.8	6.3	1
P4KE51A	P4KE51CA	43.60	48.50	53.60	1	70.1	5.8	1
P4KE56A	P4KE56CA	47.80	53.20	58.80	1	77.0	5.3	1
P4KE62A	P4KE62CA	53.00	58.90	65.10	1	85.0	4.8	1
P4KE68A	P4KE68CA	58.10	64.60	71.40	1	92.0	4.5	1
P4KE75A	P4KE75CA	64.10	71.30	78.80	1	103.0	4.0	1
P4KE82A	P4KE82CA	70.10	77.90	86.10	1	113.0	3.6	1
P4KE91A	P4KE91CA	77.80	86.50	95.50	1	125.0	3.3	1
P4KE100A	P4KE100CA	85.50	95.00	105.00	1	137.0	3.0	1
P4KE110A	P4KE110CA	94.00	105.00	116.00	1	152.0	2.7	1
P4KE120A	P4KE120CA	102.00	114.00	126.00	1	165.0	2.5	1
P4KE130A	P4KE130CA	111.00	124.00	137.00	1	179.0	2.3	1
P4KE150A	P4KE150CA	128.00	143.00	158.00	1	207.0	2.0	1
P4KE160A	P4KE160CA	136.00	152.00	168.00	1	219.0	1.9	1
P4KE170A	P4KE170CA	145.00	162.00	179.00	1	234.0	1.8	1
P4KE180A	P4KE180CA	154.00	171.00	189.00	1	246.0	1.7	1
P4KE200A	P4KE200CA	171.00	190.00	210.00	1	274.0	1.5	1
P4KE220A	P4KE220CA	185.00	209.00	231.00	1	328.0	1.3	1
P4KE250A	P4KE250CA	214.00	237.00	263.00	1	344.0	1.2	1
P4KE300A	P4KE300CA	256.00	285.00	315.00	1	414.0	1.0	1
P4KE350A	P4KE350CA	300.00	332.00	368.00	1	482.0	0.85	1
P4KE400A	P4KE400CA	342.00	380.00	420.00	1	548.0	0.75	1
P4KE440A	P4KE440CA	376.00	418.00	462.00	1	602.0	0.68	1
P4KE480A	P4KE480CA	408.00	456.00	504.00	1	658.0	0.61	1
P4KE510A	P4KE510CA	434.00	485.00	535.00	1	698.0	0.57	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
P4KE530A	P4KE530CA	450.00	503.50	556.50	1	725.0	0.55	1
P4KE540A	P4KE540CA	459.00	513.00	567.00	1	740.0	0.54	1
P4KE550A	P4KE550CA	467.00	522.50	577.50	1	760.0	0.52	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

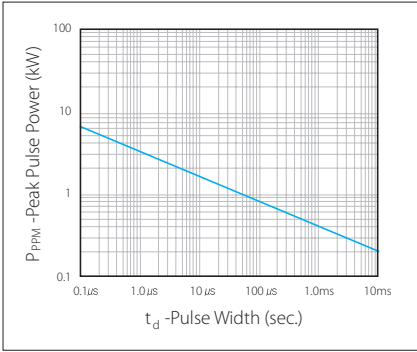


Figure 1- Peak Pulse Power Rating Curve

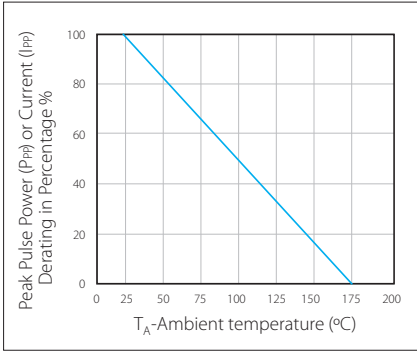


Figure 2- Pulse Derating Curve

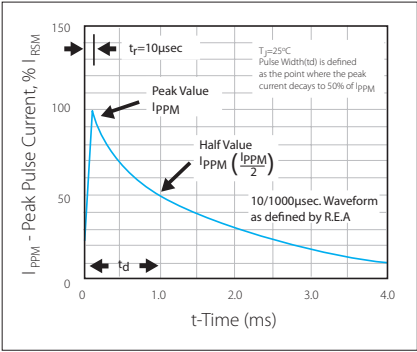


Figure 3- Pulse Waveform

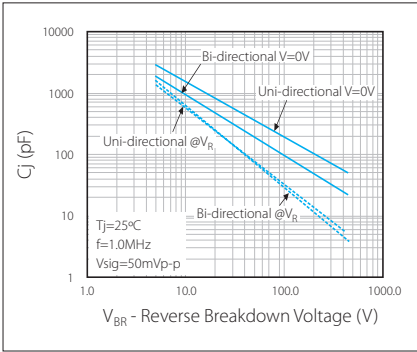


Figure 4- Typical Junction Capacitance

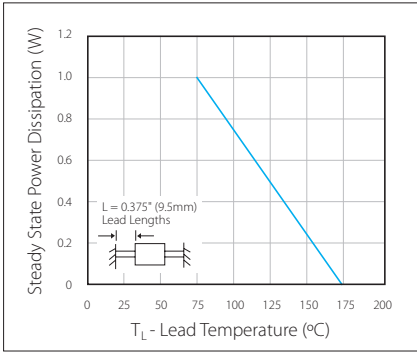


Figure 5- Steady State Power Dissipation Derating Curve

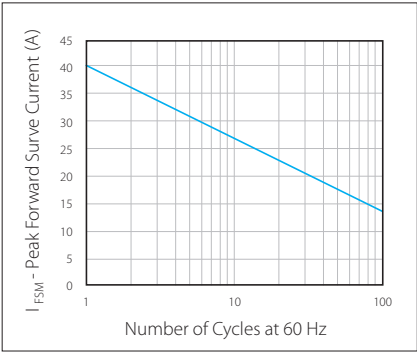


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SA5.0A	SA5.0CA	5.0	6.40	7.00	10	9.2	55.4	600
SA6.0A	SA6.0CA	6.0	6.67	7.37	10	10.3	49.5	600
SA6.5A	SA6.5CA	6.5	7.22	7.98	10	11.2	45.5	400
SA7.0A	SA7.0CA	7.0	7.78	8.60	10	12.0	42.5	150
SA7.5A	SA7.5CA	7.5	8.33	9.21	1	12.9	39.5	50
SA8.0A	SA8.0CA	8.0	8.89	9.83	1	13.6	37.5	25
SA8.5A	SA8.5CA	8.5	9.44	10.40	1	14.4	35.4	10
SA9.0A	SA9.0CA	9.0	10.00	11.10	1	15.4	33.1	5
SA10A	SA10CA	10.0	11.10	12.30	1	17.0	30.0	3
SA11A	SA11CA	11.0	12.20	13.50	1	18.2	28.0	1
SA12A	SA12CA	12.0	13.30	14.70	1	19.9	25.6	1
SA13A	SA13CA	13.0	14.40	15.90	1	21.5	23.7	1
SA14A	SA14CA	14.0	15.60	17.20	1	23.2	22.0	1
SA15A	SA15CA	15.0	16.70	18.50	1	24.4	20.9	1
SA16A	SA16CA	16.0	17.80	19.70	1	26.0	19.6	1
SA17A	SA17CA	17.0	18.90	20.90	1	27.6	18.5	1
SA18A	SA18CA	18.0	20.00	22.10	1	29.2	17.5	1
SA20A	SA20CA	20.0	22.20	24.50	1	32.4	15.7	1
SA22A	SA22CA	22.0	24.40	26.90	1	35.5	14.4	1
SA24A	SA24CA	24.0	26.70	29.50	1	38.9	13.1	1
SA26A	SA26CA	26.0	28.90	31.90	1	42.1	12.1	1
SA28A	SA28CA	28.0	31.10	34.40	1	45.4	11.2	1
SA30A	SA30CA	30.0	33.30	36.80	1	48.4	10.5	1
SA33A	SA33CA	33.0	36.70	40.60	1	53.3	9.6	1
SA36A	SA36CA	36.0	40.00	44.20	1	58.1	8.8	1
SA40A	SA40CA	40.0	44.40	49.10	1	64.5	7.9	1
SA43A	SA43CA	43.0	47.80	52.80	1	69.4	7.3	1
SA45A	SA45CA	45.0	50.00	55.30	1	72.7	7.0	1
SA48A	SA48CA	48.0	53.30	58.90	1	77.4	6.6	1
SA51A	SA51CA	51.0	56.70	62.70	1	82.4	6.2	1
SA54A	SA54CA	54.0	60.00	66.30	1	87.1	5.9	1
SA58A	SA58CA	58.0	64.40	71.20	1	93.6	5.4	1
SA60A	SA60CA	60.0	66.70	73.70	1	96.8	5.3	1
SA64A	SA64CA	64.0	71.10	78.60	1	103.0	5.0	1
SA70A	SA70CA	70.0	77.80	86.00	1	113.0	4.5	1
SA75A	SA75CA	75.0	83.30	92.10	1	121.0	4.2	1
SA78A	SA78CA	78.0	86.70	95.80	1	126.0	4.0	1
SA85A	SA85CA	85.0	94.40	104.00	1	137.0	3.7	1
SA90A	SA90CA	90.0	100.00	111.00	1	146.0	3.5	1
SA100A	SA100CA	100.0	111.00	123.00	1	162.0	3.1	1
SA110A	SA110CA	110.0	122.00	135.00	1	177.0	2.9	1
SA120A	SA120CA	120.0	133.00	147.00	1	193.0	2.6	1
SA130A	SA130CA	130.0	144.00	159.00	1	209.0	2.4	1
SA150A	SA150CA	150.0	167.00	185.00	1	243.0	2.1	1
SA160A	SA160CA	160.0	178.00	197.00	1	259.0	2.0	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
SA170A	SA170CA	170.0	189.00	189.00	1	275.0	1.9	1
SA180A	SA180CA	180.0	198.00	198.00	1	289.0	1.7	1
SA190A	SA190CA	190.0	209.00	209.00	1	308.0	1.6	1
SA200A	SA200CA	200.0	220.00	220.00	1	324.0	1.5	1
SA210A	SA210CA	210.0	231.00	231.00	1	340.0	1.5	1
SA220A	SA220CA	220.0	242.00	242.00	1	356.0	1.4	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

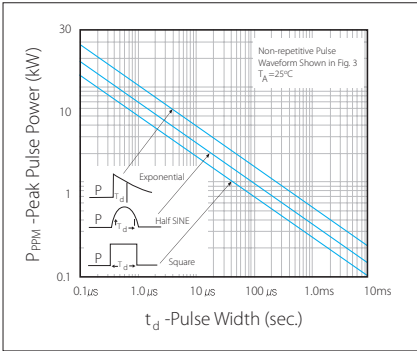


Figure 1- Peak Pulse Power Rating Curve

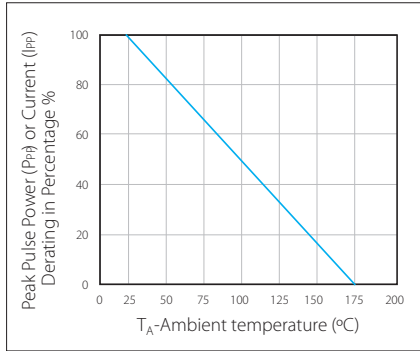


Figure 2- Pulse Derating Curve

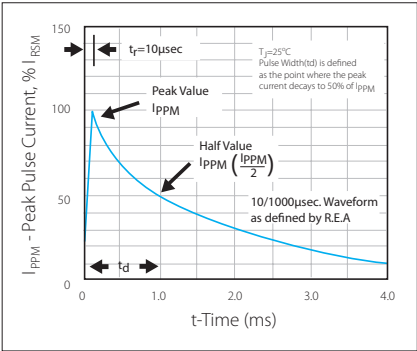


Figure 3- Pulse Waveform

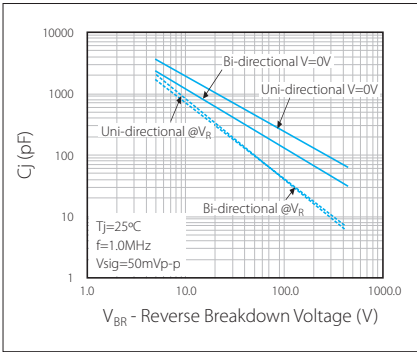


Figure 4- Typical Junction Capacitance

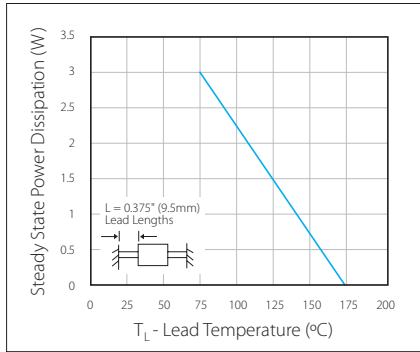


Figure 5- Steady State Power Dissipation Derating Curve

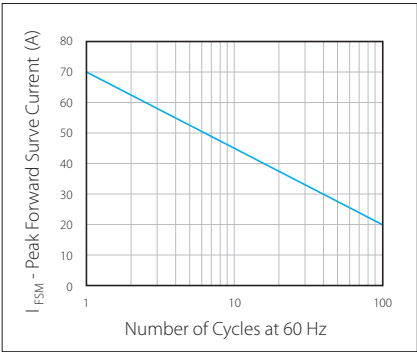


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
P6KE6.8A	P6KE6.8CA	5.80	6.45	7.14	10	10.5	58.1	1000
P6KE7.5A	P6KE7.5CA	6.40	7.13	7.88	10	11.3	54.0	500
P6KE8.2A	P6KE8.2CA	7.02	7.79	8.61	10	12.1	50.4	200
P6KE9.1A	P6KE9.1CA	7.78	8.65	9.55	1	13.4	45.5	50
P6KE10A	P6KE10CA	8.55	9.50	10.50	1	14.5	42.1	10
P6KE11A	P6KE11CA	9.40	10.50	11.60	1	15.6	39.1	5
P6KE12A	P6KE12CA	10.20	11.40	12.60	1	16.7	36.5	5
P6KE13A	P6KE13CA	11.10	12.40	13.70	1	18.2	33.5	1
P6KE15A	P6KE15CA	12.80	14.30	15.80	1	21.2	28.8	1
P6KE16A	P6KE16CA	13.60	15.20	16.80	1	22.5	27.1	1
P6KE18A	P6KE18CA	15.30	17.10	18.90	1	25.2	24.2	1
P6KE20A	P6KE20CA	17.10	19.00	21.00	1	27.7	22.0	1
P6KE22A	P6KE22CA	18.80	20.90	23.10	1	30.6	19.9	1
P6KE24A	P6KE24CA	20.50	22.80	25.20	1	33.2	18.4	1
P6KE27A	P6KE27CA	23.10	25.70	28.40	1	37.5	16.3	1
P6KE30A	P6KE30CA	25.60	28.50	31.50	1	41.4	14.7	1
P6KE33A	P6KE33CA	28.20	31.40	34.70	1	45.7	13.3	1
P6KE36A	P6KE36CA	30.80	34.20	37.80	1	49.9	12.2	1
P6KE39A	P6KE39CA	33.30	37.10	41.00	1	53.9	11.3	1
P6KE43A	P6KE43CA	36.80	40.90	45.20	1	59.3	10.3	1
P6KE47A	P6KE47CA	40.20	44.70	49.40	1	64.8	9.4	1
P6KE51A	P6KE51CA	43.60	48.50	53.60	1	70.1	8.7	1
P6KE56A	P6KE56CA	47.80	53.20	58.80	1	77.0	7.9	1
P6KE62A	P6KE62CA	53.00	58.90	65.10	1	85.0	7.2	1
P6KE68A	P6KE68CA	58.10	64.60	71.40	1	92.0	6.6	1
P6KE75A	P6KE75CA	64.10	71.30	78.80	1	103.0	5.9	1
P6KE82A	P6KE82CA	70.10	77.90	86.10	1	113.0	5.4	1
P6KE91A	P6KE91CA	77.80	86.50	95.50	1	125.0	4.9	1
P6KE100A	P6KE100CA	85.50	95.00	105.00	1	137.0	4.5	1
P6KE110A	P6KE110CA	94.00	105.00	116.00	1	152.0	4.0	1
P6KE120A	P6KE120CA	102.00	114.00	126.00	1	165.0	3.7	1
P6KE130A	P6KE130CA	111.00	124.00	137.00	1	179.0	3.4	1
P6KE150A	P6KE150CA	128.00	143.00	158.00	1	207.0	2.9	1
P6KE160A	P6KE160CA	136.00	152.00	168.00	1	219.0	2.8	1
P6KE170A	P6KE170CA	145.00	162.00	179.00	1	234.0	2.6	1
P6KE180A	P6KE180CA	154.00	171.00	189.00	1	246.0	2.5	1
P6KE200A	P6KE200CA	171.00	190.00	210.00	1	274.0	2.2	1
P6KE220A	P6KE220CA	185.00	209.00	231.00	1	328.0	1.9	1
P6KE250A	P6KE250CA	214.00	237.00	263.00	1	344.0	1.8	1
P6KE300A	P6KE300CA	256.00	285.00	315.00	1	414.0	1.5	1
P6KE350A	P6KE350CA	300.00	332.00	368.00	1	482.0	1.3	1
P6KE400A	P6KE400CA	342.00	380.00	420.00	1	548.0	1.1	1
P6KE440A	P6KE440CA	376.00	418.00	462.00	1	602.0	1.04	1
P6KE480A	P6KE480CA	408.00	456.00	504.00	1	658.0	0.9	1
P6KE510A	P6KE510CA	434.00	485.00	535.00	1	698.0	0.9	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
P6KE530A	P6KE530CA	450.00	503.50	556.50	1	725.0	0.8	1
P6KE540A	P6KE540CA	459.00	513.00	567.00	1	740.0	0.8	1
P6KE550A	P6KE550CA	467.00	522.50	577.50	1	760.0	0.8	1
P6KE600A	P6KE600CA	512.00	570.00	630.00	1	828.0	0.75	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

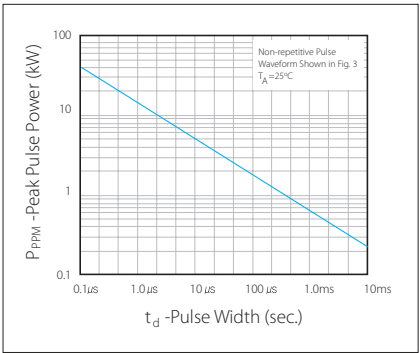


Figure 1- Peak Pulse Power Rating Curve

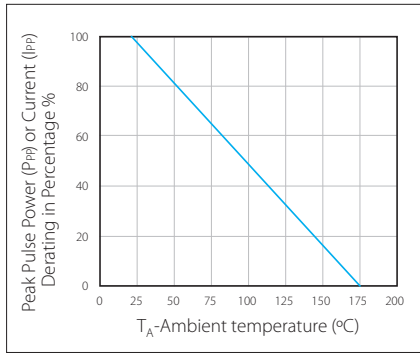


Figure 2- Pulse Derating Curve

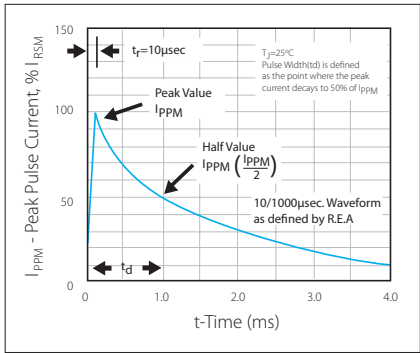


Figure 3- Pulse Waveform

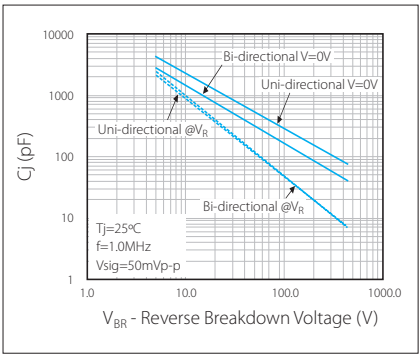


Figure 4- Typical Junction Capacitance

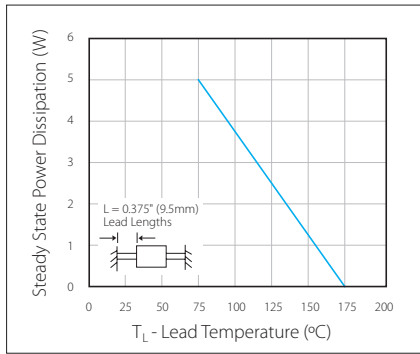


Figure 5- Steady State Power Dissipation Derating Curve

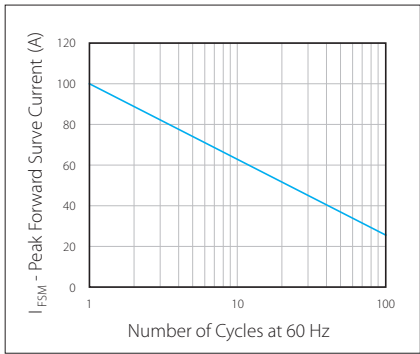


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
1.5KE6.8A	1.5KE6.8CA	5.80	6.45	7.14	10	10.5	144.8	1000
1.5KE7.5A	1.5KE7.5CA	6.40	7.13	7.88	10	11.3	134.5	500
1.5KE8.2A	1.5KE8.2CA	7.02	7.79	8.61	10	12.1	125.6	200
1.5KE9.1A	1.5KE9.1CA	7.78	8.65	9.55	1	13.4	113.4	50
1.5KE10A	1.5KE10CA	8.55	9.50	10.50	1	14.5	104.8	10
1.5KE11A	1.5KE11CA	9.40	10.50	11.60	1	15.6	97.4	5
1.5KE12A	1.5KE12CA	10.20	11.40	12.60	1	16.7	91.0	5
1.5KE13A	1.5KE13CA	11.10	12.40	13.70	1	18.2	83.5	1
1.5KE15A	1.5KE15CA	12.80	14.30	15.80	1	21.2	71.7	1
1.5KE16A	1.5KE16CA	13.60	15.20	16.80	1	22.5	67.6	1
1.5KE18A	1.5KE18CA	15.30	17.10	18.90	1	25.2	60.3	1
1.5KE20A	1.5KE20CA	17.10	19.00	21.00	1	27.7	54.9	1
1.5KE22A	1.5KE22CA	18.80	20.90	23.10	1	30.6	49.7	1
1.5KE24A	1.5KE24CA	20.50	22.80	25.20	1	33.2	45.8	1
1.5KE27A	1.5KE27CA	23.10	25.70	28.40	1	37.5	40.5	1
1.5KE30A	1.5KE30CA	25.60	28.50	31.50	1	41.4	36.7	1
1.5KE33A	1.5KE33CA	28.20	31.40	34.70	1	45.7	33.3	1
1.5KE36A	1.5KE36CA	30.80	34.20	37.80	1	49.9	30.5	1
1.5KE39A	1.5KE39CA	33.30	37.10	41.00	1	53.9	28.2	1
1.5KE43A	1.5KE43CA	36.80	40.90	45.20	1	59.3	25.6	1
1.5KE47A	1.5KE47CA	40.20	44.70	49.40	1	64.8	23.5	1
1.5KE51A	1.5KE51CA	43.60	48.50	53.60	1	70.1	21.7	1
1.5KE56A	1.5KE56CA	47.80	53.20	58.80	1	77.0	19.7	1
1.5KE62A	1.5KE62CA	53.00	58.90	65.10	1	85.0	17.9	1
1.5KE68A	1.5KE68CA	58.10	64.60	71.40	1	92.0	16.5	1
1.5KE75A	1.5KE75CA	64.10	71.30	78.80	1	103.0	14.8	1
1.5KE82A	1.5KE82CA	70.10	77.90	86.10	1	113.0	13.5	1
1.5KE91A	1.5KE91CA	77.80	86.50	95.50	1	125.0	12.2	1
1.5KE100A	1.5KE100CA	85.50	95.00	105.00	1	137.0	11.1	1
1.5KE110A	1.5KE110CA	94.00	105.00	116.00	1	152.0	10.0	1
1.5KE120A	1.5KE120CA	102.00	114.00	126.00	1	165.0	9.2	1
1.5KE130A	1.5KE130CA	111.00	124.00	137.00	1	179.0	8.5	1
1.5KE150A	1.5KE150CA	128.00	143.00	158.00	1	207.0	7.3	1
1.5KE160A	1.5KE160CA	136.00	152.00	168.00	1	219.0	6.9	1
1.5KE170A	1.5KE170CA	145.00	162.00	179.00	1	234.0	6.5	1
1.5KE180A	1.5KE180CA	154.00	171.00	189.00	1	246.0	6.2	1
1.5KE200A	1.5KE200CA	171.00	190.00	210.00	1	274.0	5.5	1
1.5KE220A	1.5KE220CA	185.00	209.00	231.00	1	328.0	4.6	1
1.5KE250A	1.5KE250CA	214.00	237.00	263.00	1	344.0	4.4	1
1.5KE300A	1.5KE300CA	256.00	285.00	315.00	1	414.0	3.7	1
1.5KE350A	1.5KE350CA	300.00	332.00	368.00	1	482.0	3.2	1
1.5KE400A	1.5KE400CA	342.00	380.00	420.00	1	548.0	2.8	1
1.5KE440A	1.5KE440CA	376.00	418.00	462.00	1	602.0	2.5	1
1.5KE480A	1.5KE480CA	408.00	456.00	504.00	1	658.0	2.3	1
1.5KE510A	1.5KE510CA	434.00	485.00	535.00	1	698.0	2.1	1

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
1.5KE530A	1.5KE530CA	450.00	503.50	556.50	1	725.0	2.1	1
1.5KE540A	1.5KE540CA	459.00	513.00	567.00	1	740.0	2.0	1
1.5KE550A	1.5KE550CA	467.00	522.50	577.50	1	760.0	2.0	1

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

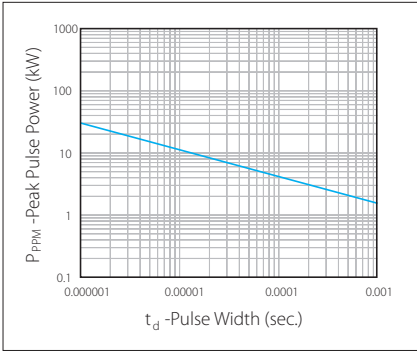


Figure 1- Peak Pulse Power Rating Curve

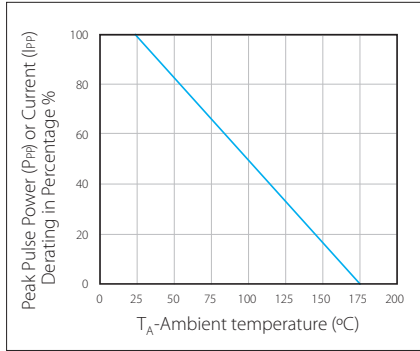


Figure 2- Pulse Derating Curve

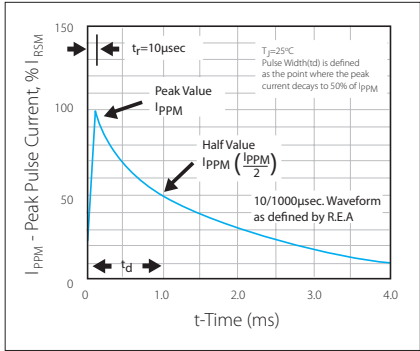


Figure 3- Pulse Waveform

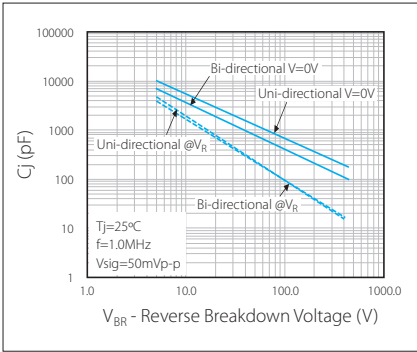


Figure 4- Typical Junction Capacitance

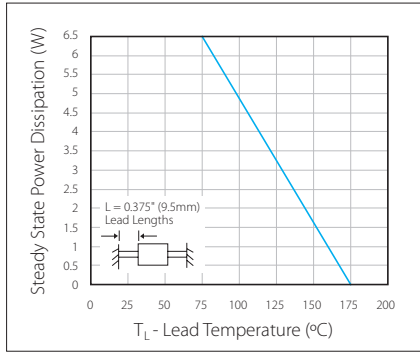


Figure 5- Steady State Power Dissipation Derating Curve

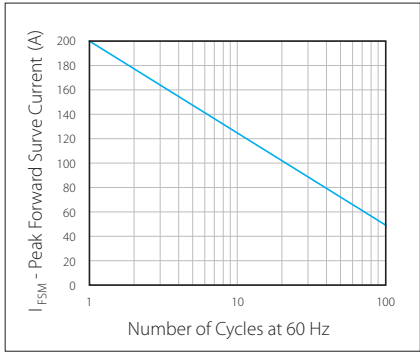


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
3KP5.0A	3KP5.0CA	5.0	6.40	7.00	50	9.2	326.1	5000
3KP6.0A	3KP6.0CA	6.0	6.67	7.37	50	10.3	291.3	5000
3KP6.5A	3KP6.5CA	6.5	7.22	7.98	50	11.2	267.9	2000
3KP7.0A	3KP7.0CA	7.0	7.78	8.60	50	12.0	250.0	1000
3KP7.5A	3KP7.5CA	7.5	8.33	9.21	5	12.9	232.6	250
3KP8.0A	3KP8.0CA	8.0	8.89	9.83	5	13.6	220.6	150
3KP8.5A	3KP8.5CA	8.5	9.44	10.40	5	14.4	208.3	50
3KP9.0A	3KP9.0CA	9.0	10.00	11.10	5	15.4	194.8	20
3KP10A	3KP10CA	10.0	11.10	12.30	5	17.0	176.5	15
3KP11A	3KP11CA	11.0	12.20	13.50	5	18.2	164.8	2
3KP12A	3KP12CA	12.0	13.30	14.70	5	19.9	150.8	2
3KP13A	3KP13CA	13.0	14.40	15.90	5	21.5	139.5	2
3KP14A	3KP14CA	14.0	15.60	17.20	5	23.2	129.3	2
3KP15A	3KP15CA	15.0	16.70	18.50	5	24.4	123.0	2
3KP16A	3KP16CA	16.0	17.80	19.70	5	26.0	115.4	2
3KP17A	3KP17CA	17.0	18.90	20.90	5	27.6	108.7	2
3KP18A	3KP18CA	18.0	20.00	22.10	5	29.2	102.7	2
3KP20A	3KP20CA	20.0	22.20	24.50	5	32.4	92.6	2
3KP22A	3KP22CA	22.0	24.40	26.90	5	35.5	84.5	2
3KP24A	3KP24CA	24.0	26.70	29.50	5	38.9	77.1	2
3KP26A	3KP26CA	26.0	28.90	31.90	5	42.1	71.3	2
3KP28A	3KP28CA	28.0	31.10	34.40	5	45.4	66.1	2
3KP30A	3KP30CA	30.0	33.30	36.80	5	48.4	62.0	2
3KP33A	3KP33CA	33.0	36.70	40.60	5	53.3	56.3	2
3KP36A	3KP36CA	36.0	40.00	44.20	5	58.1	51.6	2
3KP40A	3KP40CA	40.0	44.40	49.10	5	64.5	46.5	2
3KP43A	3KP43CA	43.0	47.80	52.80	5	69.4	43.2	2
3KP45A	3KP45CA	45.0	50.00	55.30	5	72.7	41.3	2
3KP48A	3KP48CA	48.0	53.30	58.90	5	77.4	38.8	2
3KP51A	3KP51CA	51.0	56.70	62.70	5	82.4	36.4	2
3KP54A	3KP54CA	54.0	60.00	66.30	5	87.1	34.4	2
3KP58A	3KP58CA	58.0	64.40	71.20	5	93.6	32.1	2
3KP60A	3KP60CA	60.0	66.70	73.70	5	96.8	31.0	2
3KP64A	3KP64CA	64.0	71.10	78.60	5	103.0	29.1	2
3KP70A	3KP70CA	70.0	77.80	86.00	5	113.0	26.5	2
3KP75A	3KP75CA	75.0	83.30	92.10	5	121.0	24.8	2
3KP78A	3KP78CA	78.0	86.70	95.80	5	126.0	23.8	2
3KP85A	3KP85CA	85.0	94.40	104.00	5	137.0	21.9	2
3KP90A	3KP90CA	90.0	100.00	111.00	5	146.0	20.5	2
3KP100A	3KP100CA	100.0	111.00	123.00	5	162.0	18.5	2
3KP110A	3KP110CA	110.0	122.00	135.00	5	177.0	16.9	2
3KP120A	3KP120CA	120.0	133.00	147.00	5	193.0	15.5	2
3KP130A	3KP130CA	130.0	144.00	159.00	5	209.0	14.4	2
3KP150A	3KP150CA	150.0	167.00	185.00	5	243.0	12.3	2
3KP160A	3KP160CA	160.0	178.00	197.00	5	259.0	11.6	2

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
3KP170A	3KP170CA	170.0	189.00	209.00	5	275.0	10.9	2
3KP180A	3KP180CA	180.0	200.00	221.00	5	289.0	10.4	2
3KP190A	3KP190CA	190.0	211.00	233.20	5	310.0	9.7	2
3KP200A	3KP200CA	200.0	222.00	246.00	5	329.2	9.1	2
3KP210A	3KP210CA	210.0	233.00	258.00	5	349.5	8.6	2
3KP220A	3KP220CA	220.0	244.00	270.00	5	371.1	8.1	2

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

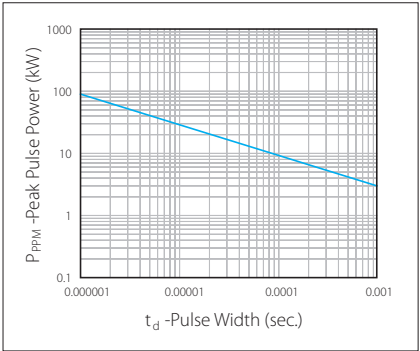


Figure 1- Peak Pulse Power Rating Curve

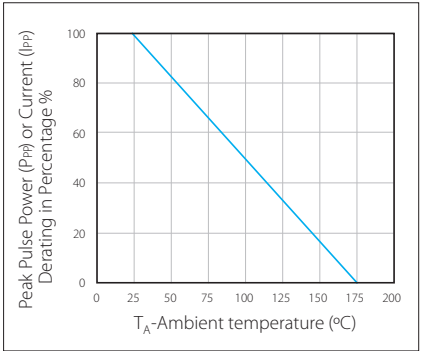


Figure 2- Pulse Derating Curve

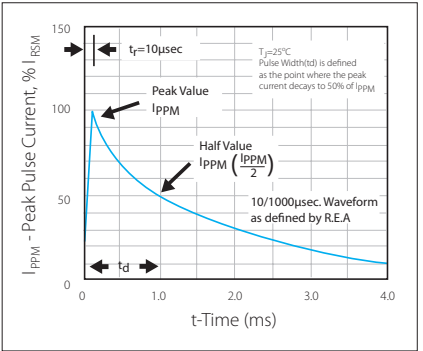


Figure 3- Pulse Waveform

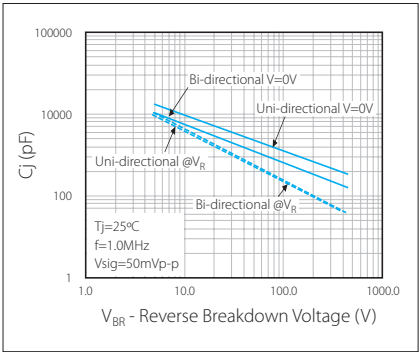


Figure 4- Typical Junction Capacitance

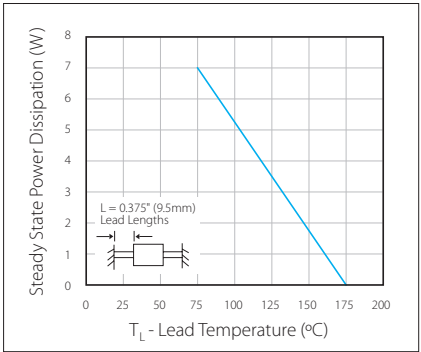


Figure 5- Steady State Power Dissipation Derating Curve

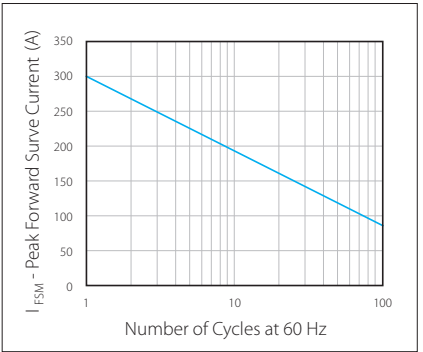


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
5KP5.0A	5KP5.0CA	5.0	6.40	7.00	50	9.2	554.3	5000
5KP6.0A	5KP6.0CA	6.0	6.67	7.37	50	10.3	495.1	5000
5KP6.5A	5KP6.5CA	6.5	7.22	7.98	50	11.2	455.4	2000
5KP7.0A	5KP7.0CA	7.0	7.78	8.60	50	12.0	425.0	1000
5KP7.5A	5KP7.5CA	7.5	8.33	9.21	5	12.9	395.3	250
5KP8.0A	5KP8.0CA	8.0	8.89	9.83	5	13.6	375.0	150
5KP8.5A	5KP8.5CA	8.5	9.44	10.40	5	14.4	354.2	50
5KP9.0A	5KP9.0CA	9.0	10.00	11.10	5	15.4	331.2	20
5KP10A	5KP10CA	10.0	11.10	12.30	5	17.0	300.0	15
5KP11A	5KP11CA	11.0	12.20	13.50	5	18.2	280.2	2
5KP12A	5KP12CA	12.0	13.30	14.70	5	19.9	256.3	2
5KP13A	5KP13CA	13.0	14.40	15.90	5	21.5	237.2	2
5KP14A	5KP14CA	14.0	15.60	17.20	5	23.2	219.8	2
5KP15A	5KP15CA	15.0	16.70	18.50	5	24.4	209.0	2
5KP16A	5KP16CA	16.0	17.80	19.70	5	26.0	196.2	2
5KP17A	5KP17CA	17.0	18.90	20.90	5	27.6	184.8	2
5KP18A	5KP18CA	18.0	20.00	22.10	5	29.2	174.7	2
5KP20A	5KP20CA	20.0	22.20	24.50	5	32.4	157.4	2
5KP22A	5KP22CA	22.0	24.00	26.90	5	35.5	143.7	2
5KP24A	5KP24CA	24.0	26.70	29.50	5	38.9	131.1	2
5KP26A	5KP26CA	26.0	28.90	31.90	5	42.1	121.1	2
5KP28A	5KP28CA	28.0	31.10	34.40	5	45.4	112.3	2
5KP30A	5KP30CA	30.0	33.30	36.80	5	48.4	105.4	2
5KP33A	5KP33CA	33.0	36.70	40.60	5	53.3	95.7	2
5KP36A	5KP36CA	36.0	40.00	44.20	5	58.1	87.8	2
5KP40A	5KP40CA	40.0	44.40	49.10	5	64.5	79.1	2
5KP43A	5KP43CA	43.0	47.80	52.80	5	69.4	73.5	2
5KP45A	5KP45CA	45.0	50.00	55.30	5	72.7	70.2	2
5KP48A	5KP48CA	48.0	53.30	58.90	5	77.4	65.9	2
5KP51A	5KP51CA	51.0	56.70	62.70	5	82.4	61.9	2
5KP54A	5KP54CA	54.0	60.00	66.30	5	87.1	58.6	2
5KP58A	5KP58CA	58.0	64.40	71.20	5	93.6	54.5	2
5KP60A	5KP60CA	60.0	66.70	73.70	5	96.8	52.7	2
5KP64A	5KP64CA	64.0	71.10	78.60	5	103.0	49.5	2
5KP70A	5KP70CA	70.0	77.80	86.00	5	113.0	45.1	2
5KP75A	5KP75CA	75.0	83.30	92.10	5	121.0	42.1	2
5KP78A	5KP78CA	78.0	86.70	95.80	5	126.0	40.5	2
5KP85A	5KP85CA	85.0	94.40	104.00	5	137.0	37.2	2
5KP90A	5KP90CA	90.0	100.00	111.00	5	146.0	34.9	2
5KP100A	5KP100CA	100.0	110.00	123.00	5	162.0	31.5	2
5KP110A	5KP110CA	110.0	122.00	135.00	5	177.0	28.8	2
5KP120A	5KP120CA	120.0	133.00	147.00	5	193.0	26.4	2
5KP130A	5KP130CA	130.0	144.00	159.00	5	209.0	24.4	2
5KP150A	5KP150CA	150.0	167.00	185.00	5	243.0	21.0	2
5KP160A	5KP160CA	160.0	178.00	197.00	5	259.0	19.7	2

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _r	Breakdown Voltage MAX. @I _r	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	V _{BR} MAX.(V)	I _r (mA)	V _c (V)	I _{PP} (A)	I _r (μA)
5KP170A	5KP170CA	170.0	189.00	209.00	5	275.0	18.5	2
5KP180A	5KP180CA	180.0	200.00	221.00	5	292.0	17.5	2
5KP190A	5KP190CA	190.0	211.00	233.00	5	310.0	16.5	2
5KP200A	5KP200CA	200.0	222.00	246.00	5	329.2	15.5	2
5KP210A	5KP210CA	210.0	233.00	258.00	5	349.5	14.6	2
5KP220A	5KP220CA	220.0	244.00	270.00	5	371.1	13.7	2
5KP250A	5KP250CA	250.0	277.00	306.00	5	425.0	12.0	2

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

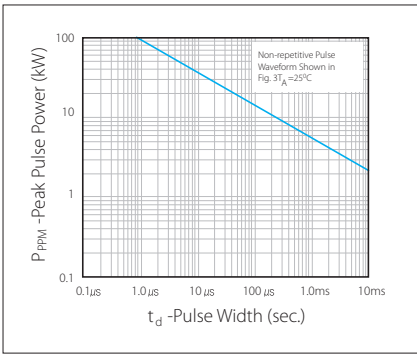


Figure 1- Peak Pulse Power Rating Curve

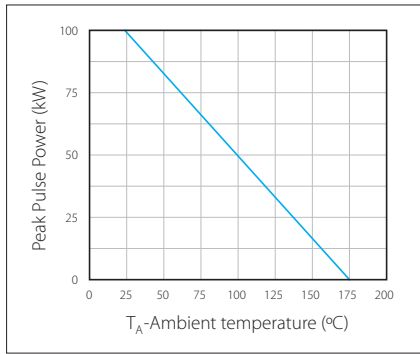


Figure 2- Pulse Derating Curve

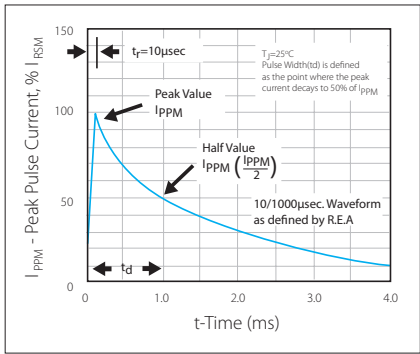


Figure 3- Pulse Waveform

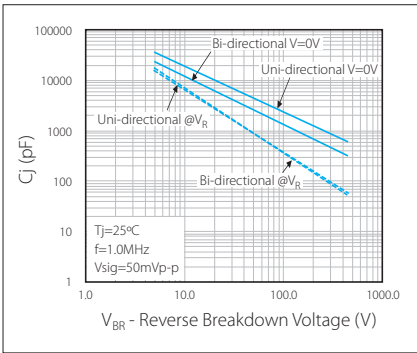


Figure 4- Typical Junction Capacitance

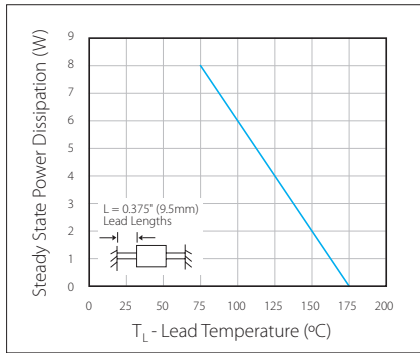


Figure 5- Steady State Power Dissipation Derating Curve

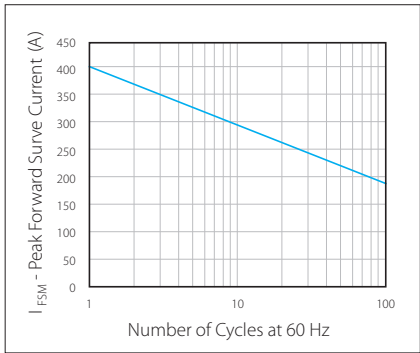


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
15KPA17A	15KPA17CA	17.0	18.99	50	29.3	515.4	5000
15KPA18A	15KPA18CA	18.0	20.11	50	30.9	488.7	5000
15KPA20A	15KPA20CA	20.0	22.34	20	34.3	440.2	1500
15KPA22A	15KPA22CA	22.0	24.57	10	37.1	407.0	500
15KPA24A	15KPA24CA	24.0	26.81	5	40.7	371.0	150
15KPA26A	15KPA26CA	26.0	29.04	5	44.0	343.2	50
15KPA28A	15KPA28CA	28.0	31.28	5	47.5	317.9	25
15KPA30A	15KPA30CA	30.0	33.51	5	50.7	297.8	15
15KPA33A	15KPA33CA	33.0	36.90	5	54.7	276.1	2
15KPA36A	15KPA36CA	36.0	40.20	5	59.8	252.5	2
15KPA40CA	15KPA40CA	40.0	44.70	5	65.8	229.5	2
15KPA43A	15KPA43CA	43.0	48.00	5	69.8	216.3	2
15KPA45A	15KPA45CA	45.0	50.30	5	72.8	207.4	2
15KPA48A	15KPA48CA	48.0	53.60	5	77.7	194.3	2
15KPA51A	15KPA51CA	51.0	57.00	5	82.9	182.1	2
15KPA54A	15KPA54CA	54.0	60.30	5	87.7	172.2	2
15KPA58A	15KPA58CA	58.0	64.80	5	93.8	161.0	2
15KPA60A	15KPA60CA	60.0	67.00	5	97.4	155.0	2
15KPA64A	15KPA64CA	64.0	71.50	5	104.2	144.9	2
15KPA70A	15KPA70CA	70.0	78.2	5	113.6	132.9	2
15KPA75A	15KPA75CA	75.0	83.8	5	122.0	123.8	2
15KPA78A	15KPA78CA	78.0	87.10	5	126.1	119.7	2
15KPA85A	15KPA85CA	85.0	94.90	5	137.6	109.7	2
15KPA90A	15KPA90CA	90.0	100.50	5	145.6	103.7	2
15KPA100A	15KPA100CA	100.0	111.70	5	161.3	93.6	2
15KPA110A	15KPA110CA	110.0	122.90	5	178.6	84.5	2
15KPA120A	15KPA120CA	120.0	134.00	5	192.3	78.5	2
15KPA130A	15KPA130CA	130.0	145.20	5	208.3	72.5	2
15KPA150A	15KPA150CA	150.0	167.60	5	241.9	62.4	2
15KPA160A	15KPA160CA	160.0	178.70	5	258.6	58.4	2
15KPA170A	15KPA170CA	170.0	189.90	5	272.7	55.4	2
15KPA180A	15KPA180CA	180.0	201.10	5	288.5	52.3	2
15KPA200A	15KPA200CA	200.0	223.40	5	319.1	47.3	2
15KPA220A	15KPA220CA	220.0	245.70	5	352.5	42.8	2
15KPA240A	15KPA240CA	240.0	268.10	5	384.6	39.3	2
15KPA260A	15KPA260CA	260.0	290.40	5	416.7	36.2	2
15KPA280A	15KPA280CA	280.0	312.80	5	454.5	33.2	2

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

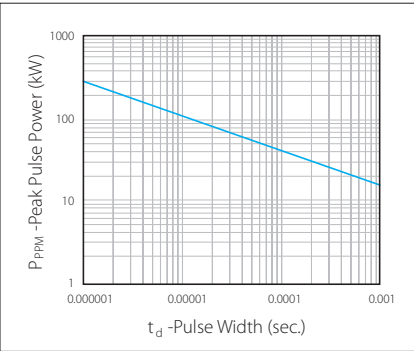


Figure 1- Peak Pulse Power Rating Curve

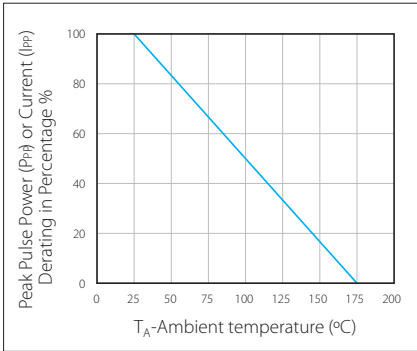


Figure 2- Pulse Derating Curve

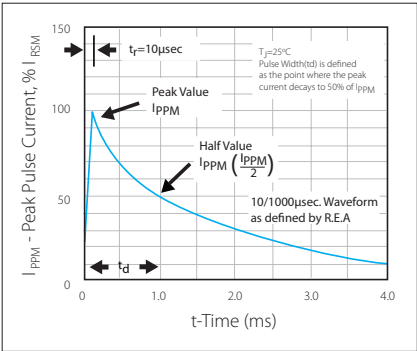


Figure 3- Pulse Waveform

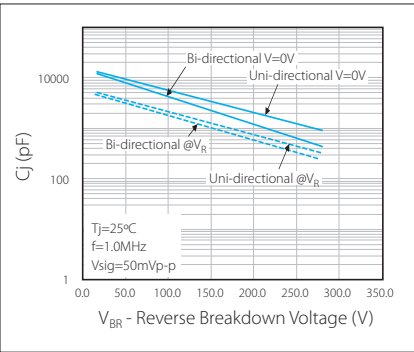


Figure 4- Typical Junction Capacitance

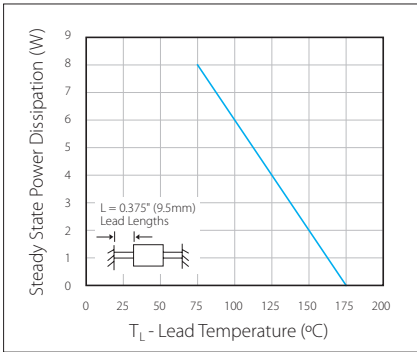


Figure 5- Steady State Power Dissipation Derating Curve

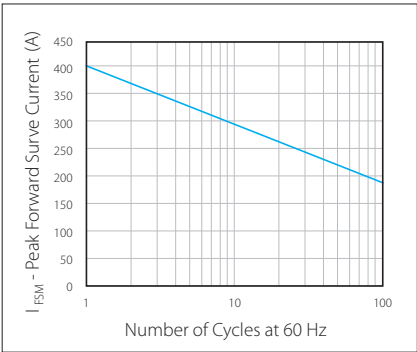


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
20KPA20A	20KPA20CA	20.0	22.34	50	36.8	548.9	5000
20KPA24A	20KPA24CA	24.0	26.81	50	41.2	490.3	5000
20KPA26A	20KPA26CA	26.0	29.04	50	44.7	451.9	2000
20KPA28A	20KPA28CA	28.0	31.28	50	48.0	420.8	1000
20KPA30A	20KPA30CA	30.0	33.51	5	51.5	392.2	250
20KPA32A	20KPA32CA	32.0	35.74	5	54.3	372.0	150
20KPA34A	20KPA34CA	34.0	38.00	5	57.5	351.3	50
20KPA36A	20KPA36CA	36.0	40.20	5	61.5	328.5	20
20KPA40A	20KPA40CA	40.0	44.70	5	67.8	297.9	15
20KPA44A	20KPA44CA	44.0	49.10	5	72.7	277.9	2
20KPA48A	20KPA48CA	48.0	53.60	5	79.4	254.4	2
20KPA52A	20KPA52CA	52.0	58.10	5	85.8	235.4	2
20KPA56A	20KPA56CA	56.0	62.60	5	92.6	218.1	2
20KPA60A	20KPA60CA	60.0	67.00	5	97.6	207.0	2
20KPA64A	20KPA64CA	64.0	71.50	5	104.0	194.2	2
20KPA68A	20KPA68CA	68.0	76.00	5	110.0	183.6	2
20KPA72A	20KPA72CA	72.0	80.40	5	116.0	174.1	2
20KPA80A	20KPA80CA	80.0	89.40	5	130.0	155.4	2
20KPA88A	20KPA88CA	88.0	98.30	5	142.0	142.3	2
20KPA96A	20KPA96CA	96.0	107.20	5	155.0	130.3	2
20KPA104A	20KPA104CA	104.0	116.20	5	168.0	120.2	2
20KPA112A	20KPA112CA	112.0	125.10	5	182.0	111.0	2
20KPA120A	20KPA120CA	120.0	134.00	5	194.0	104.1	2
20KPA132A	20KPA132CA	132.0	147.40	5	213.0	94.8	2
20KPA144A	20KPA144CA	144.0	160.80	5	232.0	87.1	2
20KPA160A	20KPA160CA	160.0	178.70	5	258.0	78.3	2
20KPA172A	20KPA172CA	172.0	192.10	5	277.0	72.9	2
20KPA180A	20KPA180CA	180.0	201.10	5	291.0	69.4	2
20KPA192A	20KPA192CA	192.0	214.50	5	309.0	65.4	2
20KPA204A	20KPA204CA	204.0	227.90	5	329.0	61.4	2
20KPA216A	20KPA216CA	216.0	241.30	5	348.0	58.0	2
20KPA232A	20KPA232CA	232.0	259.10	5	374.0	54.0	2
20KPA240A	20KPA240CA	240.0	268.10	5	387.0	52.2	2
20KPA256A	20KPA256CA	256.0	286.00	5	412.0	49.0	2
20KPA280A	20KPA280CA	280.0	312.80	5	451.0	44.8	2
20KPA300A	20KPA300CA	300.0	335.10	5	483.0	41.8	2

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

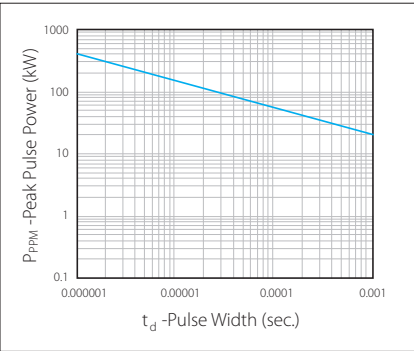


Figure 1- Peak Pulse Power Rating Curve

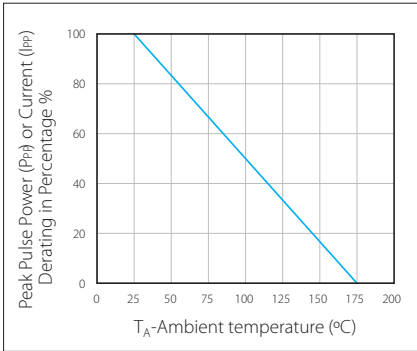


Figure 2- Pulse Derating Curve

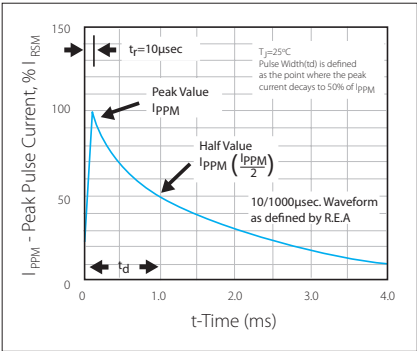


Figure 3- Pulse Waveform

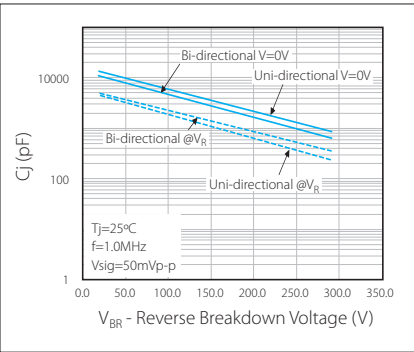


Figure 4- Typical Junction Capacitance

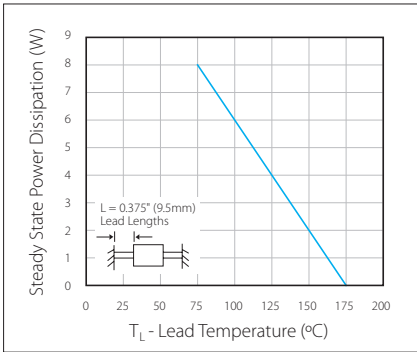


Figure 5- Steady State Power Dissipation Derating Curve

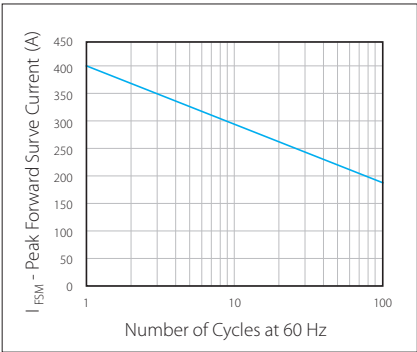


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage MIN. @I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR} MIN.(V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
30KPA28A	30KPA28CA	28.0	31.28	50	50.0	606.0	5000
30KPA30A	30KPA30CA	30.0	33.51	50	55.2	548.9	5000
30KPA33A	30KPA33CA	33.0	36.90	50	58.5	517.9	5000
30KPA36A	30KPA36CA	36.0	40.20	50	61.8	490.3	5000
30KPA39A	30KPA39CA	39.0	43.60	20	67.2	450.9	2000
30KPA42A	30KPA42CA	42.0	46.90	10	72.0	420.8	1000
30KPA43A	30KPA43CA	43.0	48.00	10	73.0	415.1	1000
30KPA45A	30KPA45CA	45.0	50.30	5	77.4	391.5	250
30KPA48A	30KPA48CA	48.0	53.60	5	81.6	371.3	150
30KPA51A	30KPA51CA	51.0	57.00	5	86.4	350.7	50
30KPA54A	30KPA54CA	54.0	60.30	5	91.4	331.5	20
30KPA58A	30KPA58CA	58.0	64.80	5	92.4	327.9	20
30KPA60A	30KPA60CA	60.0	67.00	5	102.0	297.1	15
30KPA64A	30KPA64CA	64.0	71.50	5	104.0	291.3	10
30KPA66A	30KPA66CA	66.0	73.70	5	107.0	283.2	2
30KPA70A	30KPA70CA	70.0	78.20	5	109.0	278.0	2
30KPA71A	30KPA71CA	71.0	79.30	5	111.5	271.7	2
30KPA72A	30KPA72CA	72.0	80.40	5	114.0	265.8	2
30KPA75A	30KPA75CA	75.0	83.80	5	119.4	253.8	2
30KPA78A	30KPA78CA	78.0	87.10	5	129.0	234.9	2
30KPA84A	30KPA84CA	84.0	93.80	5	139.2	217.7	2
30KPA90A	30KPA90CA	90.0	100.50	5	146.4	207.0	2
30KPA96A	30KPA96CA	96.0	107.20	5	156.0	194.2	2
30KPA102A	30KPA102CA	102.0	113.90	5	165.6	183.0	2
30KPA108A	30KPA108CA	108.0	120.60	5	175.2	172.9	2
30KPA120A	30KPA120CA	120.0	134.00	5	194.4	155.9	2
30KPA132A	30KPA132CA	132.0	147.40	5	213.0	142.3	2
30KPA144A	30KPA144CA	144.0	160.80	5	223.2	135.8	2
30KPA150A	30KPA150CA	150.0	167.60	5	233.4	129.8	2
30KPA156A	30KPA156CA	156.0	174.30	5	245.0	123.7	2
30KPA160A	30KPA160CA	160.0	178.70	5	252.6	120.0	2
30KPA168A	30KPA168CA	168.0	187.70	5	272.4	111.2	2
30KPA170A	30KPA170CA	170.0	189.90	5	275.0	110.2	2
30KPA180A	30KPA180CA	180.0	201.10	5	290.4	104.3	2
30KPA198A	30KPA198CA	198.0	221.20	5	319.8	94.7	2
30KPA216A	30KPA216CA	216.0	241.30	5	348.6	86.9	2
30KPA240A	30KPA240CA	240.0	268.10	5	387.0	78.3	2
30KPA258A	30KPA258CA	258.0	288.20	5	416.4	72.8	2
30KPA260A	30KPA260CA	260.0	290.40	5	416.0	72.8	2
30KPA270A	30KPA270CA	270.0	301.60	5	436.2	69.5	2
30KPA280A	30KPA280CA	280.0	312.80	5	464.0	65.3	2
30KPA288A	30KPA288CA	288.0	321.70	5	469.9	64.5	2

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

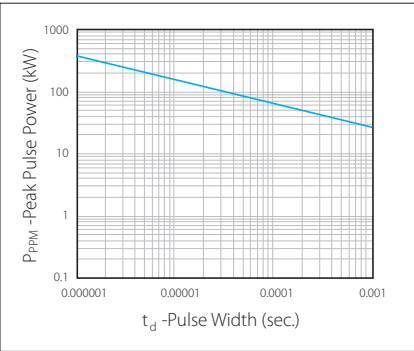


Figure 1- Peak Pulse Power Rating Curve

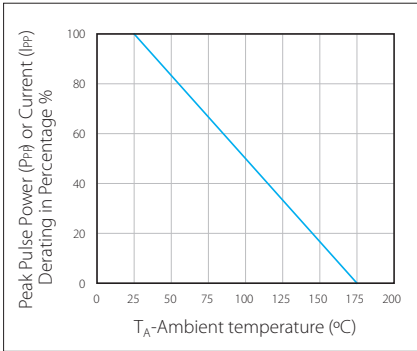


Figure 2- Pulse Derating Curve

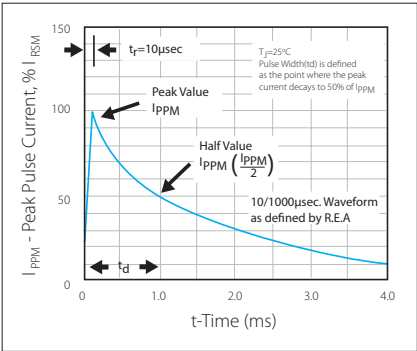


Figure 3- Pulse Waveform

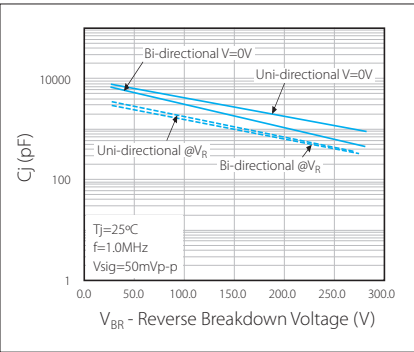


Figure 4- Typical Junction Capacitance

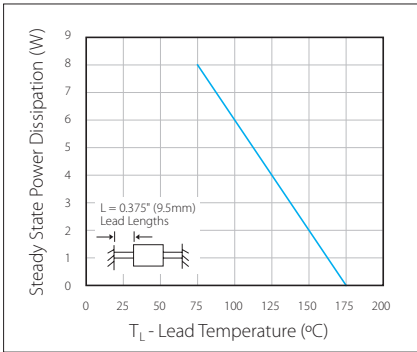


Figure 5- Steady State Power Dissipation Derating Curve

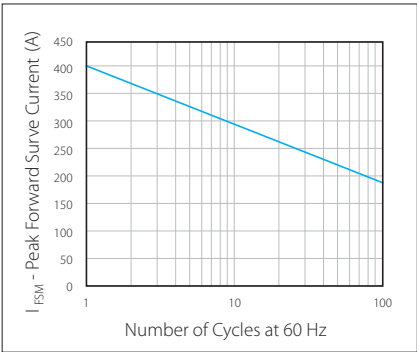


Figure 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Electrical Characteristics

Part Number	Reverse Stand-Off Voltage	Minimum Breakdown Voltage @ $I_T=1.0\text{mA}$	Maximum Reverse Leakage @ V_{RWM}	Maximum Clamping Voltage @ $I_{PP}=5.0\text{A}$	Maximum Peak Pulse Current FIG.3	Maximum Junction Capacitance @0V	Working Inverse Blocking Voltage	Inverse Blocking Leakage Current	Peak Inverse Blocking Voltage
	$V_{RWM}(V)$	$V_{BR}(V)$	$I_R(\mu A)$	$V_C(V)$	$I_{PP}(A)$	pF	$V_{WIB}(V)$	$I_{IB}(mA)$	$V_{PIB}(V)$
SAC5.0	5.0	7.60	300	10.0	44.0	50	75	1.0	100
SAC6.0	6.0	7.90	300	11.2	41.0	50	75	1.0	100
SAC7.0	7.0	8.33	300	12.6	38.0	50	75	1.0	100
SAC8.0	8.0	8.89	100	13.4	36.0	50	75	1.0	100
SAC8.5	8.5	9.44	50	14.0	34.0	50	75	1.0	100
SAC10	10.0	11.10	5	16.3	29.0	50	75	1.0	100
SAC12	12.0	13.30	1	19.0	25.0	50	75	1.0	100
SAC15	15.0	16.70	1	23.6	20.0	50	75	1.0	100
SAC18	18.0	20.00	1	28.8	15.0	50	75	1.0	100
SAC22	22.0	24.40	1	35.4	14.0	50	75	1.0	100
SAC26	26.0	28.90	1	42.3	11.1	50	75	1.0	100
SAC30	30.0	33.30	1	48.6	10.0	50	75	1.0	100
SAC36	36.0	40.00	1	60.0	8.6	50	75	1.0	100
SAC45	45.0	50.00	1	77.0	6.8	50	150	1.0	200
SAC50	50.0	55.50	1	88.0	5.8	50	150	1.0	200

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

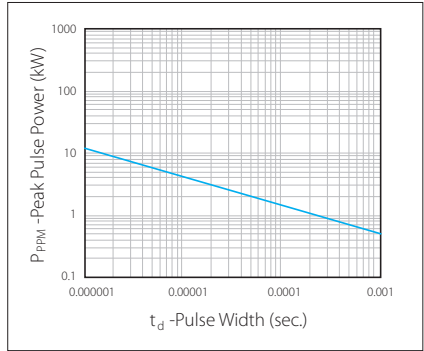


Figure 1- Peak Pulse Power Rating Curve

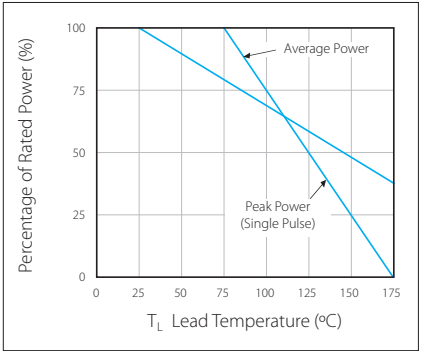


Figure 2- Pulse Derating Curve

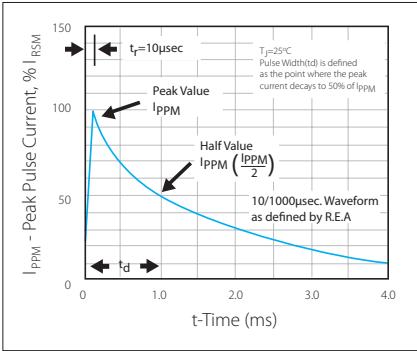


Figure 3- Pulse Waveform

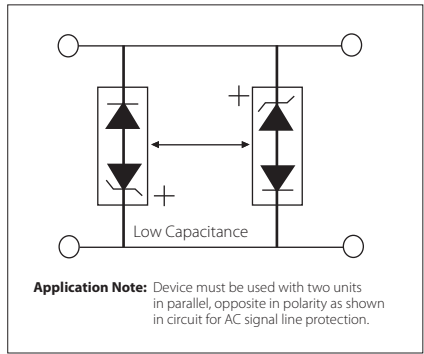


Figure 4- AC Line Protection Application

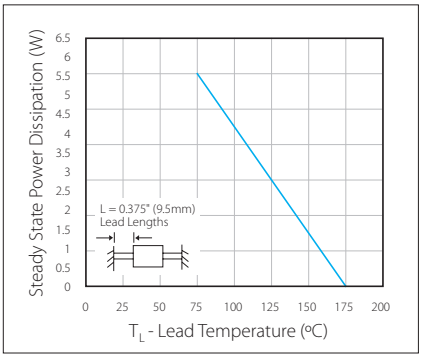


Figure 5- Steady State Power Dissipation Derating Curve

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number	Reverse Stand-Off Voltage	Breakdown Voltage Min.@IT	Breakdown Voltage Max.@IT	Test Current	Maximum Reverse Leakage @ V_{RWM}	Maximum Peak Pulse Current Per fig.3	Maximum Clamping Voltage @ I_{PP}	Maximum Junction Capacitance @0V	Working Inverse Blocking Voltage	Working Blocking Leakage Current	Peak Inverse Blocking Voltage
	$V_{RWM}(V)$	$V_{BR\ MIN.}(V)$	$V_{BR\ MAX.}(V)$	$I_T(mA)$	$I_R(\mu A)$	$I_{PP}(A)$	$V_C(V)$	(pF)	$V_{WIB}(V)$	$I_{IB}(mA)$	$V_{PIB}(V)$
LCE6.5A	6.5	7.22	7.98	10	1000	100	11.2	100	75	1.0	100
LCE7.0A	7.0	7.78	8.60	10	500	100	12.0	100	75	1.0	100
LCE7.5A	7.5	8.33	9.21	10	250	100	12.9	100	75	1.0	100
LCE8.0A	8.0	8.89	9.83	1	100	100	13.6	100	75	1.0	100
LCE8.5A	8.5	9.44	10.40	1	50	100	14.4	100	75	1.0	100
LCE9.0A	9.0	10.00	11.10	1	10	97	15.4	100	75	1.0	100
LCE10A	10.0	11.10	12.30	1	5	88	17.0	100	75	1.0	100
LCE11A	11.0	12.20	13.50	1	1	82	18.2	100	75	1.0	100
LCE12A	12.0	13.30	14.70	1	1	75	19.9	100	75	1.0	100
LCE13A	13.0	14.40	15.90	1	1	70	21.5	100	75	1.0	100
LCE14A	14.0	15.60	17.20	1	1	65	23.2	100	75	1.0	100
LCE15A	15.0	16.70	18.50	1	1	61	24.4	100	75	1.0	100
LCE16A	16.0	17.80	19.70	1	1	57	26.0	100	75	1.0	100
LCE17A	17.0	18.90	20.90	1	1	54	27.6	100	75	1.0	100
LCE18A	18.0	20.00	22.10	1	1	51	29.2	100	75	1.0	100
LCE20A	20.0	22.20	24.50	1	1	46	32.4	100	75	1.0	100
LCE22A	22.0	24.40	26.90	1	1	42	35.5	100	75	1.0	100
LCE24A	24.0	26.70	29.50	1	1	39	38.9	100	75	1.0	100
LCE26A	26.0	28.90	31.90	1	1	36	42.1	100	75	1.0	100
LCE28A	28.0	31.10	34.40	1	1	33	45.5	100	75	1.0	100

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

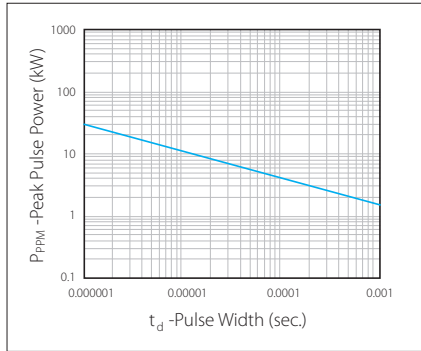


Figure 1- Peak Pulse Power Rating Curve

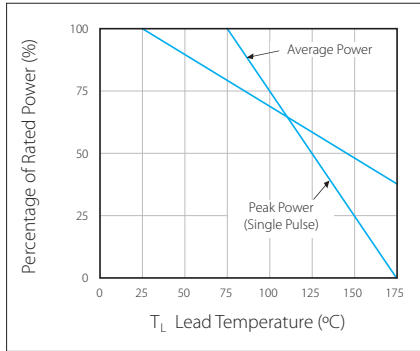


Figure 2- Pulse Derating Curve

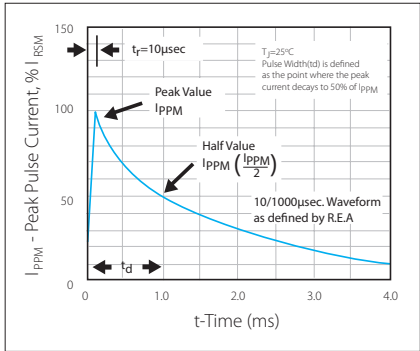


Figure 3- Pulse Waveform

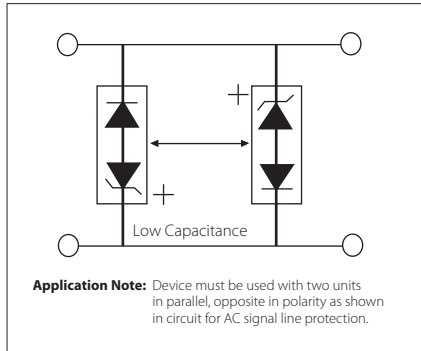


Figure 4- AC Line Protection Application

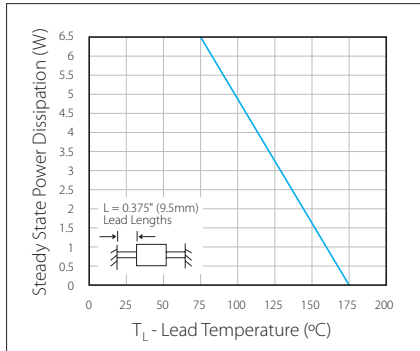


Figure 5- Steady State Power Dissipation Derating Curve

●Electrical Characteristics

Part Number	Reverse Stand-Off Voltage		Breakdown Voltage	Test Current	Current Rating	Maximum Energy	Maximum Clamping Voltage	Reverse Leakage
	V _{AC} (V)	V _{DC} (V)	V _{BR} (V) MIN.@IT	IT(mA)	Rated IPP measured with 8/20us pulse	100/1000 μs	VC(V) @ IPP	IR (μA) @ VDC
HFA-012L	8.5	12.8	14	1	3KA	500	28	20
HFA-015L	11	15	17	1	3KA	650	30	20
HFA-020L	14	20	22	1	3KA	800	40	20
HFA-025L	17	25	28	1	3KA	950	50	20
HFA-030L	21	30	33	1	3KA	1200	60	20
HFA-042L	30	42	47	1	3KA	1700	77	20
HFA-058L	40	58	64	1	3KA	2450	110	20
HFA-066L	45	66	70	1	3KA	2600	125	20
HFA-076L	54	76	85	1	3KA	2800	140	20
HFA-100L	72	100	110	1	3KA	4250	165	20
HFA-133L	100	133	147	1	3KA	5300	220	20
HFA-170L	130	170	180	1	3KA	7000	260	20
HFA-190L	145	190	200	1	3KA	8400	290	20
HFA-200L	150	200	222	1	3KA	8600	330	20
HFA-240L	180	240	250	1	3KA	9100	340	20
HFA-275L	210	275	300	1	3KA	9500	435	20
HFA-300L	230	300	330	1	3KA	12750	470	20
HFA-380L	275	380	401	1	3KA	15000	520	20
HFA-430L	310	430	440	1	3KA	18000	625	20
HFA-460L	330	460	500	1	3KA	18500	770	20
HFA-500L	385	500	558	1	3KA	19500	868	20
HFB-012L	8.5	12.8	14	1	6KA	1000	28	20
HFB-015L	11	15	17	1	6KA	1300	30	20
HFB-020L	14	20	22	1	6KA	1600	40	20
HFB-025L	17	25	28	1	6KA	1900	50	20
HFB-030L	21	30	33	1	6KA	2400	60	20
HFB-042L	30	42	47	1	6KA	3400	77	20
HFB-058L	40	58	64	1	6KA	4900	110	20
HFB-066L	45	66	70	1	6KA	5200	125	20
HFB-076L	54	76	83	1	6KA	5600	135	20
HFB-100L	72	100	110	1	6KA	8500	165	20
HFB-133L	100	133	147	1	6KA	10600	220	20
HFB-170L	130	170	180	1	6KA	14000	260	20
HFB-190L	145	190	200	1	6KA	16800	290	20
HFB-200L	150	200	222	1	6KA	17200	330	20
HFB-240L	180	240	250	1	6KA	18000	340	20
HFB-275L	210	275	300	1	6KA	19000	435	20
HFB-300L	230	300	330	1	6KA	25500	470	20
HFB-380L	275	380	401	1	6KA	30000	520	20
HFC-012L	8.5	12.8	14	1	10KA	1665	28	20
HFC-015L	11	15	17	1	10KA	2164	30	20
HFC-020L	14	20	22	1	10KA	2664	40	20
HFC-025L	17	25	28	1	10KA	3163	50	20

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

●Electrical Characteristics

Part Number	Reverse Stand-Off Voltage		Breakdown Voltage	Test Current	Current Rating	Maximum Energy	Maximum Clamping Voltage	Reverse Leakage
	V _{AC} (V)	V _{DC} (V)	V _{BR} (V) MIN.@IT	IT(mA)	Rated IPP measured with 8/20us pulse	100/1000 μs	VC(V) @ IPP	IR (μA) @ VDC
HFC-030L	21	30	33	1	10KA	3996	60	20
HFC-042L	30	42	47	1	10KA	5661	77	20
HFC-058L	40	58	64	1	10KA	8158	110	20
HFC-066L	45	66	70	1	10KA	8658	125	20
HFC-076L	54	76	83	1	10KA	9324	135	20
HFC-100L	72	100	110	1	10KA	14152	165	20
HFC-133L	100	133	147	1	10KA	17649	220	20
HFC-170L	130	170	180	1	10KA	23310	260	20
HFC-190L	145	190	200	1	10KA	27972	290	20
HFC-200L	150	200	222	1	10KA	28638	330	20
HFD-012L	8.5	12.8	14	1	16KA	2665	28	20
HFD-015L	11	15	17	1	16KA	3464	30	20
HFD-020L	14	20	22	1	16KA	4264	40	20
HFD-025L	17	25	28	1	16KA	5063	50	20
HFD-030L	21	30	33	1	16KA	6396	60	20
HFD-042L	30	42	47	1	16KA	9061	77	20
HFD-058L	40	58	64	1	16KA	13058	110	20
HFD-066L	45	66	70	1	16KA	13858	125	20
HFD-076L	54	76	85	1	16KA	14924	145	20
HFD-100L	72	100	110	1	16KA	22652	165	20
HFD-133L	100	133	147	1	16KA	28249	220	20
HFD-170L	130	170	180	1	16KA	37310	260	20
HFD-190L	145	190	200	1	16KA	44772	290	20

●Flow/Wave Soldering Recommendation Parameters

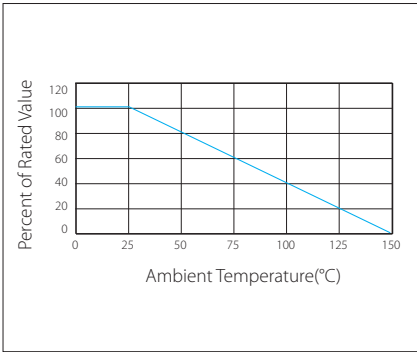


Figure 1- Peak Power Derating

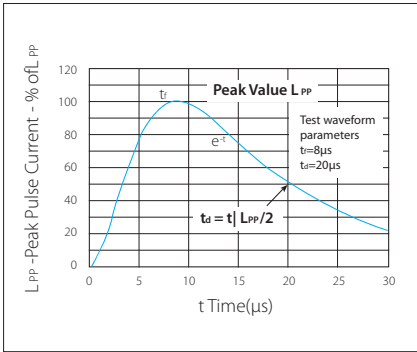


Figure 2- Pulse Wave Form

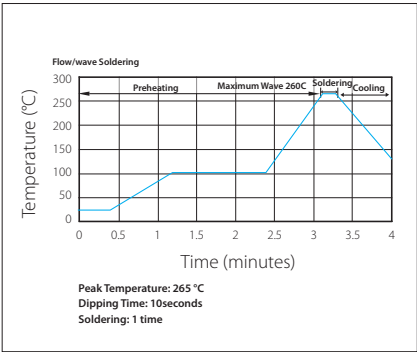


Figure 3- Flow/wave soldering recommendation parameters

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics (TA=25°C)

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V _{RM}	Leakage current				170	V
V _{DRM}	Breakdown voltage		600			uA
I _{RM}	Surge Clamping voltage	V _{RM} = 170V			5	V
V _{BR}	Reverse stand-off voltage	I _R = 1mA	190	200	215	V
V _C	Diode Reverse stand-off voltage	I _{PP} = 0.75Amps 10/1000µs			295	nS
t _{rr}	Diode Reverse Recovery Time	I _F / I _R = 0.1A/0.3A			500	V
P _W	Peak surge power	10/1000uS Wave			200	W

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

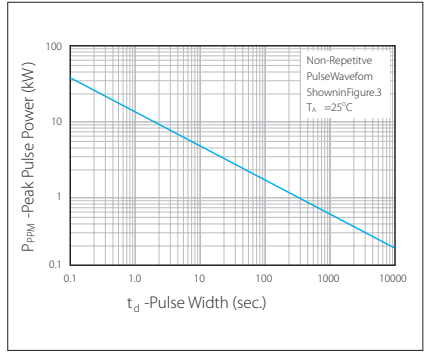


Figure 1- Peak Pulse Power Rating Pulse Time Curve

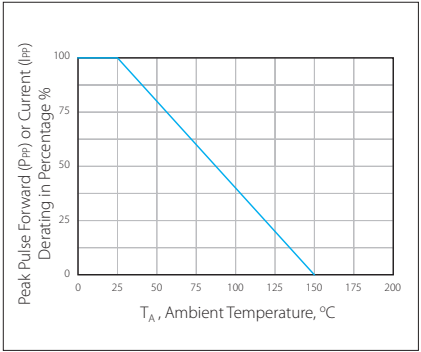


Figure 2- Pulse Derating Curve

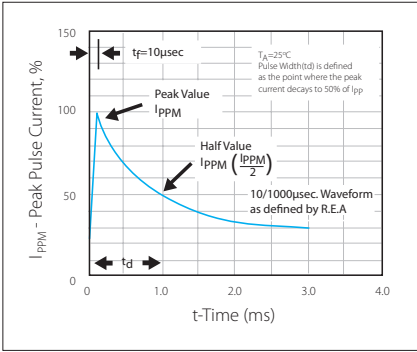


Figure 3- Pulse Waveform

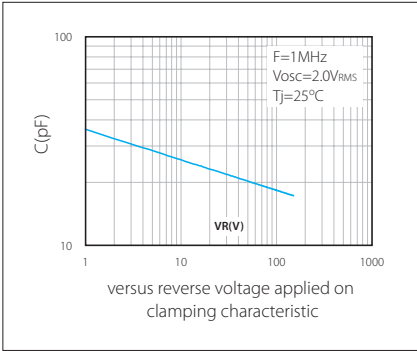


Figure 4- Typical Junction Capacitance

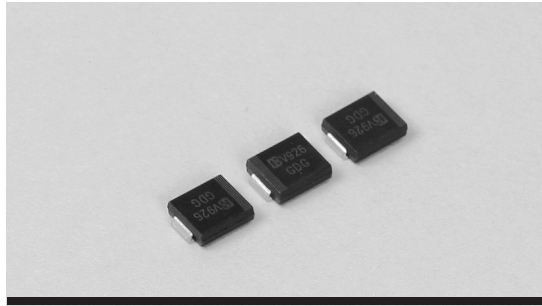
STV / B6A

Electrical Characteristics

Part Number	I _{RM} @V _{RM} Max.		I _{RM} @V _{RM} Max.		I _{RM} @V _{RM} Max.		I _{RM} @V _{RM} Max.		I _{RM} @V _{RM} Max.	
	V	µA	V	µA	V	µA	V	µA	V	µA
B6A	5	200	4	50	3	10	2.5	5	1.5	1

Part Number	V _{BR} Min. @ I _t	I _t	V _C @ I _{PP}	I _{PP}	C _{type}
	V	mA	V	A	pF
B6A	6	1	15	40	35

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

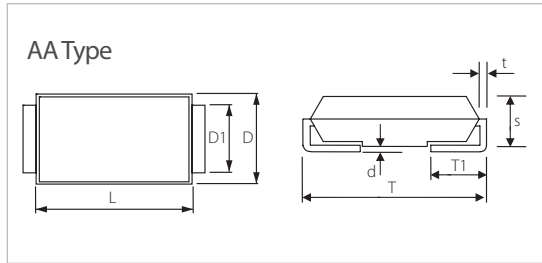


STS is one kind of semi-conductor surge absorbers.

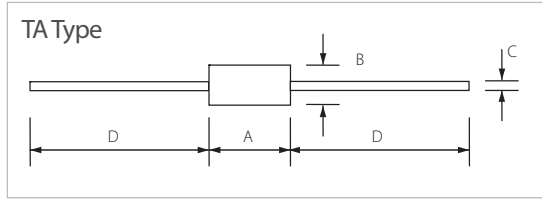
Features

- Precise control over break-down voltages, offering superior tolerance levels compared to other solutions
- Strong surge capability
- Fast response times
- Low capacitance
- Bi-directional capabilities.

Dimension

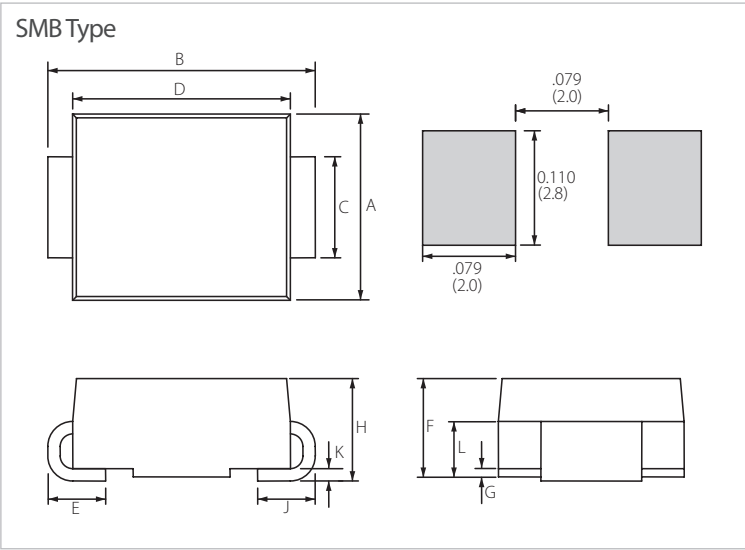


Dimension (mm)							
L±0.5	D±0.5	D1±0.5	T±0.5	T1±0.5	d(Max)	s±0.5	t±0.1
4.25	2.65	1.45	5.1	1.15	0.25	2.15	0.25

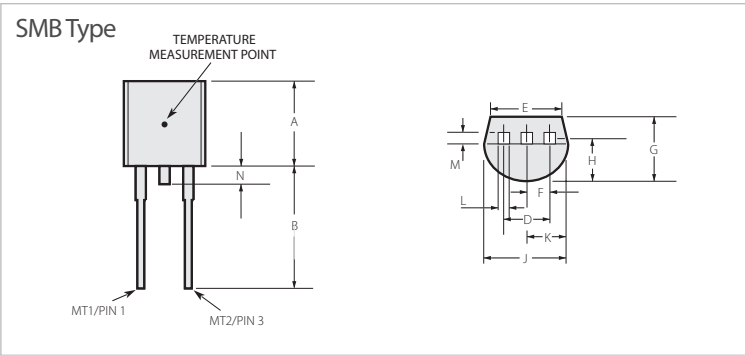


Type	Dimension (mm)			
	A	B	C	D
LA&LB	6.7±1.0	3.1±0.5	0.8±0.1	25.4(Min)
LC	9.5(Max)	6.4(Max)	1.1±0.1	25.4(Min)

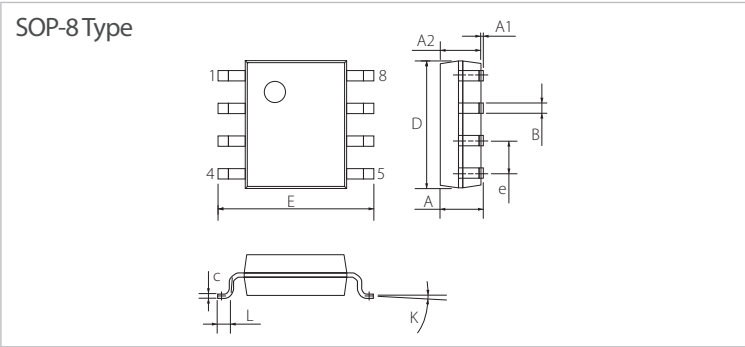
Dimension



Dimension (mm)										
A±0.5	B±0.5	C±0.5	D±0.5	E±0.5	F±0.5	G±0.5	H±0.5	J±0.5	K±0.5	L±0.5
3.65	5.4	2.0	4.5	1.15	2.0	0.1	2.2	1.2	0.3	1.1



Dimension (mm)										
A±0.5	B(Min)	C±0.5	E(Min)	F±0.5	G±0.1	H±0.5	J±0.5	K±0.5	L±0.1	M±0.1
4.7	12.7	2.5	3.8	1.25	3.5	2.3	4.5	2.3	0.4	0.4



Dimension (mm)										
A(Max)	A1±0.1	A2±0.5	B±0.1	C±0.1	D±0.5	E±0.5	F1±0.5	e±0.1	L±0.5	K±5
1.75	0.2	1.55	0.4	0.2	4.9	6.0	3.9	1.27	0.7	5°

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number	V _{DRM} Volts	V _S Volts	V _T Volts	I _{DRM} μAmps	I _S mAmps	I _T Amps	I _H mAmps	C _o pF
P0080AA	6	25	4	5	800	2.2	50	30
P0300AA	25	40	4	5	800	2.2	50	30
P0640AA	58	77	4	5	800	2.2	150	30
P0720AA	65	88	4	5	800	2.2	150	25
P0900AA	75	98	4	5	800	2.2	150	25
P1100AA	90	130	4	5	800	2.2	150	25
P1300AA	120	160	4	5	800	2.2	150	25
P1500AA	140	180	4	5	800	2.2	150	25
P1800AA	170	220	4	5	800	2.2	150	25
P2300AA	190	260	4	5	800	2.2	150	25
P2600AA	220	300	4	5	800	2.2	150	25
P3100AA	275	350	4	5	800	2.2	150	25
P3500AA	320	400	4	5	800	2.2	150	25

Figure

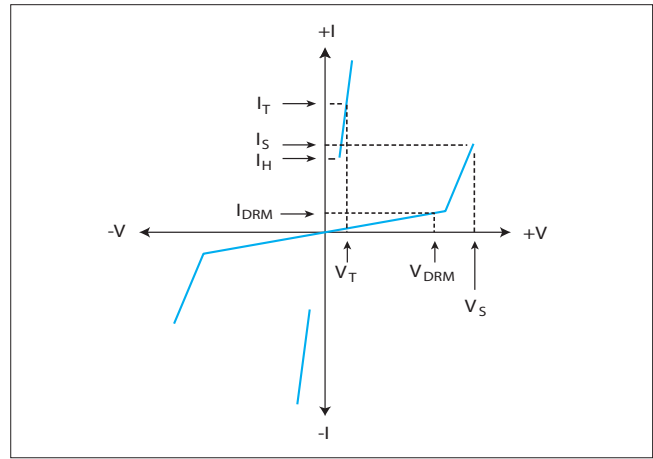


Figure 1- Characteristics

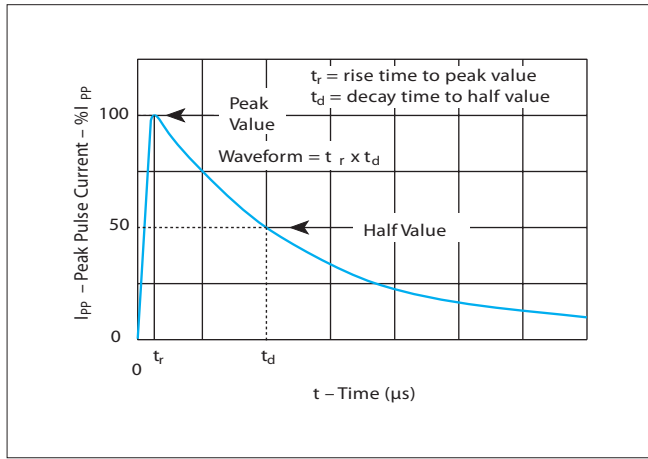


Figure 2- tr x td Pulse Wave-form

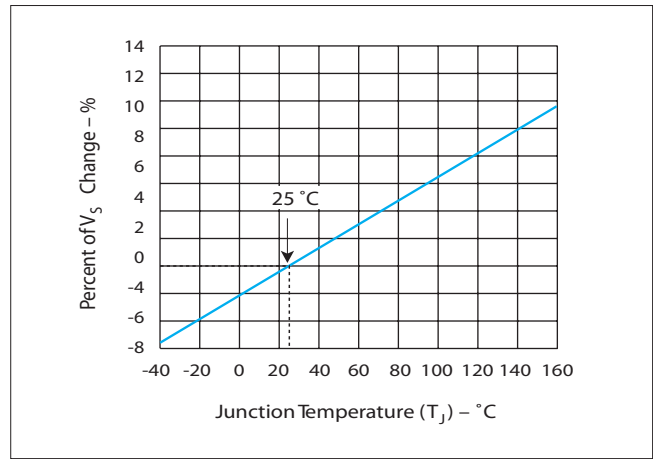


Figure 3- Normalized vs Change versus Junction Temperature

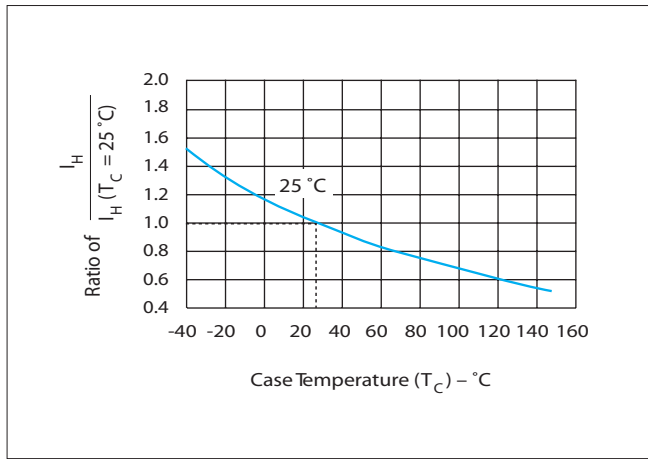


Figure 4- Normalized DC Holding Current versus Case Temperature

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number	V _{DRM} Volts	V _S Volts	V _T Volts	I _{DRM} μAmps	I _S mAmps	I _T Amps	I _H mAmps	C _o pF
P0080TA	6	25	4	5	800	2.2	50	50
P0300TA	25	40	4	5	800	2.2	50	70
P0640TA	58	77	4	5	800	2.2	150	50
P0720TA	65	88	4	5	800	2.2	150	50
P0900TA	75	98	4	5	800	2.2	150	45
P1100TA	90	130	4	5	800	2.2	150	45
P1300TA	120	160	4	5	800	2.2	150	45
P1500TA	140	180	4	5	800	2.2	150	40
P1800TA	170	220	4	5	800	2.2	150	40
P2300TA	190	260	4	5	800	2.2	150	35
P2600TA	220	300	4	5	800	2.2	150	35
P3100TA	275	350	4	5	800	2.2	150	30
P3500TA	320	400	4	5	800	2.2	150	30

Figure

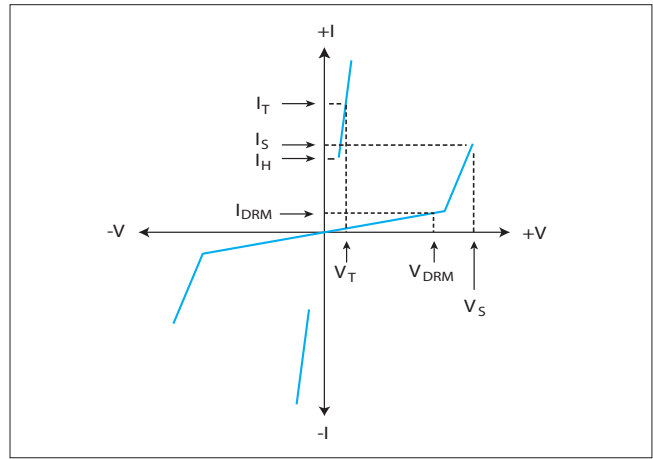


Figure 1- Characteristics

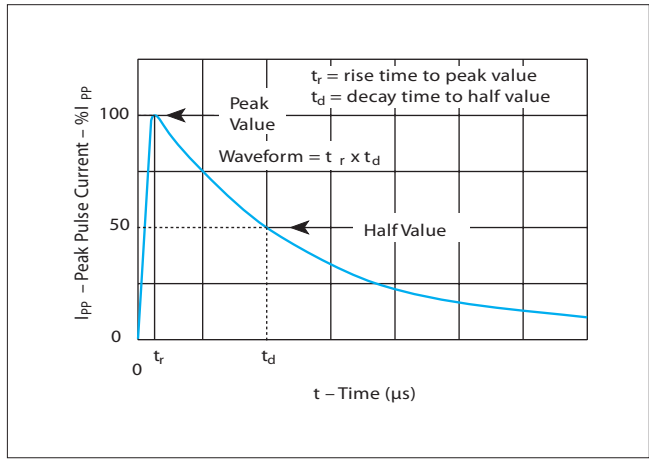


Figure 2- tr x td Pulse Wave-form

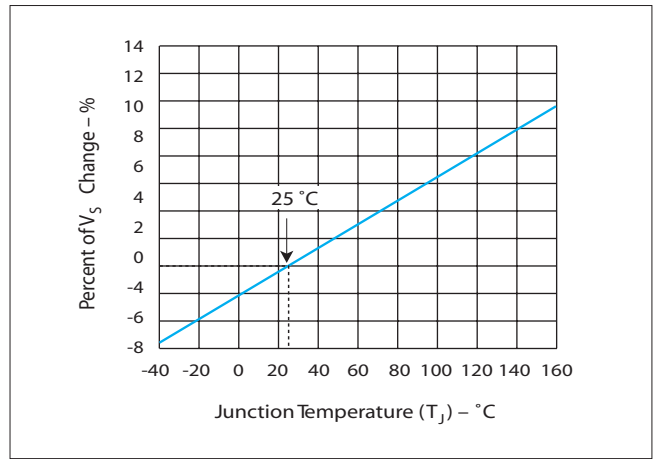


Figure 3- Normalized vs Change versus Junction Temperature

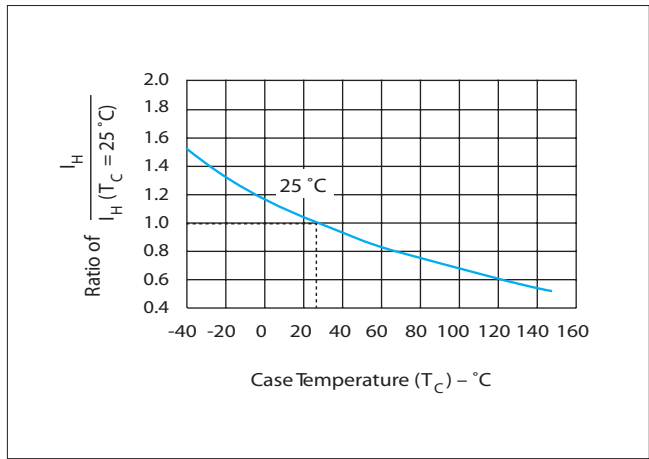


Figure 4- Normalized DC Holding Current versus Case Temperature

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number	V _{DRM} Volts	V _S Volts	V _T Volts	I _{DRM} μAmps	I _S mAmps	I _T Amps	I _H mAmps
P0080S_	6	25	4	5	800	2.2	50
P0300S_	25	40	4	5	800	2.2	50
P0640S_	58	77	4	5	800	2.2	150
P0720S_	65	88	4	5	800	2.2	150
P0900S_	75	98	4	5	800	2.2	150
P1100S_	90	130	4	5	800	2.2	150
P1300S_	120	160	4	5	800	2.2	150
P1500S_	140	180	4	5	800	2.2	150
P1800S_	170	220	4	5	800	2.2	150
P2300S_	190	260	4	5	800	2.2	150
P2600S_	220	300	4	5	800	2.2	150
P3100S_	275	350	4	5	800	2.2	150
P3500S_	320	400	4	5	800	2.2	150

Figure

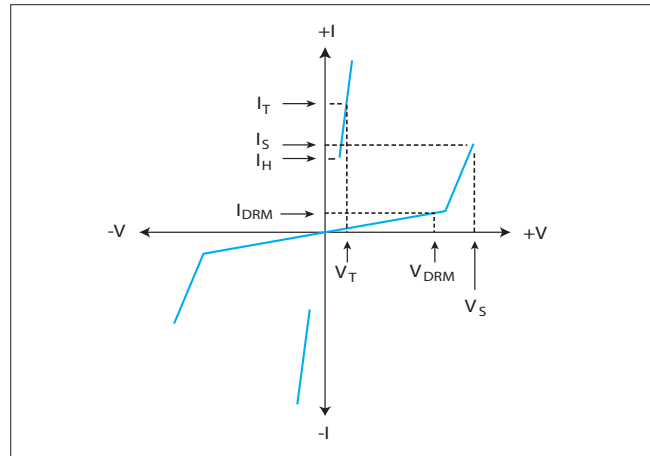


Figure 1- Characteristics

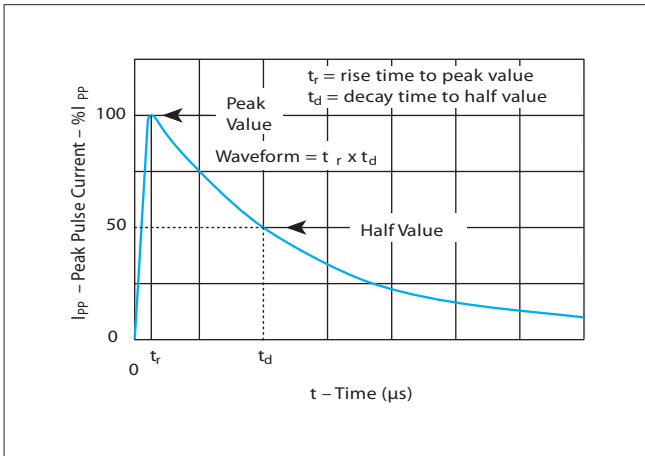


Figure 2- tr x td Pulse Wave-form

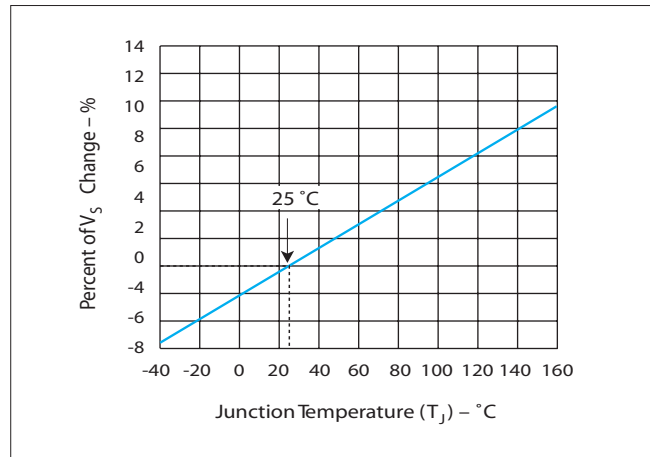


Figure 3- Normalized vs Change versus Junction Temperature

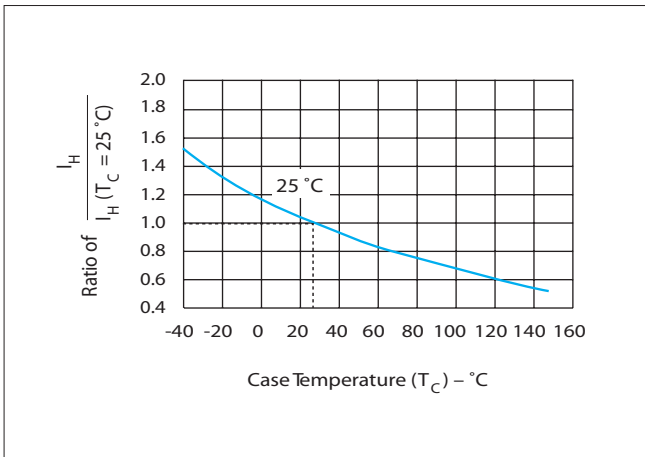


Figure 4- Normalized DC Holding Current versus Case Temperature

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number	V _{DRM} Volts	V _S Volts	V _T Volts	I _{DRM} μAmps	I _S mAmps	I _T Amps	I _H mAmps
P0080L_	6	25	4	5	800	2.2	50
P0300L_	25	40	4	5	800	2.2	50
P0640L_	58	77	4	5	800	2.2	150
P0720L_	65	88	4	5	800	2.2	150
P0900L_	75	98	4	5	800	2.2	150
P1100L_	90	130	4	5	800	2.2	150
P1300L_	120	160	4	5	800	2.2	150
P1500L_	140	180	4	5	800	2.2	150
P1800L_	170	220	4	5	800	2.2	150
P2300L_	190	260	4	5	800	2.2	150
P2600L_	220	300	4	5	800	2.2	150
P3100L_	275	350	4	5	800	2.2	150
P3500L_	320	400	4	5	800	2.2	150

Figure

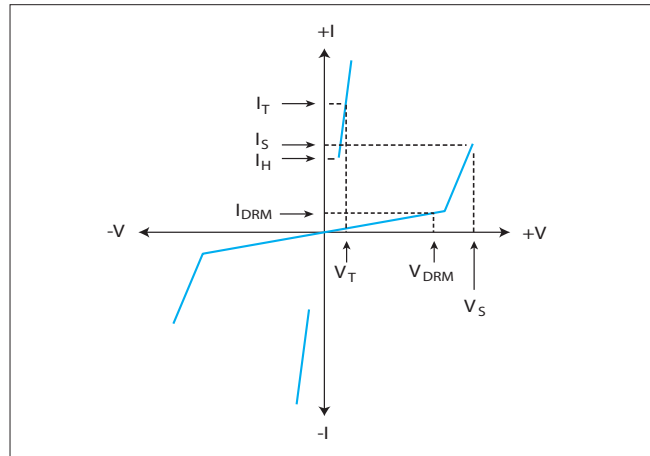


Figure 1- Characteristics

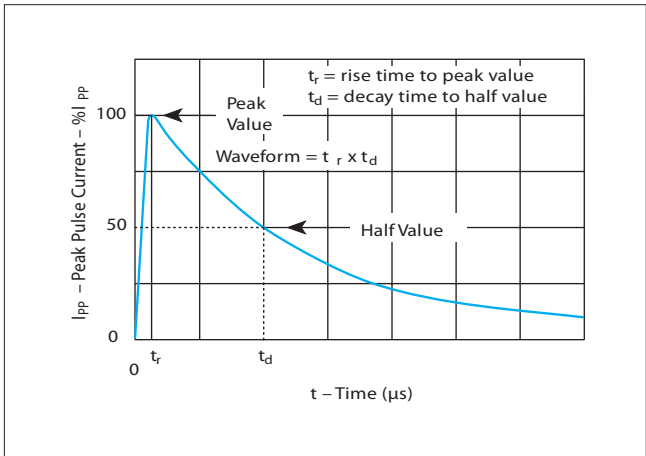


Figure 2- tr x td Pulse Wave-form

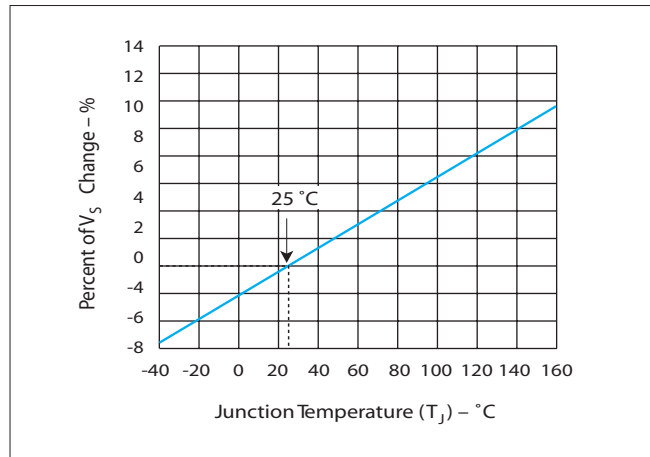


Figure 3- Normalized vs Change versus Junction Temperature

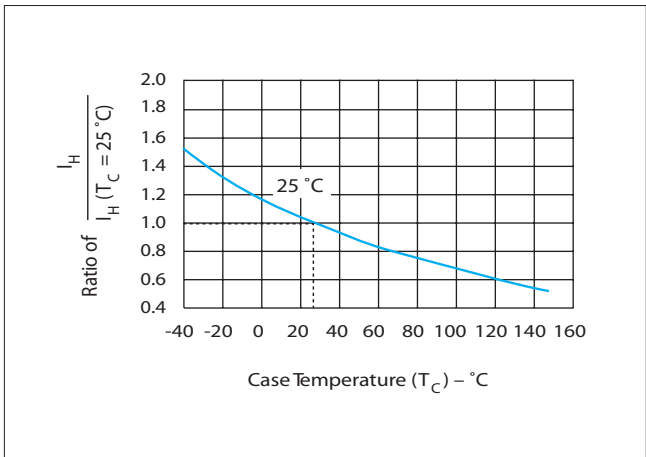


Figure 4- Normalized DC Holding Current versus Case Temperature

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electrical Characteristics

Part Number	V _{DRM} Volts	V _S Volts	V _T Volts	I _{DRM} μAmps	I _S mAmps	I _T Amps	I _H mAmps
P0080E_	6	25	4	5	800	2.2	50
P0300E_	25	40	4	5	800	2.2	50
P0640E_	58	77	4	5	800	2.2	150
P0720E_	65	88	4	5	800	2.2	150
P0900E_	75	98	4	5	800	2.2	150
P1100E_	90	130	4	5	800	2.2	150
P1300E_	120	160	4	5	800	2.2	150
P1500E_	140	180	4	5	800	2.2	150
P1800E_	170	220	4	5	800	2.2	150
P2300E_	190	260	4	5	800	2.2	150
P2600E_	220	300	4	5	800	2.2	150
P3100E_	275	350	4	5	800	2.2	150
P3500E_	320	400	4	5	800	2.2	150

Figure

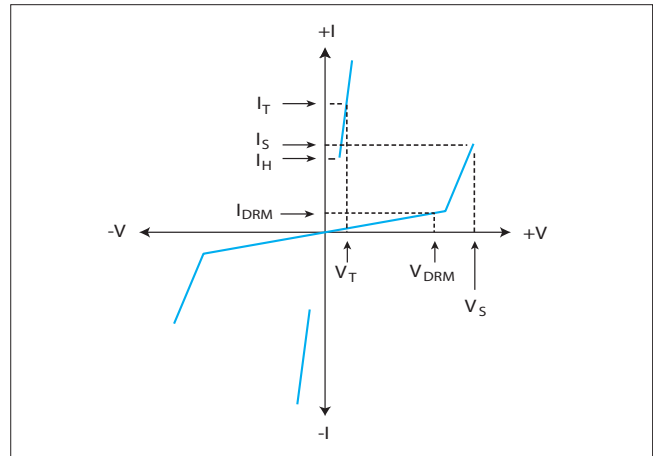


Figure 1- Characteristics

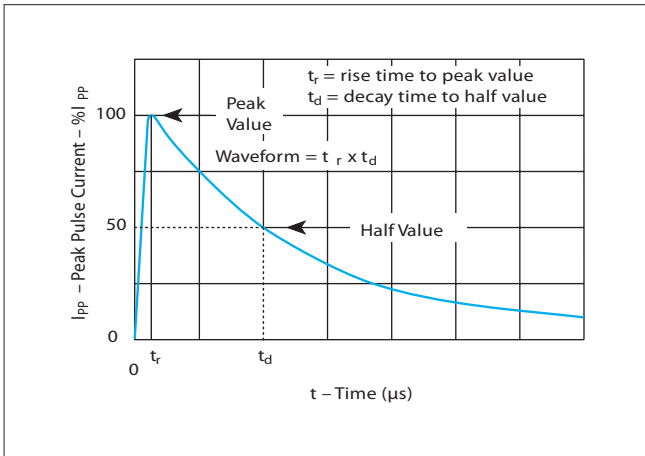


Figure 2- tr x td Pulse Wave-form

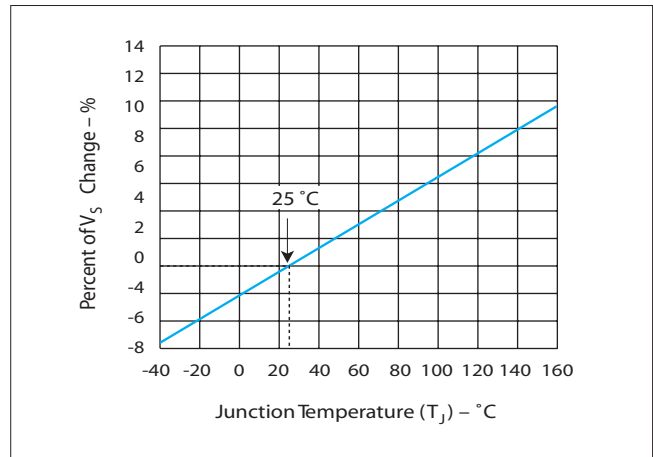


Figure 3- Normalized vs Change versus Junction Temperature

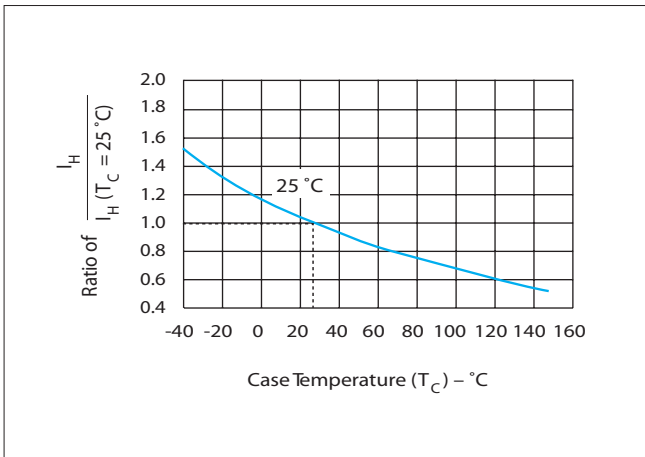


Figure 4- Normalized DC Holding Current versus Case Temperature

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electircal Characteristics,Ratings at 25°C unless otherwise specified

	Parameter	Test Conditions	Min	Typ	Max	Unit
I _D	Off-state current	V _D =V _{DRM} , V _{GK} =0 T _J =25°C T _J =85°C			-5 -50	μA
V _(BO)	Breakover voltage	2/10us, I _{PP} =-56A, R _S =45Ω, V _{GG} =-48V, C _G =220nF 1.2/50us, I _{PP} =-53A, R _S =47Ω, V _{GG} =-48V, C _G =220nF		-57 -60		V
V _{GK(BO)}	Gate-cathode impulse Breakover voltage	2/10us, I _{PP} =-56A, R _S =45Ω, V _{GG} =-48V, C _G =220nF 1.2/50us, I _{PP} =-53A, R _S =47Ω, V _{GG} =-48V, C _G =220nF		9 12		V
V _F	Forward voltage	I _F = 5 A, T _w = 200 us			3	V
V _{FRM}	Peak forward recovery voltage	2/10us, I _{PP} =-56A, R _S =45Ω, V _{GG} =-48V, C _G =220nF 1.2/50us, I _{PP} =-53A, R _S =47Ω, V _{GG} =-48V, C _G =220nF			6 8	V
I _H	Holding current	I _T = -1 A, di/dt = 1A/ms, V _{GG} = -48 V	-150			mA
I _{GKS}	Gate reverse current	V _{GG} = V _{GK} = V _{GKRM} , V _{KA} = 0 T _J =25°C T _J =85°C			-5 -50	μA
I _{GT}	Gate trigger current	I _T = -3 A, t _{p(g)} ≥20 us, V _{GG} = -48V			5	mA
V _{GT}	Gate-cathode trigger voltage	I _T = -3 A, t _{p(g)} ≥20 us, V _{GG} = -48V			2.5	V
Q _{GS}	Gate switching charge	1.2/50us, I _{PP} =-53A, R _S =47Ω, V _{GG} =-48V, C _G =220nF		0.1		μC
C _{KA}	Cathode-anode off-State capacitance	F=1 MHz, V _d =1V, I _G =0 V _D = -3 V V _D =-48 V			100 50	pF

Parameter Measurement Information

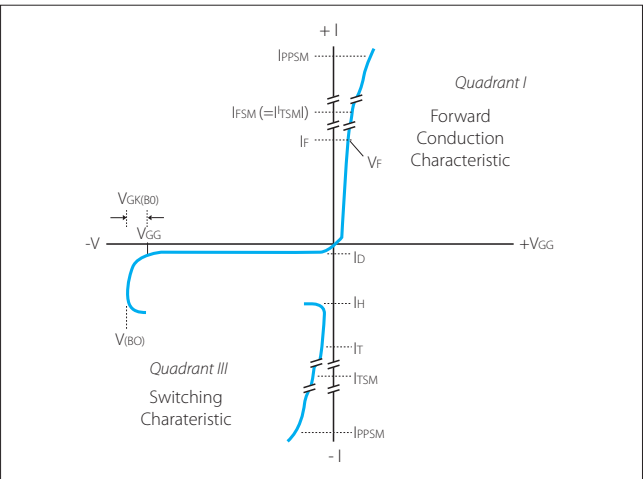


Figure 1- Voltage-Current Charateristic Unless Otherwise Noted, All Voltages are Referenced to the Anode

Typical Characteristics

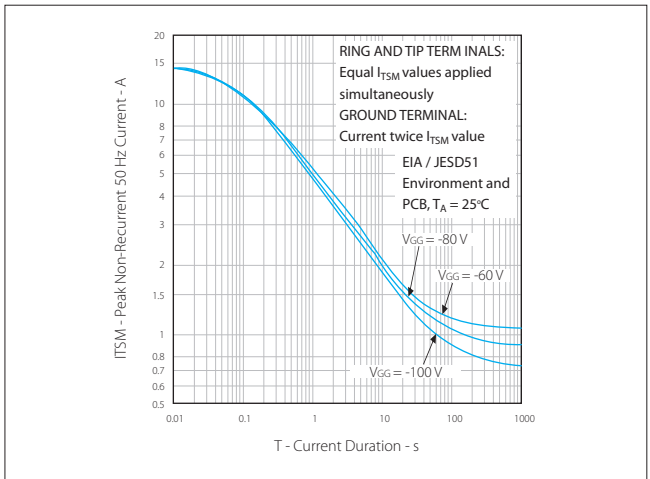
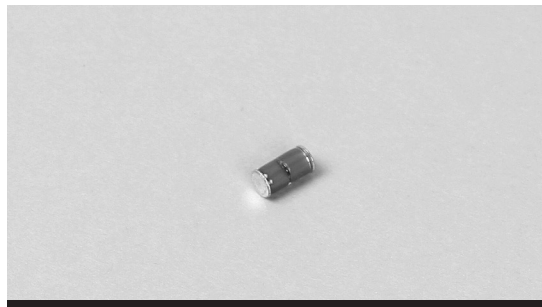


Figure 2- Non-repetitive Peak On-State Current Against Duration

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

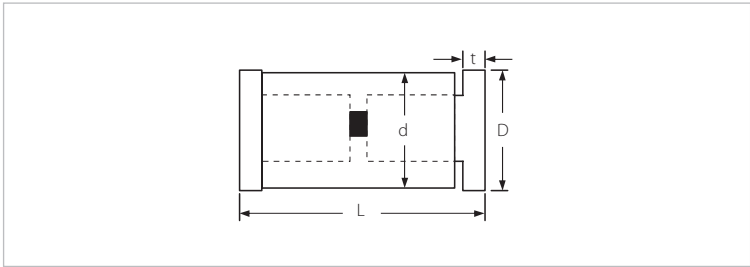


SSP use glass tubes to envelope and contain a chip, which increases the devices’ response times to around 1ns.

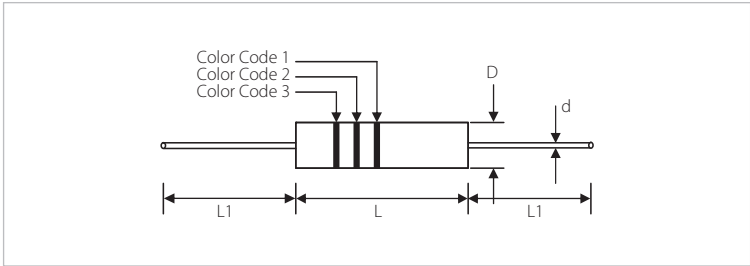
Features

- Compared with other surge absorbers having similar functions, this range has the fastest response speed, can withstand the largest current and is the smallest.
- Zero leaking current before clamping voltage.
- All electrical characteristics are very stable after extended periods of charging and discharging, eliminating the need to inspect or replace components regularly.
- capable of withstanding repeated lightning strikes.
- Stable and very Small electrostatic capacitance (<0.8pF) and great isolation (>100MΩ).
- No pollution materials used in construction.
- Bilateral and symmetrical.
- Completely insensitive to weather, temperature, humidity and light-exposure.

Dimension



Type	Dimension (mm)			
	L ± 0.5	D ± 0.5	d ± 0.5	t ± 0.1
BK1-M	6.0	3.3	3.1	0.4
BK2-M	5.0	2.8	2.6	0.4
BK3-M (standard)	4.0	2.0	1.8	0.4
BK3-M (Mini-Melf)	3.4	1.4	1.3	0.4



Type	Dimension (mm)			
	L ± 0.5	D ± 0.5	d ± 0.5	t ± 0.1
BK1	4.0	28.0	3.1	0.5
	5.3		4.1	
	7.0			
BK2	4.3	28.0	2.6	0.5
	6.7			
BK3	4.0	28.0	2.0	0.5

SSP / BK1-M series

Electrical Characteristics

Part Number	DC Spark-Over Voltage	Minimum Insulation Resistance		Maximu Capacitance (1KHz-6V _{MAX})	Surge current capacity (8/20μs)
	Vs(V)	Test Voltage(V)	IR _{OHM} (MΩ)	C(pf)	(A)
BK1XX00702-M	140	50	100	0.8	3000
BK1XX01002-M	200	100	100	0.8	3000
BK1XX01502-M	300	100	100	0.8	3000
BK1XX02502-M	500	250	100	0.8	3000
BK1XX03502-M	700	500	100	0.8	3000
BK1XX05002-M	1000	500	100	0.8	3000

Note: Vs±XX%

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

SSP / BK2-M series

Electirical Characteristics

Part Number	DC Spark-Over Voltage	Minimum Insulation Resistance		Maximu Capacitance (1KHz-6V _{MAX})	Surge current capacity (8/20μs)
	Vs(V)	Test Voltage(V)	IR _{OHM} (MΩ)	C(pf)	(A)
BK2XX00702-M	140	50	100	0.8	1000
BK2XX01002-M	200	100	100	0.8	1000
BK2XX01102-M	220	100	100	0.8	1000
BK2XX01502-M	300	100	100	0.8	1000
BK2XX02002-M	400	250	100	0.8	1000
BK2XX02502-M	500	250	100	0.8	1000
BK2XX03002-M	600	250	100	0.8	1000
BK2XX03502-M	700	500	100	0.8	1000
BK2XX05002-M	1000	500	100	0.8	1000

Note: Vs±XX%

SSP / BK3-M series

Electirical Characteristics (STANDARD Series)

Part Number	DC Spark-Over Voltage	Minimum Insulation Resistance		Maximu Capacitance (1KHz-6V _{MAX})	Surge current capacity (8/20μs)
	Vs(V)	Test Voltage(V)	IR _{OHM} (MΩ)	C(pf)	(A)
BK3XX00702-M	140	50	100	0.8	500
BK3XX01002-M	200	100	100	0.8	500
BK3XX01102-M	220	100	100	0.8	500
BK3XX01502-M	300	100	100	0.8	500
BK3XX02002-M	400	250	100	0.8	500
BK3XX02502-M	500	250	100	0.8	500
BK3XX03002-M	600	250	100	0.8	500
BK3XX03502-M	700	500	100	0.8	500
BK3XX05002-M	1000	500	100	0.8	500

Note: Vs±XX%

Electirical Characteristics (MINI MELF Series)

Part Number	DC Spark-Over Voltage	Minimum Insulation Resistance		Maximu Capacitance (1KHz-6V _{MAX})	Surge current capacity (8/20μs)
	Vs(V)	Test Voltage(V)	IR _{OHM} (MΩ)	C(pf)	(A)
BK3XX00702-M	140	50	100	0.8	300
BK3XX01002-M	200	100	100	0.8	300
BK3XX01502-M	300	100	100	0.8	300

Note: Vs±XX%

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

SSP / BK1 series

RoHS

HF

●Electircal Characteristics

Note: Vs±XX%

Part Number	DC Spark-Over Voltage	Minimum Insulation Resistance		Maximu Capacitance (1KHz-6V _{MAX})	Surge current capacity	Surge Life Test
	Vs(V)	Test Voltage(V)	I _{ROHM} (MΩ)	C (pf)	8/20μs(A)	8/20μs, 100A
BK1XX00702	140	50	100	0.8	3000	250 times
BK1XX01502	300	100	100	0.8	3000	250 times
BK1XX02002	400	250	100	0.8	3000	250 times
BK1XX02502	500	250	100	0.8	3000	250 times
BK1XX03502	700	500	100	0.8	3000	250 times
BK1XX05002	1000	500	100	0.8	3000	250 times
BK1XX07502	1500	500	100	0.8	3000	250 times
BK1XX09002	1800	500	100	0.8	3000	250 times
BK1XX10002	2000	500	100	0.8	3000	250 times
BK1XX12002	2400	500	100	0.8	3000	250 times
BK1XX13502	2700	500	100	0.8	3000	250 times
BK1XX15002	3000	500	100	0.8	3000	250 times
BK1XX18002	3600	500	100	0.8	3000	250 times
BK1XX20002	4000	500	100	0.8	3000	250 times
BK1XX22502	4500	500	100	0.8	3000	250 times
BK1XX25002	5000	500	100	0.8	3000	250 times

SSP / BK2 series

RoHS

HF

●Electircal Characteristics

Part Number	DC Spark-Over Voltage	Minimum Insulation Resistance		Maximu Capacitance (1KHz-6V _{MAX})	Surge current capacity	Surge Life Test
	Vs(V)	Test Voltage(V)	I _{ROHM} (MΩ)	C (pf)	8/20μs(A)	8/20μs, 100A
BK2XX00702	140	50	100	0.8	1000	200 times
BK2XX01002	200	100	100	0.8	1000	200 times
BK2XX01102	220	100	100	0.8	1000	200 times
BK2XX01502	300	100	100	0.8	1000	200 times
BK2XX02002	400	250	100	0.8	1000	200 times
BK2XX02502	500	250	100	0.8	1000	200 times
BK2XX03002	600	250	100	0.8	1000	200 times
BK2XX03502	700	500	100	0.8	1000	200 times
BK2XX05002	1000	500	100	0.8	1000	200 times
BK2XX07502	1500	500	100	0.8	1000	200 times

Note: Vs±XX%

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

SSP / BK3 series

RoHS

HF

●Electircal Characteristics

Part Number	DC Spark-Over Voltage	Minimum Insulation Resistance		Maximu Capacitance (1KHz-6V _{MAX})	Surge current capacity	Surge Life Test
	Vs(V)	Test Voltage(V)	I _{ROHM} (MΩ)	C (pf)	8/20μs(A)	8/20μs, 100A
BK3XX00702	140	50	100	0.8	500	150 times
BK3XX01002	200	100	100	0.8	500	150 times
BK3XX01102	220	100	100	0.8	500	150 times
BK3XX01502	300	100	100	0.8	500	150 times
BK3XX02002	400	250	100	0.8	500	150 times
BK3XX02502	500	250	100	0.8	500	150 times
BK3XX03002	600	250	100	0.8	500	150 times
BK3XX03502	700	500	100	0.8	500	150 times
BK3XX05002	1000	500	100	0.8	500	150 times
BK3XX07502	1500	500	100	0.8	500	150 times

Note: Vs±XX%

SSP / BK1-M(S) series

RoHS

HF

●Electircal Characteristics

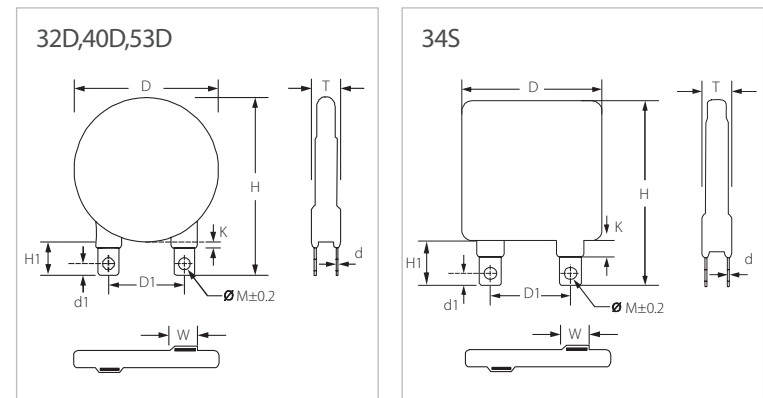
Part Number	DC Spark-Over Voltage	Minimum Insulation Resistance		Maximu Capacitance (1KHz-6V _{MAX})	Surge current capacity	Surge Life Test	Type
	Vs(V)	Test Voltage(V)	I _{ROHM} (MΩ)	C (pf)	8/20μs(A)	8/20μs, 100A	
BK1XX00702-M	140	50	100	0.8	3000	250 times	S
BK1XX01002-M	200	100	100	0.8	3000	250 times	S
BK1XX01102-M	220	100	100	0.8	3000	250 times	S
BK1XX01502-M	300	100	100	0.8	3000	250 times	S
BK1XX02002-M	400	250	100	0.8	3000	250 times	S
BK1XX02502-M	500	250	100	0.8	3000	250 times	S
BK1XX03002-M	600	250	100	0.8	3000	250 times	S
BK1XX03502-M	700	500	100	0.8	3000	250 times	S
BK1XX05002-M	1000	500	100	0.8	3000	250 times	S
BK1XX07502-M	1500	500	100	0.8	3000	250 times	S

Note: Vs±XX%

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.



- Wide operating voltage : from 18V to 750V
- fast response to transient over-voltage and limited current
- capable of absorbing high transient energies
- low clamping ratio and no follow-on current



32D,40D,53D,34S Dimension (mm)				
	32D	40D	53D	34S
H(max)	56.3	60.2	78.2	56.6
H1(max)	16.5	16.5	16.5	16.5
D(max)	38.0	45.0	60.0	44.0
D1(±1.0)	25.4	25.4	25.4	25.4
T(max)	TABLE 2 Reference	TABLE 2 Reference	TABLE 2 Reference	TABLE 2 Reference
d	0.5±0.1	0.5±0.1	0.5±0.1	0.3/0.5±0.15
D1(±0.3)	3.4	3.4	3.4	3.4
K(max)	3.18	3.18	3.18	3.18
W(±0.5)	7.0	7.0	9.7	7.0
Φ(M±0.2)	3.8	3.8	4.15	3.8

	5D	7D	10D	14D	20D	25D	32D	34S	40D	53D
180K	4.5	4.5	4.6	4.6	4.8	4.8				
220K	4.6	4.6	4.7	4.7	4.9	4.9				
270K	4.7	4.7	4.8	4.8	5.0	5.0				
330K	4.9	4.9	5.0	5.0	5.2	5.2	6.0	6.0	6.0	6.1
390K	4.8	4.8	5.3	5.3	5.5	5.5	6.2	6.2	6.2	6.3
470K	4.9	4.9	5.4	5.4	5.6	5.6	6.4	6.4	6.4	6.5
560K	5.0	5.0	5.5	5.5	5.7	5.7	6.7	6.7	6.7	6.8
680K	5.2	5.2	5.6	5.6	5.8	5.8	7.0	7.0	7.0	7.1
820K	4.1	4.1	4.7	4.7	4.9	4.9	5.7	5.7	5.7	5.8
101K	4.3	4.3	4.9	4.9	5.1	5.1	5.8	5.8	5.8	5.9
121K	4.5	4.5	5.1	5.1	5.3	5.3	6.0	6.0	6.0	6.1
151K	4.8	4.8	5.4	5.4	5.6	5.6	6.3	6.3	6.3	6.4
181K	4.3	4.3	4.8	4.8	5.0	5.2	6.1	6.1	6.1	6.2
201K	4.4	4.4	5.0	5.0	5.2	5.4	6.2	6.2	6.2	6.3
221K	4.5	4.5	5.1	5.1	5.3	5.5	6.3	6.3	6.3	6.4
241K	4.6	4.6	5.2	5.2	5.4	5.6	6.4	6.4	6.4	6.5
271K	4.9	4.9	5.4	5.4	5.6	5.8	6.6	6.6	6.6	6.7
301K	5.0	5.0	5.5	5.5	5.7	5.9	6.8	6.8	6.8	6.9
331K	5.1	5.1	5.8	5.8	6.0	6.1	6.9	6.9	6.9	7.0
361K	5.2	5.2	6.0	6.0	6.2	6.4	7.1	7.1	7.1	7.2
391K	5.4	5.4	6.2	6.2	6.4	6.6	7.3	7.3	7.3	7.4
431K	5.7	5.7	6.5	6.5	6.7	6.9	7.5	7.5	7.5	7.6
471K	6.0	6.0	6.7	6.7	6.9	7.1	7.8	7.8	7.8	7.9
511K	6.2	6.2	6.8	6.8	7.0	7.2	8.0	8.0	8.0	8.1
561K	6.5	6.5	7.0	7.0	7.2	7.4	8.3	8.3	8.3	8.4
621K	6.4	7.1	7.3	7.3	7.5	7.7	8.7	8.7	8.7	8.8
681K	6.5	7.3	7.6	7.6	7.8	8.0	9.0	9.0	9.0	9.1
751K	6.5	6.5	8.0	8.0	8.2	8.4	9.4	9.4	9.4	9.5
781K		6.7	8.1	8.1	8.3	8.5	9.6	9.6	9.6	9.7
821K		6.9	8.3	8.3	8.5	8.7	9.8	9.8	9.8	9.9
911K			8.8	8.8	9.0	9.2	10.4	10.4	10.4	10.5
951K							10.6	10.6	10.6	10.7
102K			9.3	9.3	9.5	9.7	11.2	11.2	11.2	11.3
112K			9.9	9.9	10.1	10.3	11.8	11.8	11.8	11.9
122K				10.4	10.6	10.8	12.3	12.3	12.3	12.4
142K						10.8	13.3	13.3	13.3	13.4
162K						10.8	14.3	14.3	14.3	14.4
182K			12.5	13.0	13.2					

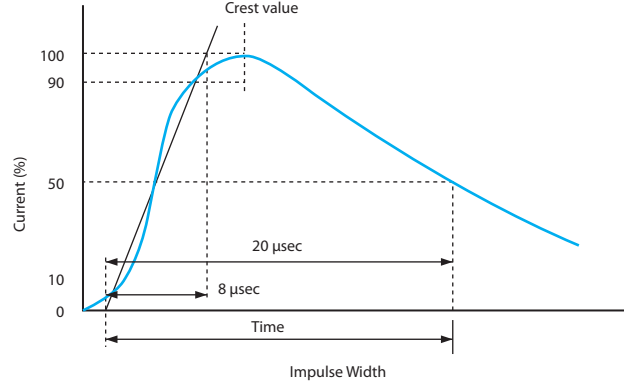
Over Voltage Protection

● Electircal Characteristics

Part Number		Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current		Maximum Energy (10/1000μs)		Rated Power	Typical Capacitance (Reference)
Standard	High Surge	V _{AC} (V)	V _{DC} (V)	V _{1mA} (V)	I _P (A)	V _C (V)	I(A) Standard	I(A) High Surge	(J) Standard	(J) High Surge	(W)	@1KHZ(pf)
180KD05	180KD05J	11	14	18(15~21.6)	1	40	100	250	0.4	0.6	0.01	1400
220KD05	220KD05J	14	18	22(19.5~26)	1	48	100	250	0.5	0.7	0.01	1150
270KD05	270KD05J	17	22	27(24~31)	1	60	100	250	0.6	0.9	0.01	930
330KD05	330KD05J	20	26	33(29.5~36.5)	1	73	100	250	0.8	1.1	0.01	760
390KD05	390KD05J	25	31	39(35~43)	1	80	100	250	0.9	1.2	0.01	640
470KD05	470KD05J	30	38	47(42~52)	1	104	100	250	1.1	1.5	0.01	530
560KD05	560KD05J	35	45	56(50~62)	1	123	100	250	1.3	1.8	0.01	450
680KD05	680KD05J	40	56	68(61~75)	1	145	100	250	1.6	2.2	0.01	370
820KD05	820KD05J	50	65	82(74~90)	5	150	400	800	2.5	4.0	0.1	300
101KD05	101KD05J	60	85	100(90~110)	5	177	400	800	3.0	4.1	0.1	250
121KD05	121KD05J	75	100	120(108~132)	5	210	400	800	4.0	4.9	0.1	210
151KD05	151KD05J	95	125	150(135~165)	5	260	400	800	4.1	6.5	0.1	165
181KD05	181KD05J	115	150	180(162~198)	5	320	400	800	4.9	7.5	0.1	140
201KD05	201KD05J	130	170	200(180~220)	5	355	400	800	6.5	8.5	0.1	125
221KD05	221KD05J	140	180	220(198~242)	5	380	400	800	7.5	9.0	0.1	110
241KD05	241KD05J	150	200	240(216~264)	5	415	400	800	8.0	10.5	0.1	100
271KD05	271KD05J	175	225	270(243~297)	5	475	400	800	8.5	11.0	0.1	95
301KD05	301KD05J	190	250	300(270~330)	5	520	400	800	9.0	12.0	0.1	85
331KD05	331KD05J	210	275	330(297~363)	5	570	400	800	9.5	13.0	0.1	75
361KD05	361KD05J	230	300	360(324~396)	5	620	400	800	10.0	16.0	0.1	70
391KD05	391KD05J	250	320	390(351~429)	5	675	400	800	12.0	17.0	0.1	65
431KD05	431KD05J	275	350	430(387~473)	5	745	400	800	13.0	20.0	0.1	60
471KD05	471KD05J	300	385	470(423~517)	5	810	400	800	15.0	21.0	0.1	55
511KD05	511KD05J	320	415	510(459~561)	5	845	400	800	16.0	22.5	0.1	50
561KD05	561KD05J	350	460	560(504~616)	5	920	400	800	16.0	24.0	0.1	45
621KD05	621KD05J	385	505	620(558~682)	5	1025	400	800	21.0	25.0	0.1	40
681KD05	681KD05J	420	560	680(612~748)	5	1120	400	800	21.0	29.0	0.1	35
751KD05	751KD05J	460	615	750(675~825)	5	1240	400	800	22.4	32.0	0.1	30

The tolerance of varistor voltage between 18V and 27V is more than 10%.

● Electircal Ratings

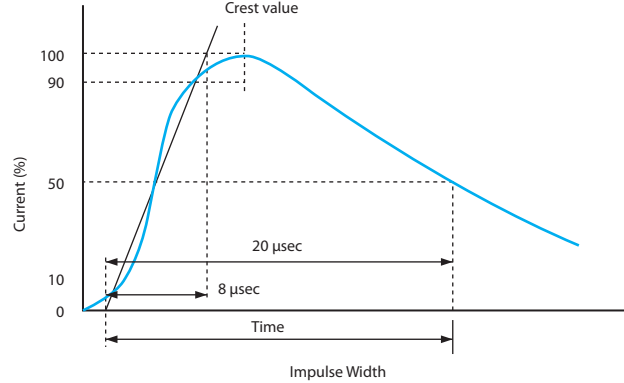
Item	Test Condition/Description	Requirement																									
Varistor Voltage	The voltage between two terminals with the specified measuring current 1mA. DC applied is call Vb.	To meet the specified value																									
Maximum Allowable Voltage	The recommended maximum sine wave voltage (RMS) or the maximum DC voltage can be applied continuously.																										
Maximum Clamping Voltage	The maximum voltage between two terminals with the specification standard impulse current. Applied waveform: 8/20μsec. 																										
Rated Wattage	The maximum average power that can be applied within the specified ambient temperature.																										
Energy	The maximum energy within the varistor voltage change of ±10% when one impulse of 10/1000 μsec. or 2 msec. is applied.																										
Withstanding Surge Current	The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20 μsec.) applied one time.	0.05% / °C max																									
Varistor Voltage Temp. Coefficient	$\frac{Vb \text{ at } 20^{\circ}C - Vb \text{ at } 70^{\circ}C}{Vb \text{ at } 20^{\circ}C} \times \frac{1}{50} \times 100 (\% \text{ } ^{\circ}C)$																										
Surge Life	The change of Vb shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature. <table><tr><td rowspan="2">5ø series</td><td>180K to 680K</td><td>10A (8/20μsec.)</td></tr><tr><td>820K to 751K</td><td>20A (8/20μsec.)</td></tr><tr><td rowspan="2">7ø series</td><td>180K to 680K</td><td>25A (8/20μsec.)</td></tr><tr><td>820K to 821K</td><td>50A (8/20μsec.)</td></tr><tr><td rowspan="2">10ø series</td><td>180K to 680K</td><td>50A (8/20μsec.)</td></tr><tr><td>820K to 112K</td><td>100A (8/20μsec.)</td></tr><tr><td rowspan="2">14ø series</td><td>180K to 680K</td><td>75A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>150A (8/20μsec.)</td></tr><tr><td rowspan="2">20ø series</td><td>180K to 680K</td><td>100A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>200A (8/20μsec.)</td></tr></table>	5ø series	180K to 680K	10A (8/20μsec.)	820K to 751K	20A (8/20μsec.)	7ø series	180K to 680K	25A (8/20μsec.)	820K to 821K	50A (8/20μsec.)	10ø series	180K to 680K	50A (8/20μsec.)	820K to 112K	100A (8/20μsec.)	14ø series	180K to 680K	75A (8/20μsec.)	820K to 182K	150A (8/20μsec.)	20ø series	180K to 680K	100A (8/20μsec.)	820K to 182K	200A (8/20μsec.)	$\frac{\Delta Vb}{Vb} \leq 10\%$
5ø series	180K to 680K		10A (8/20μsec.)																								
	820K to 751K	20A (8/20μsec.)																									
7ø series	180K to 680K	25A (8/20μsec.)																									
	820K to 821K	50A (8/20μsec.)																									
10ø series	180K to 680K	50A (8/20μsec.)																									
	820K to 112K	100A (8/20μsec.)																									
14ø series	180K to 680K	75A (8/20μsec.)																									
	820K to 182K	150A (8/20μsec.)																									
20ø series	180K to 680K	100A (8/20μsec.)																									
	820K to 182K	200A (8/20μsec.)																									

● Electircal Characteristics

Part Number		Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current		Maximum Energy (10/1000μs)		Rated Power	Typical Capacitance (Reference)
Standard	High Surge	V _{AC} (V)	V _{DC} (V)	V _{1mA} (V)	I _P (A)	V _C (V)	I(A) Standard	I(A) High Surge	(J) Standard	(J) High Surge	(W)	@1KHZ(pf)
180KD07	180KD07J	11	14	18(15~21.6)	2.5	36	250	500	0.9	2.0	0.02	2800
220KD07	220KD07J	14	18	22(19.5~26)	2.5	43	250	500	1.1	2.4	0.02	2300
270KD07	270KD07J	17	22	27(24~31)	2.5	53	250	500	1.4	3.0	0.02	1800
330KD07	330KD07J	20	26	33(29.5~36.5)	2.5	65	250	500	1.7	3.5	0.02	1500
390KD07	390KD07J	25	31	39(35~43)	2.5	77	250	500	2.1	4.0	0.02	1300
470KD07	470KD07J	30	38	47(42~52)	2.5	93	250	500	2.5	5.0	0.02	1100
560KD07	560KD07J	35	45	56(50~62)	2.5	110	250	500	3.1	6.0	0.02	890
680KD07	680KD07J	40	56	68(61~75)	2.5	135	250	500	3.6	7.0	0.02	740
820KD07	820KD07J	50	65	82(74~90)	10	135	1200	1750	5.5	10.0	0.25	600
101KD07	101KD07J	60	85	100(90~110)	10	165	1200	1750	6.5	12.0	0.25	500
121KD07	121KD07J	75	100	120(108~132)	10	200	1200	1750	7.8	13.0	0.25	420
151KD07	151KD07J	95	125	150(135~165)	10	250	1200	1750	9.7	13.0	0.25	330
181KD07	181KD07J	115	150	180(162~198)	10	300	1200	1750	11.7	16.0	0.25	280
201KD07	201KD07J	130	170	200(180~220)	10	340	1200	1750	13.0	17.0	0.25	250
221KD07	221KD07J	140	180	220(198~242)	10	360	1200	1750	14.0	19.0	0.25	230
241KD07	241KD07J	150	200	240(216~264)	10	395	1200	1750	15.0	21.0	0.25	210
271KD07	271KD07J	175	225	270(243~297)	10	455	1200	1750	18.0	24.0	0.25	185
301KD07	301KD07J	190	250	300(270~330)	10	500	1200	1750	20.0	26.0	0.25	165
331KD07	331KD07J	210	275	330(297~363)	10	550	1200	1750	23.0	28.0	0.25	150
361KD07	361KD07J	230	300	360(324~396)	10	595	1200	1750	25.0	32.0	0.25	140
391KD07	391KD07J	250	320	390(351~429)	10	650	1200	1750	25.0	35.0	0.25	130
431KD07	431KD07J	275	350	430(387~473)	10	710	1200	1750	28.0	40.0	0.25	115
471KD07	471KD07J	300	385	470(423~517)	10	775	1200	1750	30.0	42.0	0.25	105
511KD07	511KD07J	320	415	510(459~561)	10	845	1200	1750	30.0	45.0	0.25	100
561KD07	561KD07J	350	460	560(504~616)	10	925	1200	1750	30.0	49.0	0.25	90
621KD07	621KD07J	385	505	620(558~682)	10	1025	1200	1750	33.0	55.0	0.25	80
681KD07	681KD07J	420	560	680(612~748)	10	1120	1200	1750	33.0	60.0	0.25	75
751KD07	751KD07J	460	615	750(675~825)	10	1240	1200	1750	67.2	65.0	0.25	70
781KD07	781KD07J	485	640	780(702~858)	10	1290	1200	1750	67.2	65.0	0.25	70
821KD07	821KD07J	510	670	820(738~902)	10	1355	1200	1750	67.2	70.0	0.25	60

The tolerance of varistor voltage between 18V and 27V is more than 10%.

● Electircal Ratings

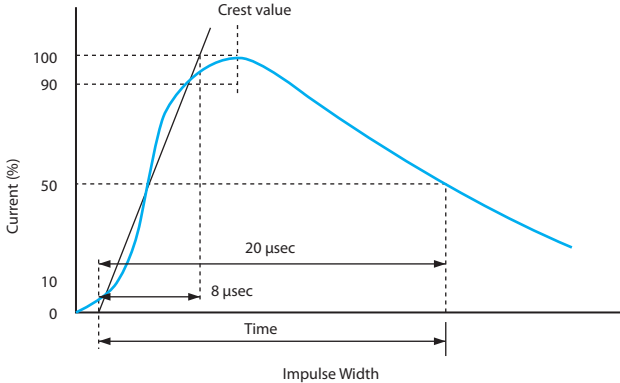
Item	Test Condition/Description	Requirement																									
Varistor Voltage	The voltage between two terminals with the specified measuring current 1mA. DC applied is call Vb.	To meet the specified value																									
Maximum Allowable Voltage	The recommended maximum sine wave voltage (RMS) or the maximum DC voltage can be applied continuously.																										
Maximum Clamping Voltage	The maximum voltage between two terminals with the specification standard impulse current. Applied waveform: 8/20μsec. 																										
Rated Wattage	The maximum average power that can be applied within the specified ambient temperature.																										
Energy	The maximum energy within the varistor voltage change of ±10% when one impulse of 10/1000 μsec. or 2 msec. is applied.																										
Withstanding Surge Current	The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20 μsec.) applied one time.	0.05% / °C max																									
Varistor Voltage Temp. Coefficient	$\frac{Vb \text{ at } 20^{\circ}C - Vb \text{ at } 70^{\circ}C}{Vb \text{ at } 20^{\circ}C} \times \frac{1}{50} \times 100 (\% \text{ } ^{\circ}C)$																										
Surge Life	The change of Vb shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature. <table><tr><td rowspan="2">5ø series</td><td>180K to 680K</td><td>10A (8/20μsec.)</td></tr><tr><td>820K to 751K</td><td>20A (8/20μsec.)</td></tr><tr><td rowspan="2">7ø series</td><td>180K to 680K</td><td>25A (8/20μsec.)</td></tr><tr><td>820K to 821K</td><td>50A (8/20μsec.)</td></tr><tr><td rowspan="2">10ø series</td><td>180K to 680K</td><td>50A (8/20μsec.)</td></tr><tr><td>820K to 112K</td><td>100A (8/20μsec.)</td></tr><tr><td rowspan="2">14ø series</td><td>180K to 680K</td><td>75A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>150A (8/20μsec.)</td></tr><tr><td rowspan="2">20ø series</td><td>180K to 680K</td><td>100A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>200A (8/20μsec.)</td></tr></table>	5ø series	180K to 680K	10A (8/20μsec.)	820K to 751K	20A (8/20μsec.)	7ø series	180K to 680K	25A (8/20μsec.)	820K to 821K	50A (8/20μsec.)	10ø series	180K to 680K	50A (8/20μsec.)	820K to 112K	100A (8/20μsec.)	14ø series	180K to 680K	75A (8/20μsec.)	820K to 182K	150A (8/20μsec.)	20ø series	180K to 680K	100A (8/20μsec.)	820K to 182K	200A (8/20μsec.)	$\frac{\Delta Vb}{Vb} \leq 10\%$
5ø series	180K to 680K		10A (8/20μsec.)																								
	820K to 751K	20A (8/20μsec.)																									
7ø series	180K to 680K	25A (8/20μsec.)																									
	820K to 821K	50A (8/20μsec.)																									
10ø series	180K to 680K	50A (8/20μsec.)																									
	820K to 112K	100A (8/20μsec.)																									
14ø series	180K to 680K	75A (8/20μsec.)																									
	820K to 182K	150A (8/20μsec.)																									
20ø series	180K to 680K	100A (8/20μsec.)																									
	820K to 182K	200A (8/20μsec.)																									

● Electircal Characteristics

Part Number		Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current		Maximum Energy (10/1000μs)		Rated Power	Typical Capacitance (Reference)
Standard	High Surge	V _{AC} (V)	V _{DC} (V)	V _{1mA} (V)	I _P (A)	V _C (V)	I(A) Standard	I(A) High Surge	(J) Standard	(J) High Surge	(W)	@1KHZ(pf)
180KD10	180KD10J	11	14	18(15~21.6)	5	36	500	1000	2.1	3.0	0.05	5600
220KD10	220KD10J	14	18	22(19.5~26)	5	43	500	1000	2.5	5.0	0.05	4500
270KD10	270KD10J	17	22	27(24~31)	5	53	500	1000	3.0	6.0	0.05	3700
330KD10	330KD10J	20	26	33(29.5~36.5)	5	65	500	1000	4.0	7.0	0.05	3000
390KD10	390KD10J	25	31	39(35~43)	5	77	500	1000	4.6	9.0	0.05	2400
470KD10	470KD10J	30	38	47(42~52)	5	93	500	1000	5.5	11.0	0.05	2100
560KD10	560KD10J	35	45	56(50~62)	5	110	500	1000	7.0	13.0	0.05	1800
680KD10	680KD10J	40	56	68(61~75)	5	135	500	1000	8.2	15.0	0.05	1500
820KD10	820KD10J	50	65	82(74~90)	25	135	2500	3500	12.0	17.0	0.4	1200
101KD10	101KD10J	60	85	100(90~110)	25	165	2500	3500	15.0	18.0	0.4	1000
121KD10	121KD10J	75	100	120(108~132)	25	200	2500	3500	18.0	21.0	0.4	830
151KD10	151KD10J	95	125	150(135~165)	25	250	2500	3500	22.0	25.0	0.4	670
181KD10	181KD10J	115	150	180(162~198)	25	300	2500	3500	27.0	30.0	0.4	560
201KD10	201KD10J	130	170	200(180~220)	25	340	2500	3500	30.0	35.0	0.4	500
221KD10	221KD10J	140	180	220(198~242)	25	360	2500	3500	32.0	39.0	0.4	450
241KD10	241KD10J	150	200	240(216~264)	25	395	2500	3500	35.0	42.0	0.4	420
271KD10	271KD10J	175	225	270(243~297)	25	455	2500	3500	37.0	49.0	0.4	370
301KD10	301KD10J	190	250	300(270~330)	25	500	2500	3500	40.0	54.0	0.4	330
331KD10	331KD10J	210	275	330(297~363)	25	550	2500	3500	43.0	58.0	0.4	300
361KD10	361KD10J	230	300	360(324~396)	25	595	2500	3500	47.0	65.0	0.4	280
391KD10	391KD10J	250	320	390(351~429)	25	650	2500	3500	60.0	70.0	0.4	260
431KD10	431KD10J	275	350	430(387~473)	25	710	2500	3500	65.0	80.0	0.4	230
471KD10	471KD10J	300	385	470(423~517)	25	775	2500	3500	67.0	85.0	0.4	210
511KD10	511KD10J	320	415	510(459~561)	25	845	2500	3500	69.0	90.0	0.4	200
561KD10	561KD10J	350	460	560(504~616)	25	925	2500	3500	70.0	92.0	0.4	180
621KD10	621KD10J	385	505	620(558~682)	25	1025	2500	3500	72.0	95.0	0.4	160
681KD10	681KD10J	420	560	680(612~748)	25	1120	2500	3500	75.0	98.0	0.4	150
751KD10	751KD10J	460	615	750(675~825)	25	1240	2500	3500	77.0	100.0	0.4	130
781KD10	781KD10J	485	640	780(702~858)	25	1290	2500	3500	80.0	105.0	0.4	130
821KD10	821KD10J	510	670	820(738~902)	25	1355	2500	3500	85.0	110.0	0.4	120
911KD10	911KD10J	550	745	910(819~1001)	25	1500	2500	3500	93.0	130.0	0.4	110
102KD10	102KD10J	625	825	1000(900~1100)	25	1650	2500	3500	102.0	140.0	0.4	100
112KD10	112KD10J	680	895	1100(990~1210)	25	1815	2500	3500	115.0	155.0	0.4	90

The tolerance of varistor voltage between 18V and 27V is more than 10%.

● Electircal Ratings

Item	Test Condition/Description	Requirement																								
Varistor Voltage	The voltage between two terminals with the specified measuring current 1mA. DC applied is call Vb.	To meet the specified value																								
Maximum Allowable Voltage	The recommended maximum sine wave voltage (RMS) or the maximum DC voltage can be applied continuously.																									
Maximum Clamping Voltage	The maximum voltage between two terminals with the specification standard impulse current. Applied waveform: 8/20μsec. 																									
Rated Wattage	The maximum average power that can be applied within the specified ambient temperature.																									
Energy	The maximum energy within the varistor voltage change of ±10% when one impulse of 10/1000 μsec. or 2 msec. is applied.																									
Withstanding Surge Current	The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20 μsec.) applied one time.	$\frac{\Delta V_b}{V_b} \leq 10\%$																								
Varistor Voltage Temp. Coefficient	$\frac{V_b \text{ at } 20^{\circ}\text{C} - V_b \text{ at } 70^{\circ}\text{C}}{V_b \text{ at } 20^{\circ}\text{C}} \times \frac{1}{50} \times 100 (\% ^{\circ}\text{C})$																									
Surge Life	The change of Vb shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature. <table><tr><td rowspan="2">5ø series</td><td>180K to 680K</td><td>10A (8/20μsec.)</td></tr><tr><td>820K to 751K</td><td>20A (8/20μsec.)</td></tr><tr><td rowspan="2">7ø series</td><td>180K to 680K</td><td>25A (8/20μsec.)</td></tr><tr><td>820K to 821K</td><td>50A (8/20μsec.)</td></tr><tr><td rowspan="2">10ø series</td><td>180K to 680K</td><td>50A (8/20μsec.)</td></tr><tr><td>820K to 112K</td><td>100A (8/20μsec.)</td></tr><tr><td rowspan="2">14ø series</td><td>180K to 680K</td><td>75A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>150A (8/20μsec.)</td></tr><tr><td rowspan="2">20ø series</td><td>180K to 680K</td><td>100A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>200A (8/20μsec.)</td></tr></table>		5ø series	180K to 680K	10A (8/20μsec.)	820K to 751K	20A (8/20μsec.)	7ø series	180K to 680K	25A (8/20μsec.)	820K to 821K	50A (8/20μsec.)	10ø series	180K to 680K	50A (8/20μsec.)	820K to 112K	100A (8/20μsec.)	14ø series	180K to 680K	75A (8/20μsec.)	820K to 182K	150A (8/20μsec.)	20ø series	180K to 680K	100A (8/20μsec.)	820K to 182K
5ø series	180K to 680K	10A (8/20μsec.)																								
	820K to 751K	20A (8/20μsec.)																								
7ø series	180K to 680K	25A (8/20μsec.)																								
	820K to 821K	50A (8/20μsec.)																								
10ø series	180K to 680K	50A (8/20μsec.)																								
	820K to 112K	100A (8/20μsec.)																								
14ø series	180K to 680K	75A (8/20μsec.)																								
	820K to 182K	150A (8/20μsec.)																								
20ø series	180K to 680K	100A (8/20μsec.)																								
	820K to 182K	200A (8/20μsec.)																								

SMV / 14D series

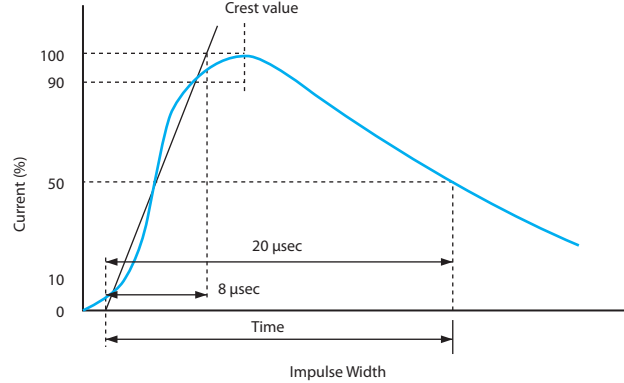
RoHS HF

● Electircal Characteristics

Part Number		Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current		Maximum Energy (10/1000μs)		Rated Power	Typical Capacitance (Reference)
Standard	High Surge	V _{AC} (V)	V _{DC} (V)	V _{1mA} (V)	I _P (A)	V _C (V)	I(A) Standard	I(A) High Surge	(J) Standard	(J) High Surge	(W)	@1KHZ(pf)
180KD14	180KD14J	11	14	18(15~21.6)	10	36	1000	2000	4.0	7.0	0.1	11100
220KD14	220KD14J	14	18	22(19.5~26)	10	43	1000	2000	5.0	8.0	0.1	9100
270KD14	270KD14J	17	22	27(24~31)	10	53	1000	2000	6.0	10.0	0.1	7400
330KD14	330KD14J	20	26	33(29.5~36.5)	10	65	1000	2000	7.5	12.0	0.1	6100
390KD14	390KD14J	25	31	39(35~43)	10	77	1000	2000	8.6	13.0	0.1	5100
470KD14	470KD14J	30	38	47(42~52)	10	93	1000	2000	10.0	17.0	0.1	4300
560KD14	560KD14J	35	45	56(50~62)	10	110	1000	2000	11.0	20.0	0.1	3600
680KD14	680KD14J	40	56	68(61~75)	10	135	1000	2000	14.0	24.0	0.1	2900
820KD14	820KD14J	50	65	82(74~90)	50	135	4500	6000	22.0	27.0	0.6	2400
101KD14	101KD14J	60	85	100(90~110)	50	165	4500	6000	28.0	33.0	0.6	2000
121KD14	121KD14J	75	100	120(108~132)	50	200	4500	6000	32.0	40.0	0.6	1700
151KD14	151KD14J	95	125	150(135~165)	50	250	4500	6000	40.0	53.0	0.6	1300
181KD14	181KD14J	115	150	180(162~198)	50	300	4500	6000	50.0	60.0	0.6	1100
201KD14	201KD14J	130	170	200(180~220)	50	340	4500	6000	57.0	70.0	0.6	1000
221KD14	221KD14J	140	180	220(198~242)	50	360	4500	6000	60.0	78.0	0.6	900
241KD14	241KD14J	150	200	240(216~264)	50	395	4500	6000	63.0	84.0	0.6	830
271KD14	271KD14J	175	225	270(243~297)	50	455	4500	6000	70.0	99.0	0.6	740
301KD14	301KD14J	190	250	300(270~330)	50	500	4500	6000	77.0	108	0.6	670
331KD14	331KD14J	210	275	330(297~363)	50	550	4500	6000	85.0	115	0.6	610
361KD14	361KD14J	230	300	360(324~396)	50	595	4500	6000	93.0	130	0.6	560
391KD14	391KD14J	250	320	390(351~429)	50	650	4500	6000	100	140	0.6	510
431KD14	431KD14J	275	350	430(387~473)	50	710	4500	6000	115	155	0.6	460
471KD14	471KD14J	300	385	470(423~517)	50	775	4500	6000	125	175	0.6	430
511KD14	511KD14J	320	415	510(459~561)	50	845	4500	6000	125	180	0.6	390
561KD14	561KD14J	350	460	560(504~616)	50	925	4500	6000	125	185	0.6	360
621KD14	621KD14J	385	505	620(558~682)	50	1025	4500	6000	125	190	0.6	320
681KD14	681KD14J	420	560	680(612~748)	50	1120	4500	6000	130	200	0.6	290
751KD14	751KD14J	460	615	750(675~825)	50	1240	4500	6000	143	210	0.6	270
781KD14	781KD14J	485	640	780(702~858)	50	1290	4500	6000	148	220	0.6	260
821KD14	821KD14J	510	670	820(738~902)	50	1355	4500	6000	157	235	0.6	240
911KD14	911KD14J	550	745	910(819~1001)	50	1500	4500	6000	175	255	0.6	220
102KD14	102KD14J	625	825	1000(900~1100)	50	1650	4500	6000	190	280	0.6	200
112KD14	112KD14J	680	895	1100(990~1210)	50	1815	4500	6000	213	310	0.6	180
122KD14	122KD14J	750	990	1200(1080~1320)	50	1980	4500	6000	232	324	0.6	160
142KD14	142KD14J	880	1140	1400(1260~1540)	50	2310	4500	6000	238	327	0.6	150
162KD14	162KD14J	1000	1280	1600(1440~1760)	50	2640	4500	6000	243	331	0.6	140
182KD14	182KD14J	1100	1465	1800(1620~1980)	50	2970	4500	6000	250	335	0.6	130

The tolerance of varistor voltage between 18V and 27V is more than 10%.

● Electircal Ratings

Item	Test Condition/Description	Requirement																									
Varistor Voltage	The voltage between two terminals with the specified measuring current 1mA. DC applied is call Vb.	To meet the specified value																									
Maximum Allowable Voltage	The recommended maximum sine wave voltage (RMS) or the maximum DC voltage can be applied continuously.																										
Maximum Clamping Voltage	The maximum voltage between two terminals with the specification standard impulse current. Applied waveform: 8/20μsec. 																										
Rated Wattage	The maximum average power that can be applied within the specified ambient temperature.																										
Energy	The maximum energy within the varistor voltage change of ±10% when one impulse of 10/1000 μsec. or 2 msec. is applied.																										
Withstanding Surge Current	The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20 μsec.) applied one time.																										
Varistor Voltage Temp. Coefficient	$\frac{Vb \text{ at } 20^{\circ}C - Vb \text{ at } 70^{\circ}C}{Vb \text{ at } 20^{\circ}C} \times \frac{1}{50} \times 100 (\% ^{\circ}C)$	0.05% / °C max																									
Surge Life	The change of Vb shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature. <table><tr><td rowspan="2">5ø series</td><td>180K to 680K</td><td>10A (8/20μsec.)</td></tr><tr><td>820K to 751K</td><td>20A (8/20μsec.)</td></tr><tr><td rowspan="2">7ø series</td><td>180K to 680K</td><td>25A (8/20μsec.)</td></tr><tr><td>820K to 821K</td><td>50A (8/20μsec.)</td></tr><tr><td rowspan="2">10ø series</td><td>180K to 680K</td><td>50A (8/20μsec.)</td></tr><tr><td>820K to 112K</td><td>100A (8/20μsec.)</td></tr><tr><td rowspan="2">14ø series</td><td>180K to 680K</td><td>75A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>150A (8/20μsec.)</td></tr><tr><td rowspan="2">20ø series</td><td>180K to 680K</td><td>100A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>200A (8/20μsec.)</td></tr></table>	5ø series	180K to 680K	10A (8/20μsec.)	820K to 751K	20A (8/20μsec.)	7ø series	180K to 680K	25A (8/20μsec.)	820K to 821K	50A (8/20μsec.)	10ø series	180K to 680K	50A (8/20μsec.)	820K to 112K	100A (8/20μsec.)	14ø series	180K to 680K	75A (8/20μsec.)	820K to 182K	150A (8/20μsec.)	20ø series	180K to 680K	100A (8/20μsec.)	820K to 182K	200A (8/20μsec.)	$\frac{\Delta Vb}{Vb} \leq 10\%$
5ø series	180K to 680K		10A (8/20μsec.)																								
	820K to 751K	20A (8/20μsec.)																									
7ø series	180K to 680K	25A (8/20μsec.)																									
	820K to 821K	50A (8/20μsec.)																									
10ø series	180K to 680K	50A (8/20μsec.)																									
	820K to 112K	100A (8/20μsec.)																									
14ø series	180K to 680K	75A (8/20μsec.)																									
	820K to 182K	150A (8/20μsec.)																									
20ø series	180K to 680K	100A (8/20μsec.)																									
	820K to 182K	200A (8/20μsec.)																									

SMV / 20D series

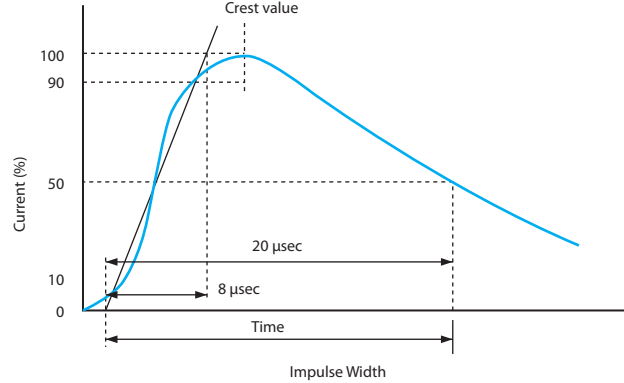
RoHS HF

● Electircal Characteristics

Part Number		Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current		Maximum Energy (10/1000μs)		Rated Power	Typical Capacitance (Reference)
Standard	High Surge	V _{AC} (V)	V _{DC} (V)	V _{1mA} (V)	I _P (A)	V _C (V)	I(A) Standard	I(A) High Surge	(J) Standard	(J) High Surge	(W)	@1KHZ(pf)
180KD20	180KD20J	11	14	18(15~21.6)	20	36	2000	3000	11	13	0.2	28500
220KD20	220KD20J	14	18	22(19.5~26)	20	43	2000	3000	14	16	0.2	18500
270KD20	270KD20J	17	22	27(24~31)	20	53	2000	3000	16	19	0.2	13000
330KD20	330KD20J	20	26	33(29.5~36.5)	20	65	2000	3000	23	24	0.2	11500
390KD20	390KD20J	25	31	39(35~43)	20	77	2000	3000	26	28	0.2	8500
470KD20	470KD20J	30	38	47(42~52)	20	93	2000	3000	30	34	0.2	7400
560KD20	560KD20J	35	45	56(50~62)	20	110	2000	3000	41	41	0.2	6500
680KD20	680KD20J	40	56	68(61~75)	20	135	2000	3000	46	49	0.2	5800
820KD20	820KD20J	50	65	82(74~90)	100	135	6500	10000	38	56	1.0	4900
101KD20	101KD20J	60	85	100(90~110)	100	165	6500	10000	45	70	1.0	4000
121KD20	121KD20J	75	100	120(108~132)	100	200	6500	10000	55	85	1.0	3300
151KD20	151KD20J	95	125	150(135~165)	100	250	6500	10000	70	106	1.0	2700
181KD20	181KD20J	115	150	180(162~198)	100	300	6500	10000	85	130	1.0	2200
201KD20	201KD20J	130	170	200(180~220)	100	340	6500	10000	95	140	1.0	2000
221KD20	221KD20J	140	180	220(198~242)	100	360	6500	10000	100	155	1.0	1800
241KD20	241KD20J	150	200	240(216~264)	100	395	6500	10000	108	168	1.0	1650
271KD20	271KD20J	175	225	270(243~297)	100	455	6500	10000	127	190	1.0	1500
301KD20	301KD20J	190	250	300(270~330)	100	500	6500	10000	136	210	1.0	1300
331KD20	331KD20J	210	275	330(297~363)	100	550	6500	10000	150	228	1.0	1200
361KD20	361KD20J	230	300	360(324~396)	100	595	6500	10000	163	255	1.0	1100
391KD20	391KD20J	250	320	390(351~429)	100	650	6500	10000	180	275	1.0	1000
431KD20	431KD20J	275	350	430(387~473)	100	710	6500	10000	190	305	1.0	930
471KD20	471KD20J	300	385	470(423~517)	100	775	6500	10000	220	350	1.0	850
511KD20	511KD20J	320	415	510(459~561)	100	845	6500	10000	220	360	1.0	780
561KD20	561KD20J	350	460	560(504~616)	100	925	6500	10000	220	380	1.0	710
621KD20	621KD20J	385	505	620(558~682)	100	1025	6500	10000	220	390	1.0	650
681KD20	681KD20J	420	560	680(612~748)	100	1120	6500	10000	230	400	1.0	600
751KD20	751KD20J	460	615	750(675~825)	100	1240	6500	10000	255	420	1.0	530
781KD20	781KD20J	485	640	780(702~858)	100	1290	6500	10000	265	440	1.0	510
821KD20	821KD20J	510	670	820(738~902)	100	1355	6500	10000	282	460	1.0	500
911KD20	911KD20J	550	745	910(819~1001)	100	1500	6500	10000	310	510	1.0	440
102KD20	102KD20J	625	825	1000(900~1100)	100	1650	6500	10000	342	565	1.0	400
112KD20	112KD20J	680	895	1100(990~1210)	100	1815	6500	10000	383	620	1.0	360
122KD20	122KD20J	750	990	1200(1080~1320)	100	1980	6500	10000	408	660	1.0	350
142KD20	142KD20J	880	1140	1400(1260~1540)	100	2310	6500	10000	532	784	1.0	340
162KD20	162KD20J	1000	1280	1600(1440~1760)	100	2640	6500	10000	606	896	1.0	330
182KD20	182KD20J	1100	1465	1800(1620~1980)	100	2970	6500	10000	625	990	1.0	320

The tolerance of varistor voltage between 18V and 27V is more than 10%.

● Electircal Ratings

Item	Test Condition/Description		Requirement																									
Varistor Voltage	The voltage between two terminals with the specified measuring current 1mA. DC applied is call Vb.		To meet the specified value																									
Maximum Allowable Voltage	The recommended maximum sine wave voltage (RMS) or the maximum DC voltage can be applied continuously.																											
Maximum Clamping Voltage	The maximum voltage between two terminals with the specification standard impulse current. Applied waveform: 8/20μsec. 																											
Rated Wattage	The maximum average power that can be applied within the specified ambient temperature.																											
Energy	The maximum energy within the varistor voltage change of ±10% when one impulse of 10/1000 μsec. or 2 msec. is applied.																											
Withstanding Surge Current	The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20 μsec.) applied one time.		0.05% / °C max																									
Varistor Voltage Temp. Coefficient	$\frac{Vb \text{ at } 20^{\circ}C - Vb \text{ at } 70^{\circ}C}{Vb \text{ at } 20^{\circ}C} \times \frac{1}{50} \times 100 (\% \text{ } ^{\circ}C)$																											
Surge Life	The change of Vb shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature. <table><tr><td rowspan="2">5ø series</td><td>180K to 680K</td><td>10A (8/20μsec.)</td></tr><tr><td>820K to 751K</td><td>20A (8/20μsec.)</td></tr><tr><td rowspan="2">7ø series</td><td>180K to 680K</td><td>25A (8/20μsec.)</td></tr><tr><td>820K to 821K</td><td>50A (8/20μsec.)</td></tr><tr><td rowspan="2">10ø series</td><td>180K to 680K</td><td>50A (8/20μsec.)</td></tr><tr><td>820K to 112K</td><td>100A (8/20μsec.)</td></tr><tr><td rowspan="2">14ø series</td><td>180K to 680K</td><td>75A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>150A (8/20μsec.)</td></tr><tr><td rowspan="2">20ø series</td><td>180K to 680K</td><td>100A (8/20μsec.)</td></tr><tr><td>820K to 182K</td><td>200A (8/20μsec.)</td></tr></table>			5ø series	180K to 680K	10A (8/20μsec.)	820K to 751K	20A (8/20μsec.)	7ø series	180K to 680K	25A (8/20μsec.)	820K to 821K	50A (8/20μsec.)	10ø series	180K to 680K	50A (8/20μsec.)	820K to 112K	100A (8/20μsec.)	14ø series	180K to 680K	75A (8/20μsec.)	820K to 182K	150A (8/20μsec.)	20ø series	180K to 680K	100A (8/20μsec.)	820K to 182K	200A (8/20μsec.)
5ø series	180K to 680K	10A (8/20μsec.)																										
	820K to 751K	20A (8/20μsec.)																										
7ø series	180K to 680K	25A (8/20μsec.)																										
	820K to 821K	50A (8/20μsec.)																										
10ø series	180K to 680K	50A (8/20μsec.)																										
	820K to 112K	100A (8/20μsec.)																										
14ø series	180K to 680K	75A (8/20μsec.)																										
	820K to 182K	150A (8/20μsec.)																										
20ø series	180K to 680K	100A (8/20μsec.)																										
	820K to 182K	200A (8/20μsec.)																										

SMV / 25D series

RoHS

HF

● Electircal Characteristics

Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current	Maximum Energy (10/1000μs)	Rated Power	Typical Capacitance (Reference)
	V _{AC} (V)	V _{DC} (V)		I _P (A)	V _C (V)				
Standard	V _{AC} (V)	V _{DC} (V)	V _{1mA} (V)	I _P (A)	V _C (V)	I(A)	(J)	(W)	@1KHZ(pf)
180KD25	11	14	18(15~21.6)	30	36	4500	20	0.25	45000
220KD25	14	18	22(19.5~26)	30	43	4500	25	0.25	29000
270KD25	17	22	27(24~31)	30	53	4500	30	0.25	26500
330KD25	20	26	33(29.5~36.5)	30	65	4500	35	0.25	18000
390KD25	25	31	39(35~43)	30	77	4500	40	0.25	13500
470KD25	30	38	47(42~52)	30	93	4500	50	0.25	11500
560KD25	35	45	56(50~62)	30	110	4500	60	0.25	10500
680KD25	40	56	68(61~75)	30	135	4500	70	0.25	9050
820KD25	50	65	82(74~90)	150	135	15000	80	1.2	7700
101KD25	60	85	100(90~110)	150	165	15000	100	1.2	6300
121KD25	75	100	120(108~132)	150	200	15000	120	1.2	5200
151KD25	95	125	150(135~165)	150	250	15000	160	1.2	4300
181KD25	115	150	180(162~198)	150	300	15000	175	1.2	3500
201KD25	130	170	200(180~220)	150	340	15000	190	1.2	3200
221KD25	140	180	220(198~242)	150	360	15000	200	1.2	2900
241KD25	150	200	240(216~264)	150	395	15000	220	1.2	2650
271KD25	175	225	270(243~297)	150	455	15000	255	1.2	2400
301KD25	190	250	300(270~330)	150	500	15000	275	1.2	2100
331KD25	210	275	330(297~363)	150	550	15000	300	1.2	1900
361KD25	230	300	360(324~396)	150	595	15000	330	1.2	1750
391KD25	250	320	390(351~429)	150	650	15000	360	1.2	1600
431KD25	275	350	430(387~473)	150	710	15000	380	1.2	1500
471KD25	300	385	470(423~517)	150	775	15000	400	1.2	1400
511KD25	320	415	510(459~561)	150	845	15000	420	1.2	1250
561KD25	350	460	560(504~616)	150	925	15000	440	1.2	1150
621KD25	385	505	620(558~682)	150	1025	15000	450	1.2	1050
681KD25	420	560	680(612~748)	150	1120	15000	460	1.2	950
751KD25	460	615	750(675~825)	150	1240	15000	510	1.2	850
781KD25	485	640	780(702~858)	150	1290	15000	530	1.2	850
821KD25	510	670	820(738~902)	150	1355	15000	570	1.2	800
911KD25	550	745	910(819~1001)	150	1500	15000	620	1.2	700
102KD25	625	825	1000(900~1100)	150	1650	15000	685	1.2	650
112KD25	680	895	1100(990~1210)	150	1815	15000	720	1.2	600
122KD25	750	990	1200(1080~1320)	150	1980	15000	792	1.2	550
142KD25	880	1140	1400(1260~1540)	150	2310	15000	850	1.2	500
162KD25	1000	1280	1600(1440~1760)	150	2640	15000	970	1.2	450
182KD25	1100	1465	1800(1620~1980)	150	2970	15000	1092	1.2	400

The tolerance of varistor voltage between 18V and 27V is more than 10%.

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

SMV / 32D series

RoHS

HF

● Electircal Characteristics

Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current	Maximum Energy (10/1000μs)	Typical Capacitance (Reference)
	V _{AC} (V)	V _{DC} (V)		I _P (A)	V _C (V)			
Standard	V _{AC} (V)	V _{DC} (V)	V _{1mA} (V)	I _P (A)	V _C (V)	I(A)	(J)	@1KHZ(pf)
330KD32	20	26	33(29.5~36.5)	40	65	8000	40	30000
390KD32	25	31	39(35~43)	40	77	8000	50	22000
470KD32	30	38	47(42~52)	40	93	8000	60	19000
560KD32	35	45	56(50~62)	40	110	8000	70	16700
680KD32	40	56	68(61~75)	40	135	8000	85	15000
820KD32	50	65	82(74~90)	200	135	20000	100	12800
101KD32	60	85	100(90~110)	200	165	20000	125	10500
121KD32	75	100	120(108~132)	200	200	20000	150	8700
151KD32	95	125	150(135~165)	200	250	20000	190	7000
181KD32	115	150	180(162~198)	200	300	20000	225	5800
201KD32	130	170	200(180~220)	200	340	25000	250	5200
221KD32	140	180	220(198~242)	200	360	25000	270	5150
241KD32	150	200	240(216~264)	200	395	25000	290	5100
271KD32	175	225	270(243~297)	200	455	25000	300	4800
301KD32	190	250	300(270~330)	200	500	25000	330	4550
331KD32	210	275	330(297~363)	200	550	25000	360	4300
361KD32	230	300	360(324~396)	200	595	25000	380	3900
391KD32	250	320	390(351~429)	200	650	25000	400	3200
431KD32	275	350	430(387~473)	200	710	25000	430	3100
471KD32	300	385	470(423~517)	200	775	25000	460	2800
511KD32	320	415	510(459~561)	200	845	25000	510	2700
561KD32	350	460	560(504~616)	200	925	25000	540	2550
621KD32	385	505	620(558~682)	200	1025	25000	570	2400
681KD32	420	560	680(612~748)	200	1120	25000	600	2200
751KD32	460	615	750(675~825)	200	1240	25000	620	2000
781KD32	485	640	780(702~858)	200	1290	25000	660	1900
821KD32	510	670	820(738~902)	200	1355	25000	700	1800
911KD32	550	745	910(819~1001)	200	1500	25000	750	1300
951KD32	575	765	950(855~1045)	200	1570	25000	780	1200
102KD32	625	825	1000(900~1100)	200	1650	25000	810	1100
112KD32	680	895	1100(990~1210)	200	1815	25000	910	1000
122KD32	750	990	1200(1080~1320)	200	1980	25000	960	920
142KD32	880	1140	1400(1260~1540)	200	2310	25000	1020	800
162KD32	1000	1280	1600(1440~1760)	200	2640	25000	1080	700

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

SMV / 34S series

RoHS HF

● Electircal Characteristics

Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current	Maximum Energy (10/1000μs)	Typical Capacitance (Reference)
	V _{AC} (V)	V _{DC} (V)		I _P (A)	V _C (V)			
Standard			V _{1mA} (V)			I(A)	(J)	@1KHZ(pf)
330KS34	20	26	33(30~36)	60	65	12000	50	43000
390KS34	25	31	39(35~43)	60	77	12000	56	31500
470KS34	30	38	47(42~54)	60	93	12000	75	28000
560KS34	35	45	56(50~62)	60	110	12000	90	24500
680KS34	40	56	68(61~75)	60	135	12000	110	21500
820KS34	50	65	82(74~90)	300	135	30000	135	19500
101KS34	60	85	100(90~110)	300	165	30000	165	15500
121KS34	75	100	120(108~132)	300	200	30000	200	13000
151KS34	95	125	150(135~165)	300	250	30000	260	11000
181KS34	115	150	180(162~198)	300	300	30000	300	9000
201KS34	130	170	200(180~220)	300	340	40000	330	8000
221KS34	140	180	220(198~242)	300	360	40000	360	7800
241KS34	150	200	240(216~264)	300	395	40000	390	7600
271KS34	175	225	270(243~297)	300	455	40000	420	7200
301KS34	190	250	300(270~330)	300	500	40000	460	7000
331KS34	210	275	330(297~363)	300	550	40000	500	6400
361KS34	230	300	360(324~396)	300	595	40000	510	6000
391KS34	250	320	390(351~429)	300	650	40000	530	4800
431KS34	275	350	430(387~473)	300	710	40000	600	4600
471KS34	300	385	470(423~517)	300	775	40000	650	4100
511KS34	320	415	510(459~561)	300	845	40000	700	4000
561KS34	350	460	560(504~616)	300	925	40000	730	3800
621KS34	385	505	620(558~682)	300	1025	40000	780	3600
681KS34	420	560	680(612~748)	300	1120	40000	810	3300
751KS34	460	615	750(675~825)	300	1240	40000	850	3000
781KS34	485	640	780(702~858)	300	1290	40000	930	2850
821KS34	510	670	820(738~902)	300	1355	40000	970	2700
911KS34	550	745	910(819~1001)	300	1500	40000	1050	2100
951KS34	575	765	950(855~1045)	300	1570	40000	1080	1900
102KS34	625	825	1000(900~1100)	300	1650	40000	1120	1700
112KS34	680	895	1100(990~1210)	300	1815	40000	1250	1520
122KS34	750	990	1200(1080~1320)	300	1980	40000	1340	1400
142KS34	880	1140	1400(1260~1540)	300	2310	40000	1400	1200
162KS34	1000	1280	1600(1440~1760)	300	2640	40000	1500	1100

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

SMV / 40D series

RoHS HF

● Electircal Characteristics

Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current	Maximum Energy (10/1000μs)	Typical Capacitance (Reference)
	V _{AC} (V)	V _{DC} (V)		I _P (A)	V _C (V)			
Standard			V _{1mA} (V)			I(A)	(J)	@1KHZ(pf)
330KD40	20	26	33(29.5~36.5)	60	65	12000	55	48000
390KD40	25	31	39(35~43)	60	77	12000	70	35000
470KD40	30	38	47(42~52)	60	93	12000	85	31000
560KD40	35	45	56(50~62)	60	110	12000	100	27000
680KD40	40	56	68(61~75)	60	135	12000	125	24000
820KD40	50	65	82(74~90)	300	135	30000	150	20500
101KD40	60	85	100(90~110)	300	165	30000	185	16500
121KD40	75	100	120(108~132)	300	200	30000	225	13500
151KD40	95	125	150(135~165)	300	250	30000	285	11000
181KD40	115	150	180(162~198)	300	300	30000	335	9500
201KD40	130	170	200(180~220)	300	340	40000	370	8400
221KD40	140	180	220(198~242)	300	360	40000	400	8200
241KD40	150	200	240(216~264)	300	395	40000	430	8000
271KD40	175	225	270(243~297)	300	455	40000	470	7600
301KD40	190	250	300(270~330)	300	500	40000	510	7300
331KD40	210	275	330(297~363)	300	550	40000	550	6700
361KD40	230	300	360(324~396)	300	595	40000	570	6200
391KD40	250	320	390(351~429)	300	650	40000	590	5100
431KD40	275	350	430(387~473)	300	710	40000	660	4900
471KD40	300	385	470(423~517)	300	775	40000	720	4300
511KD40	320	415	510(459~561)	300	845	40000	770	4200
561KD40	350	460	560(504~616)	300	925	40000	810	4000
621KD40	385	505	620(558~682)	300	1025	40000	860	3800
681KD40	420	560	680(612~748)	300	1120	40000	900	3500
751KD40	460	615	750(675~825)	300	1240	40000	940	3200
781KD40	485	640	780(702~858)	300	1290	40000	980	3000
821KD40	510	670	820(738~902)	300	1355	40000	1080	2900
911KD40	550	745	910(819~1001)	300	1500	40000	1150	2200
951KD40	575	765	950(855~1045)	300	1570	40000	1200	2000
102KD40	625	825	1000(900~1100)	300	1650	40000	1260	1800
112KD40	680	895	1100(990~1210)	300	1815	40000	1380	1600
122KD40	750	990	1200(1080~1320)	300	1980	40000	1460	1500
142KD40	880	1140	1400(1260~1540)	300	2310	40000	1550	1300
162KD40	1000	1280	1600(1440~1760)	300	2640	40000	1700	1150

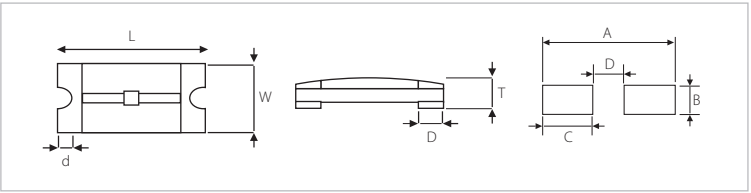
Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

● Electircal Characteristics

Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current	Maximum Energy (10/1000μs)	Typical Capacitance (Reference)
	V _{Ac} (V)	V _{Bc} (V)		I _p (A)	V _c (V)			
Standard	V _{Ac} (V)	V _{Bc} (V)	V _{1mA} (V)	I _p (A)	V _c (V)	I(A)	(J)	@1KHZ(pf)
330KD53	20	26	33(29.5~36.5)	100	65	20000	85	81000
390KD53	25	31	39(35~43)	100	77	20000	105	60000
470KD53	30	38	47(42~52)	100	93	20000	130	52000
560KD53	35	45	56(50~62)	100	110	20000	150	46000
680KD53	40	56	68(61~75)	100	135	20000	190	41000
820KD53	50	65	82(74~90)	500	135	70000	225	35000
101KD53	60	85	100(90~110)	500	165	70000	280	28500
121KD53	75	100	120(108~132)	500	200	70000	340	23500
151KD53	95	125	150(135~165)	500	250	70000	430	19000
181KD53	115	150	180(162~198)	500	300	70000	500	17000
201KD53	130	170	200(180~220)	500	340	70000	550	15000
221KD53	140	180	220(198~242)	500	360	70000	600	13750
241KD53	150	200	240(216~264)	500	395	70000	650	12500
271KD53	175	225	270(243~297)	500	455	70000	700	11000
301KD53	190	250	300(270~330)	500	500	70000	765	10000
331KD53	210	275	330(297~363)	500	550	70000	825	9000
361KD53	230	300	360(324~396)	500	595	70000	850	8500
391KD53	250	320	390(351~429)	500	650	70000	885	7500
431KD53	275	350	430(387~473)	500	710	70000	990	7000
471KD53	300	385	470(423~517)	500	775	70000	1080	6500
511KD53	320	415	510(459~561)	500	845	70000	1150	6000
561KD53	350	460	560(504~616)	500	925	70000	1200	5500
621KD53	385	505	620(558~682)	500	1025	70000	1300	5000
681KD53	420	560	680(612~748)	500	1120	70000	1350	4500
751KD53	460	615	750(675~825)	500	1240	70000	1400	4000
781KD53	485	640	780(702~858)	500	1290	70000	1450	3900
821KD53	510	670	820(738~902)	500	1355	70000	1600	3700
911KD53	550	745	910(819~1001)	500	1500	70000	1700	3300
951KD53	575	765	950(855~1045)	500	1570	70000	1800	3200
102KD53	625	825	1000(900~1100)	500	1650	70000	1890	3000
112KD53	680	895	1100(990~1210)	500	1815	70000	2050	2700
122KD53	750	990	1200(1080~1320)	500	1980	70000	2160	2500
142KD53	880	1140	1400(1260~1540)	500	2310	70000	2300	2150
162KD53	1000	1280	1600(1440~1760)	500	2640	70000	2500	1900

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

● Dimension

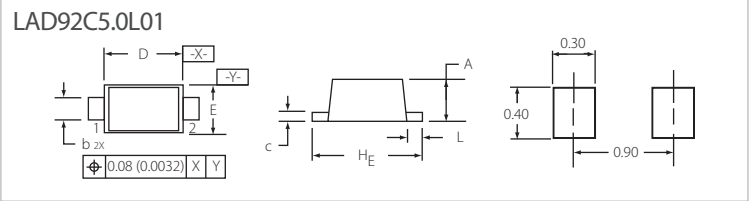


Type	Dimension (mm)				
	L ± 0.2	W ± 0.2	T ± 0.1	D ± 0.1	D ± 0.03
BKS-16	1.6	0.8	0.5	0.35	0.15

SED Devices protect against the discharge of electrostatic energy using an array of miniature Transient Voltage Suppressors.

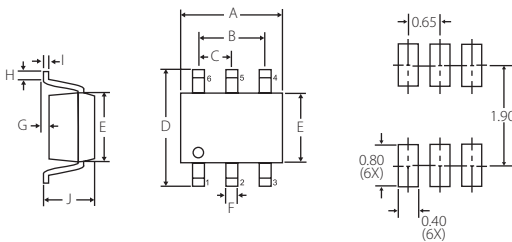
● Features

- low leakage current
- solid-state silicon avalanche technology
- lead-free/RoHS compliant



Symbol	Dimension (mm)		
	Min.	Nom.	Max.
A	0.36	0.40	0.43
b	0.15	0.20	0.25
c	0.07	0.12	0.17
D	0.75	0.80	0.85
E	0.55	0.60	0.65
H _E	0.95	0.10	0.15
L	0.05	1.00	1.05

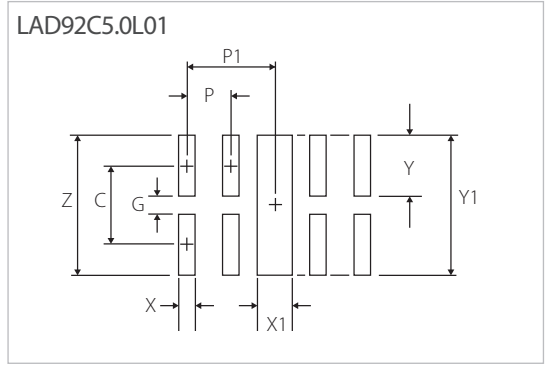
SOT-363



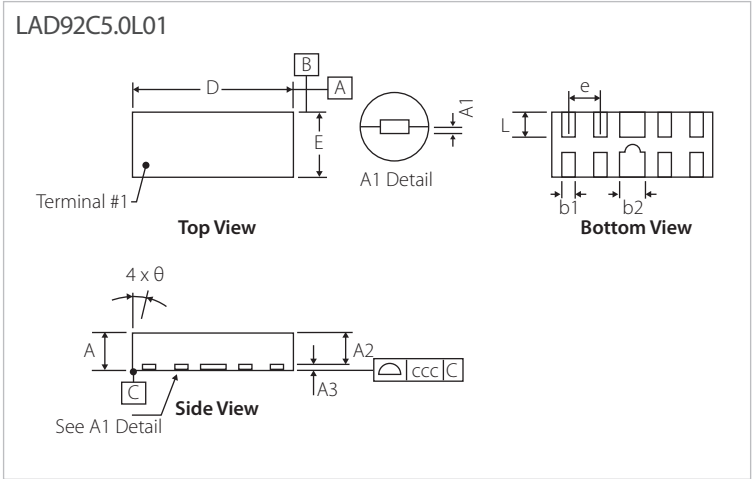
Symbol	Dimension			
	Min. (Inches)	Max. (Inches)	Min. (mm)	Max. (mm)
A	0.073	0.085	1.85	2.15
B	0.051	0.051	1.30	1.30
C	0.026	0.026	0.65	0.65
D	0.075	0.091	1.90	2.30
E	0.043	0.055	1.10	1.40
F	0.006	0.012	0.15	0.30
G	-	0.004	-	0.10
H	0.010	-	0.80	-
I	0.031	0.010	0.25	0.25
J	0.004	0.039	0.10	1.00

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

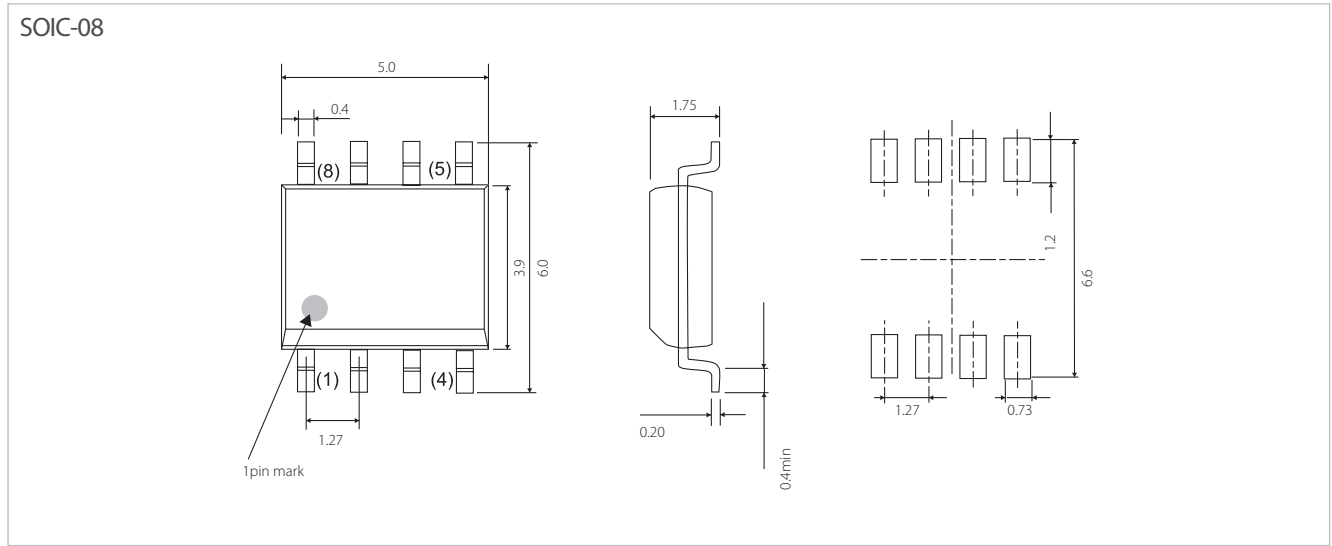
● Dimension



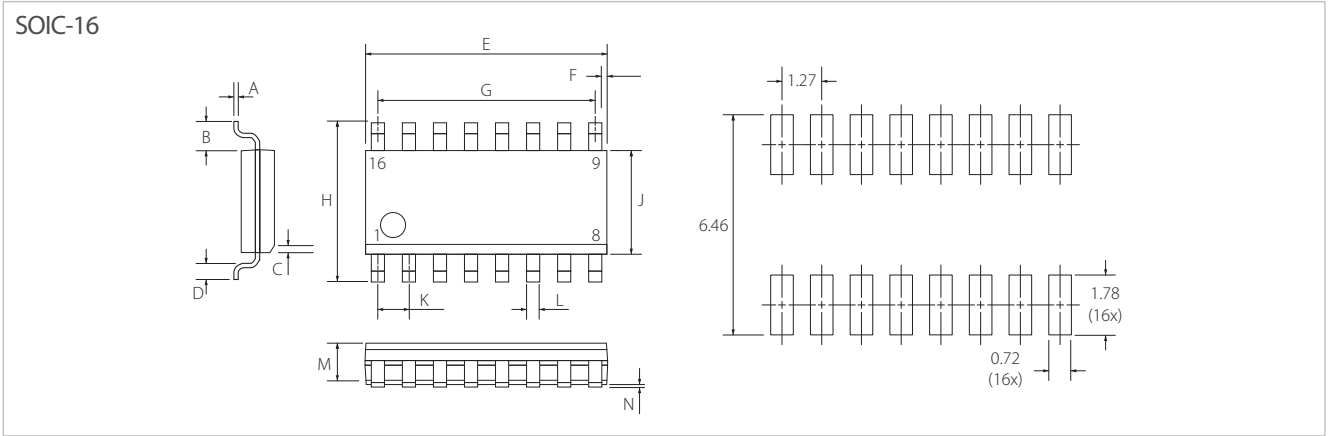
Symbol	Dimension (mm)	
	Inches	mm
C	(.034)	(0.875)
G	.008	0.20
P	.020	0.50
P1	.039	1.00
X	.008	0.20
X1	.016	0.40
Y	.027	0.675
Y1	(.061)	(1.55)
Z	.061	1.55



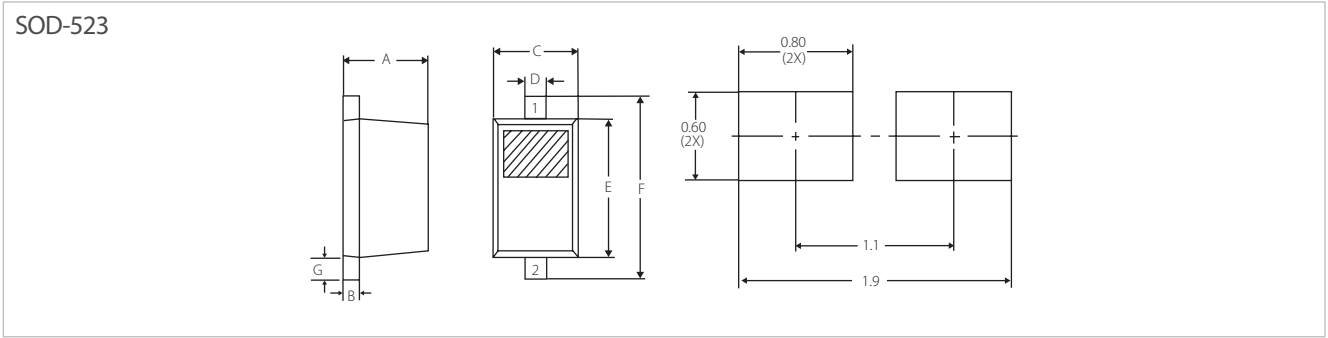
Symbol	Dimension (mm)		
	Min.	Nom.	Max.
A	0.45	0.50	0.55
A1	0	0.010	0.030
A2	0.35	-	0.45
A3	-	0.15REF.	-
b1	0.15	0.20	0.25
b2	0.35	0.40	0.45
D	2.45	2.50	2.53
E	0.95	1.00	1.03
e	-	0.5BSC	-
L	0.33	0.38	0.43
CCC	-	-	0.05
θ	0°	-	12°
Burr	0	0.03	0.06



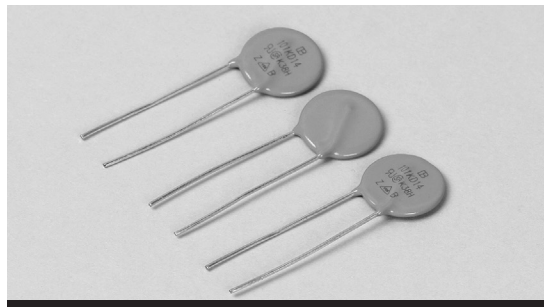
● Dimension



Symbol	Dimension (mm)			
	Min. (Inches)	Max. (Inches)	Min. (mm)	Max. (mm)
A	0.007	0.010	0.19	0.25
B	0.041	0.041	1.04	1.04
C	0.010	0.020	0.25	0.50
D	0.020	0.035	0.50	0.90
E	0.386	0.394	9.80	10.00
F	0.010	0.010	0.25	0.25
G	0.350	0.350	8.89	8.89
H	0.228	0.244	5.80	6.20
J	0.150	0.157	3.80	4.00
K	0.050	0.050	1.27	1.27
L	0.0138	0.0201	0.35	0.51
M	0.0531	0.0689	1.35	1.75
N	0.0039	0.0098	0.10	0.25

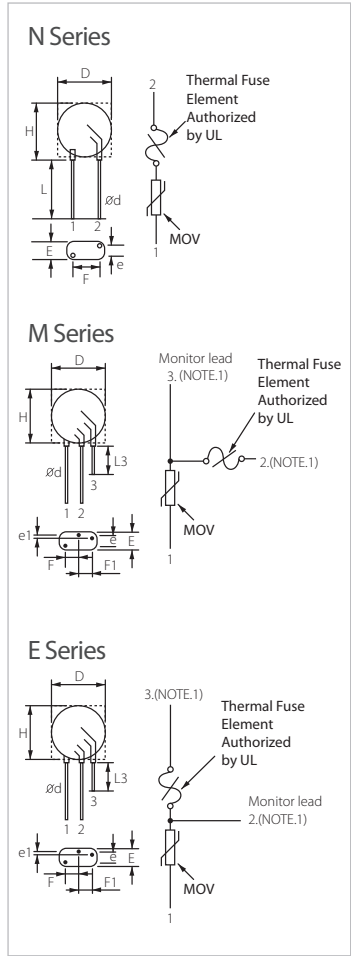


Symbol	Dimension (mm)		
	Min.	Nom.	Max.
A	0.50	0.60	0.70
B	0.07	0.14	0.20
C	0.70	0.80	0.90
D	0.25	0.30	0.35
F	1.10	1.20	1.30
E	1.50	1.60	1.70
G	0.15	0.20	0.25



SMV use zinc oxide that has been heat treated and formed into a Disc. The zinc oxide disc acts as a non-linear resistor, clamping the Voltage at a given level. Most applications for SMV's are in power Transmission lines and circuits that are controlled by low frequency Signals.

Dimension



Features

- STM integrated thermal protection device
- high peak surge current rating : up to 15kV
- wide operating voltage : form 18V to 1200V
- fast response to transient over-voltage and limited current
- capable of absorbing high transient energies
- low clamping ratio and no follow-on current
- three-lead version available for indication purposes

Symbol	Dimension (mm)								
	14M	14E	14N	20M	20E	20N	25M	25E	25N
D(MAX.)	19.0	19.0	19.0	24.0	24.0	24.0	29.0	29.0	29.0
H(MAX.)	21.0	21.0	21.0	26.0	26.0	26.0	32.0	32.0	32.0
F(±1.0)	7.5	7.5	7.5	7.5	7.5	12.5 / 7.5	12.5 / 7.5	12.5 / 7.5	12.5 / 7.5
F1(±1.0)	5	5	—	5	5	—	6.5 / 5	6.5 / 5	—
e max.	180K~680K	—	—	3.0	3.0	3.0	—	—	—
	820K~121K	2.8	2.8	3.0	3.0	3.0	—	—	—
	151K~391K	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
	431K~621K	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
	681K~911K	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
e1 max.	102K~122K	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	180K~680K	—	—	—	1.5±1	1.5±1	—	—	—
	820K~121K	1.3±0.8	1.3±0.8	—	1.5±1	1.5±1	—	—	—
	151K~391K	1.3±0.8	1.3±0.8	—	1.5±1	1.5±1	2.3±1	2.3±1	—
	431K~621K	1.3±0.8	1.3±0.8	—	1.5±1	1.5±1	2.3±1	2.3±1	—
E max.	681K~911K	1.3±0.8	1.3±0.8	—	1.5±1	1.5±1	2.3±1	2.3±1	—
	102K~122K	1.3±0.8	1.3±0.8	—	1.5±1	1.5±1	2.3±1	2.3±1	—
	180K~680K	—	—	—	9.0	9.0	9.0	—	—
	820K~121K	8.8	8.8	8.8	9.0	9.0	9.0	—	—
	151K~391K	9.8	9.8	9.8	9.8	9.8	11.8	11.8	11.8
L (MIN)	431K~621K	11.5	11.5	11.5	11.5	11.5	13.5	13.5	13.5
	681K~911K	13.8	13.8	13.8	13.8	13.8	15.8	15.8	15.8
	102K~122K	16.0	16.0	16.0	16.0	16.0	18.0	18.0	18.0
L3(MIN)	10	10	—	10	10	—	10	10	10
Ød	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0	1.0

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Electircal Characteristics

Part Number	Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)		Maximum Peak Current (8/20μs)		Maximum Energy (JOULE)		Rated Power	Typical Capacitance (Reference)			
	AC rms (V)	DC (V)		V _{1mA} (V)	V _C (V)	I _p (A)	1 time	2 time	10/1000μs			2ms	(W)	@1KHZ(pf)
							(A)							
820KM(E,N)14	50	65	82(74~90)	135	50	4500	2500	27	22	0.6	2400			
101KM(E,N)14	60	85	100(90~110)	165	50	4500	2500	33	28	0.6	2000			
121KM(E,N)14	75	100	120(108~132)	200	50	4500	2500	40	32	0.6	1700			
151KM(E,N)14	95	125	150(135~165)	250	50	6000	4500	50	35	0.6	1300			
181KM(E,N)14	115	150	180(162~198)	300	50	6000	4500	58	40	0.6	1100			
201KM(E,N)14	130	170	200(185~225)	340	50	6000	4500	70	50	0.6	1000			
221KM(E,N)14	140	180	220(198~242)	365	50	6000	4500	78	55	0.6	900			
241KM(E,N)14	150	200	240(216~264)	395	50	6000	4500	85	60	0.6	830			
271KM(E,N)14	175	225	270(243~297)	455	50	6000	4500	100	70	0.6	740			
301KM(E,N)14	190	250	300(270~330)	500	50	6000	4500	107	75	0.6	670			
331KM(E,N)14	210	275	330(297~363)	550	50	6000	4500	115	80	0.6	610			
361KM(E,N)14	230	300	360(324~396)	595	50	6000	4500	125	90	0.6	560			
391KM(E,N)14	250	320	390(351~429)	650	50	6000	4500	140	100	0.6	510			
431KM(E,N)14	275	350	430(387~473)	710	50	6000	4500	155	110	0.6	460			
471KM(E,N)14	300	385	470(423~517)	775	50	6000	4500	175	125	0.6	430			
511KM(E,N)14	320	415	510(459~561)	845	50	6000	4500	190	136	0.6	390			
561KM(E,N)14	350	460	560(504~616)	920	50	6000	4500	200	140	0.6	360			
621KM(E,N)14	385	505	620(558~682)	1025	50	6000	4500	210	150	0.6	320			
681KM(E,N)14	420	560	680(612~748)	1120	50	6000	4500	220	155	0.6	290			
751KM(E,N)14	460	615	750(675~825)	1240	50	6000	4500	225	160	0.6	270			
781KM(E,N)14	485	640	780(702~858)	1290	50	6000	4500	240	165	0.6	260			
821KM(E,N)14	510	670	820(738~902)	1355	50	6000	4500	245	170	0.6	240			
911KM(E,N)14	550	745	910(819~1001)	1500	50	6000	4500	255	180	0.6	220			
102KM(E,N)14	625	825	1000(900~1100)	1650	50	6000	4500	280	190	0.6	200			
112KM(E,N)14	680	895	1100(990~1210)	1815	50	6000	4500	310	205	0.6	180			
122KM(E,N)14	700	990	1200(1080~1320)	1880	50	6000	4500	338	215	0.6	150			

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

STM / T-20D series

RoHS

HF

● Electircal Characteristics

Part Number	Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)		Maximum Peak Current (8/20μs)		Maximum Energy (JOULE)		Rated Power	Typical Capacitance (Reference)			
	AC rms (V)	DC (V)		V _{1mA} (V)	V _c (V)	I _p (A)	1 time	2 time	10/1000μs			2ms	(W)	@1KHZ(pf)
							(A)							
180KM(E,N)20	11	14	18(15~21.6)	36	20	3000	2000	13	10	0.2	28500			
220KM(E,N)20	14	18	22(19.5~26)	43	20	3000	2000	16	12	0.2	18500			
270KM(E,N)20	17	22	27(24~31)	53	20	3000	2000	19	14	0.2	13000			
330KM(E,N)20	20	26	33(29.5~36.5)	65	20	3000	2000	24	18	0.2	11500			
390KM(E,N)20	25	31	39(35~43)	77	20	3000	2000	28	21	0.2	8500			
470KM(E,N)20	30	38	47(42~52)	93	20	5000	3000	34	25	0.2	7400			
560KM(E,N)20	35	45	56(50~62)	110	20	5000	3000	41	30	0.2	6500			
680KM(E,N)20	40	56	68(61~75)	135	20	5000	3000	49	37	0.2	5800			
820KM(E,N)20	50	65	82(74~90)	135	100	6500	4500	56	42	1.0	4900			
101KM(E,N)20	60	85	100(90~110)	165	100	6500	4500	70	52	1.0	4000			
121KM(E,N)20	75	100	120(108~132)	200	100	6500	4500	85	63	1.0	3300			
151KM(E,N)20	95	125	150(135~165)	250	100	10000	8000	100	70	1.0	2700			
181KM(E,N)20	115	150	180(162~198)	300	100	10000	8000	110	80	1.0	2200			
201KM(E,N)20	130	170	200(185~225)	340	100	10000	8000	140	100	1.0	2000			
221KM(E,N)20	140	180	220(198~242)	365	100	10000	8000	155	110	1.0	1800			
241KM(E,N)20	150	200	240(216~264)	395	100	10000	8000	170	120	1.0	1650			
271KM(E,N)20	175	225	270(243~297)	455	100	10000	8000	190	135	1.0	1500			
301KM(E,N)20	190	250	300(270~330)	500	100	10000	8000	205	145	1.0	1300			
331KM(E,N)20	210	275	330(297~363)	550	100	10000	8000	215	150	1.0	1200			
361KM(E,N)20	230	300	360(324~396)	595	100	10000	8000	225	160	1.0	1100			
391KM(E,N)20	250	320	390(351~429)	650	100	10000	8000	240	170	1.0	1000			
431KM(E,N)20	275	350	430(387~473)	710	100	10000	8000	270	190	1.0	930			
471KM(E,N)20	300	385	470(423~517)	775	100	10000	8000	350	250	1.0	850			
511KM(E,N)20	320	415	510(459~561)	845	100	10000	8000	380	270	1.0	780			
561KM(E,N)20	350	460	560(504~616)	920	100	10000	8000	400	280	1.0	710			
621KM(E,N)20	385	505	620(558~682)	1025	100	10000	8000	425	300	1.0	650			
681KM(E,N)20	420	560	680(612~748)	1120	100	10000	8000	435	310	1.0	600			
751KM(E,N)20	460	615	750(675~825)	1240	100	10000	8000	455	327	1.0	530			
781KM(E,N)20	485	640	780(702~858)	1290	100	10000	8000	461	335	1.0	510			
821KM(E,N)20	510	670	820(738~902)	1355	100	10000	8000	475	344	1.0	500			
911KM(E,N)20	550	745	910(819~1001)	1500	100	10000	8000	500	350	1.0	440			
102KM(E,N)20	625	825	1000(900~1100)	1650	100	10000	8000	560	400	1.0	400			
112KM(E,N)20	680	895	1100(990~1210)	1815	100	10000	8000	610	430	1.0	360			
122KM(E,N)20	700	990	1200(1080~1320)	1880	100	10000	8000	650	460	1.0	320			

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

STM / T-25D series

RoHS

HF

● Electircal Characteristics

Part Number	Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)		Maximum Peak Current (8/20μs)		Maximum Energy (JOULE)		Rated Power	Typical Capacitance (Reference)			
	AC rms (V)	DC (V)		V _{1mA} (V)	V _c (V)	I _p (A)	1 time	2 time	10/1000μs			2ms	(W)	@1KHZ(pf)
							(A)							
151KM(E,N)25	95	125	150(135~165)	250	150	15000	12000	160	105	1.2	4300			
181KM(E,N)25	115	150	180(162~198)	300	150	15000	12000	175	120	1.2	3500			
201KM(E,N)25	130	170	200(185~225)	340	150	15000	12000	210	150	1.2	3200			
221KM(E,N)25	140	180	220(198~242)	365	150	15000	12000	230	165	1.2	2900			
241KM(E,N)25	150	200	240(216~264)	395	150	15000	12000	255	180	1.2	2650			
271KM(E,N)25	175	225	270(243~297)	455	150	15000	12000	285	205	1.2	2400			
301KM(E,N)25	190	250	300(270~330)	500	150	15000	12000	310	220	1.2	2100			
331KM(E,N)25	210	275	330(297~363)	550	150	15000	12000	325	231	1.2	1900			
361KM(E,N)25	230	300	360(324~396)	595	150	15000	12000	340	240	1.2	1750			
391KM(E,N)25	250	320	390(351~429)	650	150	15000	12000	360	250	1.2	1600			
431KM(E,N)25	275	350	430(387~473)	710	150	15000	12000	440	310	1.2	1500			
471KM(E,N)25	300	385	470(423~517)	775	150	15000	12000	490	345	1.2	1400			
511KM(E,N)25	320	415	510(459~561)	845	150	15000	12000	530	370	1.2	1250			
561KM(E,N)25	350	460	560(504~616)	920	150	15000	12000	560	390	1.2	1150			
621KM(E,N)25	385	505	620(558~682)	1025	150	15000	12000	590	410	1.2	1050			
681KM(E,N)25	420	560	680(612~748)	1120	150	15000	12000	620	430	1.2	950			
751KM(E,N)25	460	615	750(675~825)	1240	150	15000	12000	630	440	1.2	850			
781KM(E,N)25	485	640	780(702~858)	1290	150	15000	12000	675	470	1.2	800			
821KM(E,N)25	510	670	820(738~902)	1355	150	15000	12000	690	480	1.2	750			
911KM(E,N)25	550	745	910(819~1001)	1500	150	15000	12000	715	500	1.2	700			
102KM(E,N)25	625	825	1000(900~1100)	1650	150	15000	12000	750	505	1.2	650			
112KM(E,N)25	680	895	1100(990~1210)	1815	150	15000	12000	780	550	1.2	600			
122KM(E,N)25	700	990	1200(1080~1320)	1880	150	15000	12000	840	590	1.2	550			

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Ultra law capacitance

RoHS HF

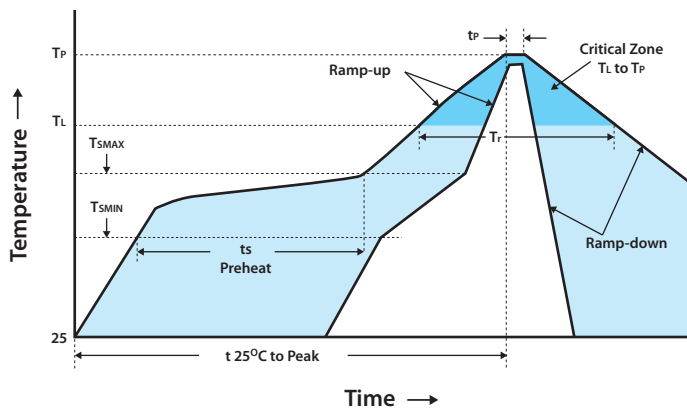
BKS-16 series

● Electircal Characteristics

Symbol	Typical Trigger Voltage (IEC)	Typical Clamping Voltage (IEC)	Rated Voltage	Typical Capacitance	Response Time	Leakage Current	ESD Pulse Withstand
BKS-16V06T350	350W	35V	6VDC	0.2pF	< 1nS	< 10nA	1000
BKS-16V06T500	500W	100V	6VDC	0.2pF	< 1nS	< 10nA	1000
BKS-16V12T500	500W	100V	12VDC	0.2pF	< 1nS	< 10nA	1000
BKS-16V24T500	500W	100V	12VDC	0.2pF	< 1nS	< 10nA	1000

● Miniature Surface Mount Polymeric ESD Suppressors

BKS-16 Series Specification



SOLDER REFLOW

Recommended Pb-Free Assembly Profile Parameters

Description	Condition
Average Ramp-Up Rate (T _{Smax} to T _p)	3°C/second max.
Preheat	
-Temperature Min (T _{Smin})	150°C
-Temperature Max (T _{Smax})	200°C
-Time (T _{Smin} to T _{Smax})	60~180 seconds
Time maintained above:	
-Temperature (T _l)	217°C
-Time (t _l)	60~150 seconds
Peak Temperature (T _p)	260°C
- Time within 5°C of Actual T _p	10~30 seconds
Ramp-Down Rate	3°C/second max.
Time 25°C to Peak Temperature	8 minutes max.
Storage Condition	0°C~35°C, ≤70% RH

- Note 1: All temperature refer to topside of the package, measured on the package body surface.
- Note 2: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
 - Recommended maximum paste thickness is 0.25mm (0.010 inch).
 - Devices can be cleaned using standard industry methods and solvents.
 - Devices can be reworked using the standard industry practices.

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Law capacitance

RoHS HF

● Electircal Characteristics (T_J= 25°C)

LES08A3.3L05 (Marking:B RA3.3-4)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				3.3	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	4			V
Reverse leakage current	I _R	V _R =3.3V each I/O pin			40	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			6.5	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			10.9	V
Off state junction capacitance	C _J	0Vdc,f=1MHZ between I/O pins and GND			15	pF

LES08A05L05 (Marking:B RA05-4)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =5V each I/O pin			10	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			9.8	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			13.5	V
Off state junction capacitance	C _J	0Vdc,f=1MHZ between I/O pins and GND			15	pF

LES08C05L04 (Marking:B LC05C-4)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =5V each I/O pin			10	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			9.8	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			17	V
Off state junction capacitance	C _J	0Vdc,f=1MHZ between I/O pins and GND			15	pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Law capacitance

RoHS

HF

● Electircal Characteristics (T_J= 25°C)

LES16C05L08 (Marking :B 16LCC05-8)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =3.3V each I/O pin			10	μA
Clamping voltage (8/20s)	V _C	I _{PP} =1A			9.8	V
Clamping voltage (8/20s)	V _C	I _{PP} =10A			17	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			15	pF

LES16C15L08 (Marking:B LC15C-8)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				15	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	16.7			V
Reverse leakage current	I _R	V _R =15V each I/O pin			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			24	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =5A			30	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			15	pF

LHS08A12L04 (Marking: B 8LC03)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				3.3	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	4.5			V
Reverse leakage current	I _R	V _R =3.3V each I/O pin			40	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			7	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =5A			10.9	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			25	pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Law capacitance

RoHS

HF

● Electircal Characteristics (T_J= 25°C)

LHS08A12L04 (Marking: B 8LC12)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				12	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	13.4			V
Reverse leakage current	I _R	V _R =12V each I/O pin			4	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			19	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =5A			32.9	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			25	pF

LTS08A06L02 (Marking: B LC06)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				6	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6.8			V
Reverse leakage current	I _R	V _R =6V			20	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =50A Line to Ground			15	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =50A Line to Line			18	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =100A Line to Ground			20	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =100A Line to Line			24	V
Off state junction capacitance (V _R =0V, f=1.0MHz)	C _J	between I/O pins and GND		15	30	pF
		between I/O pins		12	30	pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Standarder capacitance

RoHS

HF

● Electircal Characteristics (T_J= 25°C)

SAT36A05L05 (Marking : WF)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =5V each I/O pin			5	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			9.8	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			50	pF

SAT36A05L05 (Marking : WF)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5.0	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	5.6		8.0	V
Reverse leakage current	I _R	V _R =5.0V			5	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			9.8	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		30		pF

SCS08C05L07 (Marking: B (S)M05C-7)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =5V each I/O pin			20	μA
Clamping voltage (8/20s)	V _C	I _{PP} =1A			9.8	V
Maximum peak pulse current (8/20s)	I _{PP}	tp=8/20 μs			17	A
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			350	pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Standarder capacitance

RoHS

HF

● Electircal Characteristics (T_J= 25°C)

SCS08C12L07 (Marking: B B12 or SM12C-7)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				12	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	13.3			V
Reverse leakage current	I _R	V _R =12V each I/O pin			1	μA
Clamping voltage (8/20s)	V _C	I _{PP} =1A			19	V
Maximum peak pulse current (8/20s)	I _{PP}	tp=8/20 μs			12	A
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			120	pF

SCS08C15L07 (Marking: B B15 or SM15C-7)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				15	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	16.7			V
Reverse leakage current	I _R	V _R =15V each I/O pin			1	μA
Clamping voltage (8/20s)	V _C	I _{PP} =1A			24	V
Maximum peak pulse current (8/20s)	I _{PP}	tp=8/20 μs			10	A
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			75	pF

SCS08C24L07 (Marking: B B24 or SM24C-7)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				24	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	26.7			V
Reverse leakage current	I _R	V _R =24V each I/O pin			1	μA
Clamping voltage (8/20s)	V _C	I _{PP} =1A			43	V
Maximum peak pulse current (8/20s)	I _{PP}	tp=8/20 μs			5	A
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			50	pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Standarder capacitance

RoHS HF

● Electircal Characteristics (T_J= 25°C)

SCT35A12L04 (Marking: B US)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				12	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	13.3			V
Reverse leakage current	I _R	V _R =12V each I/O pin			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			19	V
Maximum peak pulse current (tp=8/20s)	I _{PP}	tp=8/20 μs			8	A
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			35	pF

SDD32A03L01 (Marking : 03W)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				3.3	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	4.0			V
Reverse leakage current	I _R	V _R =3.3V			125	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			6.5	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			500	pF

SDD32A05L01 (Marking : 05W)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =5V			10	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			9.8	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			350	pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Standarder capacitance

RoHS HF

● Electircal Characteristics (T_J= 25°C)

SDD32A12L01 (Marking: 12W)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				12	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	13.3			V
Reverse leakage current	I _R	V _R =12V			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			19	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			150	pF

SDD32A24L01 (Marking: 24W)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				24	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	26.7			V
Reverse leakage current	I _R	V _R =24V			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			43	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		80		pF

Device	Marking	V _{RWM} (V) Max.	V _B (V) Min.	I _T mA	I _R (μA) Max.	V _C @1A Max.	V _C @1A		C _T (pF) Max.
							Max.	@A	
SDS14C05L08	B SM05C-8	5	6	1	5	9.8	13	17	350
SDS14C12L08	B SM12C-8	12	13.3	1	1	19	21	12	120
SDS14C15L08	B SM15C-8	15	16.7	1	1	24	29	10	75
SDS14C24L08	B SM24C-8	24	26.7	1	1	43	47	5	50

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Standarder capacitance

RoHS

HF

● Electircal Characteristics (T_J= 25°C)

SDD32C18L01 (Marking: 2K)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				18	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	20.0			V
Reverse leakage current	I _R	V _R =18V			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			29	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =5A			40	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		40		pF

SDT23C712L02 Pin1 to Pin3 and Pin2 to Pin3 (Marking : B 712)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				12	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	13.3			V
Reverse leakage current	I _R	V _R =12V			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =5A			20	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			75	pF

SDT23C712L02 Pin3 to Pin1 and Pin3 to Pin2 (Marking : B 712)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				7	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	7.5			V
Reverse leakage current	I _R	V _R =7V			20	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =5A			10	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND			75	pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Standarder capacitance

RoHS

HF

● Electircal Characteristics (T_J= 25°C)

SDT26A05L04 (Marking: B TGS)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =5V each I/O pin			5	μA
Clamping voltage (8/20s)	V _C	I _{PP} =5A			9.8	V
Clamping voltage (8/20s)	V _C	I _{PP} =10A			13	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		225		pF
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins		125		pF

SES08C05L04 (Marking: B SM05C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =5V each I/O pin			20	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			9.8	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			13.5	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		300		pF

SES08C15L04 (Marking: B SM15C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				15	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	16.7			V
Reverse leakage current	I _R	V _R =15V each I/O pin			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			24	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			30	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		80		pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Standarder capacitance

RoHS

HF

● Electircal Characteristics (T_J= 25°C)

SET23A03L02 (Marking: B 03C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				3.3	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	4			V
Reverse leakage current	I _R	V _R =3.3V, each I/O pin			125	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			7	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			10.9	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		300		pF

SET23A05L02 (Marking: B 05C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =5V, each I/O pin			5	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			9.8	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			13.5	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		220		pF

SET23A12L02 (Marking: B 12C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				12	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	13.3			V
Reverse leakage current	I _R	V _R =12V, each I/O pin			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			19	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			25.9	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		100		pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Standarder capacitance

RoHS

HF

● Electircal Characteristics (T_J= 25°C)

SET23A15L02 (Marking: B 15C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				15	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	16.7			V
Reverse leakage current	I _R	V _R =15V, each I/O pin			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			24	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			30	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		90		pF

SET23A24L02 (Marking: B 24C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				24	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	26.7			V
Reverse leakage current	I _R	V _R =24V, each I/O pin			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			43	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			49	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		80		pF

SET23A36L02 (Marking: B 36C)

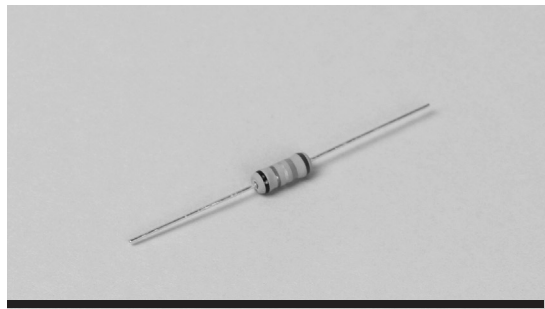
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				36	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	40			V
Reverse leakage current	I _R	V _R =36V, each I/O pin			1	μA
Clamping voltage (tp=8/20s)	V _C	I _{PP} =1A			51	V
Clamping voltage (tp=8/20s)	V _C	I _{PP} =10A			76.8	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins and GND		70		pF

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

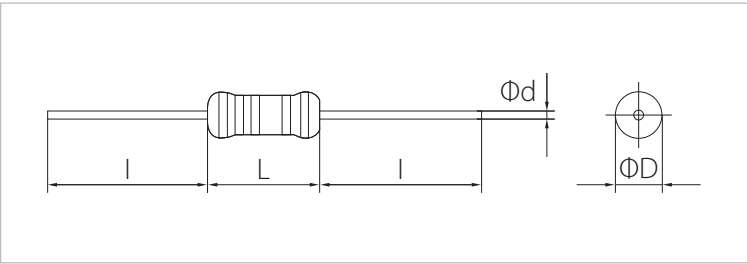
PRN

Non-inductive Wire Wound Resistor

RoHS HF



● Dimension



Type	Dimension (mm)			
	L ± 1.0	ΦD ± 0.5	l ± 3.0	Φd ± 0.02
1W	8.5	3.2	26.0	0.7
2W	11.0	4.0	28.0	0.8
3W	15.0	5.5	28.0	0.8

PRN is wound with a single layer or resistance wire on a high quality ceramic rod and protected by special high temperature silicon coating. This precision subminiature type offering high power density is the most suitable for precision power circuit application.

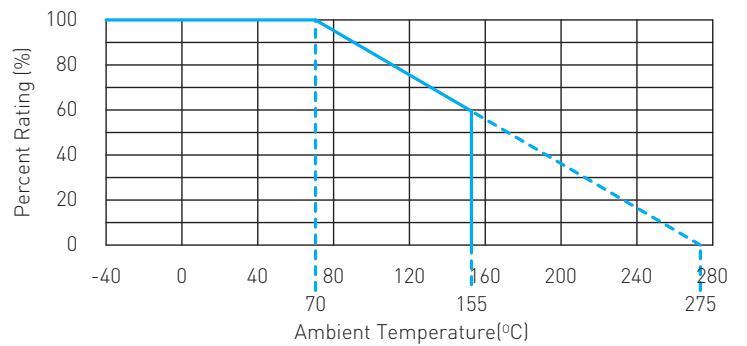
● Features

- High performance for low cost.
- High-temperature silicon coating (flame-proof).
- Excellent stability in operation.
- Available in non-inductive.

● Type Designation

PRN	01	T1	1R00	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	01 : 1W 02 : 2W 03 : 3W	T- : Axial Type F-/L- : Punching Type R- : Forming Type	R100 : 0.1Ω 1R00 : 1Ω 10R0 : 10Ω	G : ±2% J : ±5%

● Derating Curve



● Rating & Shape

Type	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type		Punching Type		Forming Type
					52mm	63mm	F-	L-	R-
1W	0.1~10	G : ±2 J : ±5	-40~+155	70	○	-	○	○	○
2W	0.1~10				○	○	○	○	-
3W	0.1~10				-	○	○	○	-

● Performance

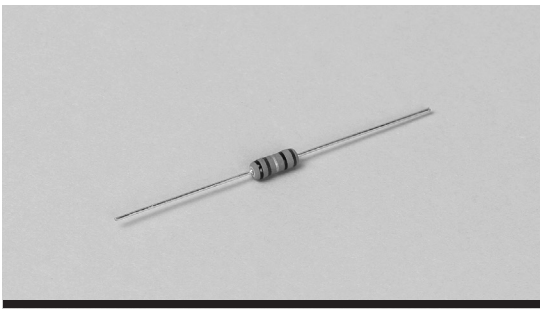
Test Items	Performance Requirements	Test Methods
Resistance	With specified tolerance	Measure resistance at 25°C
T.C.R	±400PPM/°C	+25°C/+125°C
Short Time Overload	±[2%+0.1Ω]	Rated power × 10 for 5sec
Resistance Against Soldering Test	±[2%+0.05Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[3%+0.1Ω]	40 ± 2°C 90~95%RH, 1.5hr ON/0.5 OFF cycle, 1,000hr
Load Life in Temperature	±[3%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5 OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

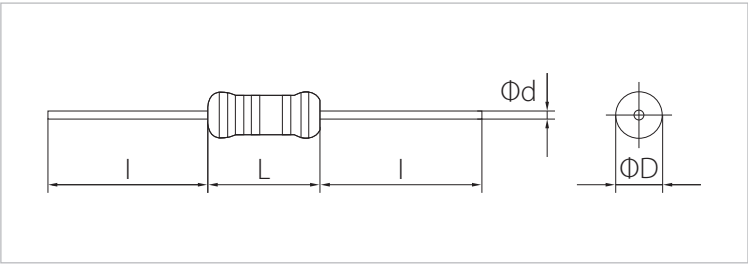
SMW

Super Mini Wire Wound Resistor

RoHS HF



● Dimension



Type	Dimension (mm)			
	L ± 1.0	ΦD ± 0.5	l ± 3.0	Φd ± 0.02
2W	8.5	3.2	26.0	0.7
3W	11.0	4.0	28.0	0.8
5W	15.0	5.5	28.0	0.8

SMW is super mini wire wound resistor. It is wound with resistance wire on ceramic rod, coating with silicon, which is good thermal resistance, humidity resistance, and insulation.

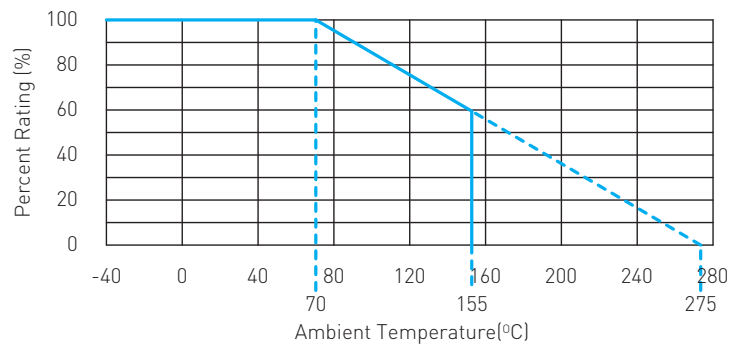
● Features

- Small size wire wound resistors.
- High performance for low cost.
- High-temperature silicon coating (flame proof).
- Excellent stability in operation.
- Available in non-inductive styles.

● Type Designation

SMW	01	T1	2R20	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	02 : 2W 03 : 3W 05 : 5W	T- : Axial Type F-/L- : Punching Type R-/M- : Forming Type	R100 : 0.1Ω 1R00 : 1Ω 10R0 : 10Ω	F : ± 1% G : ±2% J : ±5%

● Derating Curve



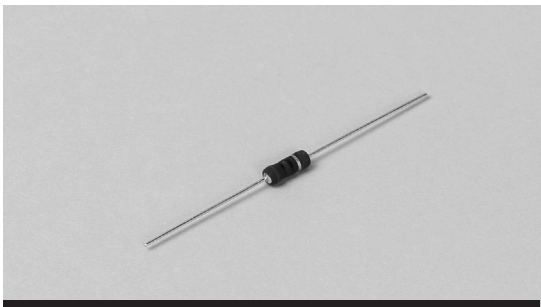
● Rating & Shape

Type	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type		Punching Type		Forming Type	
					52mm	63mm	F-	L-	R-	M-
1W	0.1~10	F : ± 1 G : ±2 J : ±5	-40~+155	70	○	-	○	○	○	○
2W	0.1~10				-	○	○	○	-	-
3W	0.1~10				-	○	○	○	-	○

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	With specified tolerance	Measure resistance at 25°C
T.C.R	±400PPM/°C	+25°C/+125°C
Short Time Overload	±[2%+0.1Ω]	Rated power × 10 for 5sec
Resistance Against Soldering Test	±[2%+0.05Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[3%+0.1Ω]	40 ± 2°C 90~95%RH, 1.5hr ON/0.5 OFF cycle, 1,000hr
Load Life in Temperature	±[3%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5 OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

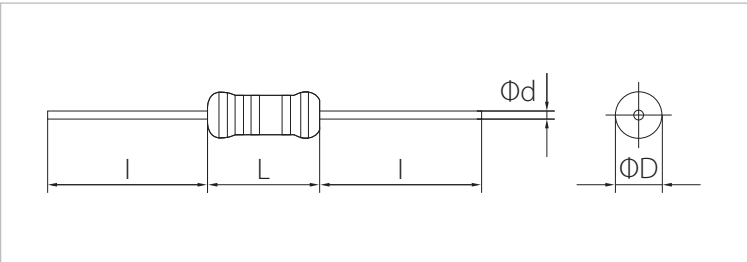


FNW is fusible wire wound resistor that is wound with special fusing wire on a high quality ceramic rod and protected by special high temperature silicon coating. This fusing type offering effect control surge is the most suitable for precision power circuit applications.

● Features

- Quick fusing at an excessive over load.
- Safe with flaming due to flaming proof coating.
- High reliability for performance.
- Excellent pulse characteristic.

● Dimension

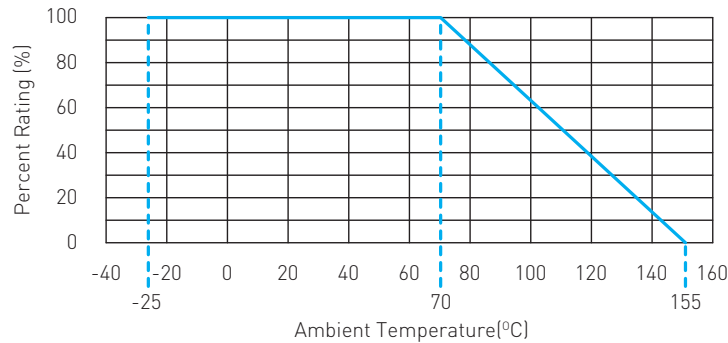


Type	Dimension (mm)			
	L ± 1.0	ΦD ± 0.5	l ± 3.0	Φd ± 0.02
1W	8.5	3.2	26.0	0.7
2W	11.0	4.0	28.0	0.8
3W	15.0	5.5	28.0	0.8

● Type Designation

FNW	01	T1	10R0	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	01 : 1W 02 : 2W 03 : 3W	T- : Axial Type F-/L- : Punching Type R-/M- : Forming Type	1R00 : 1Ω 10R0 : 10Ω	J : ±5% K : ±10%

● Derating Curve



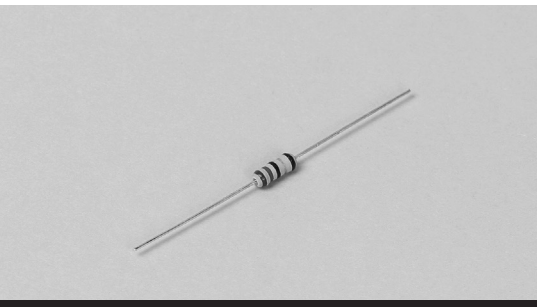
● Rating & Shape

Type	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type		Punching Type		Forming Type	
					52mm	63mm	F-	L-	R-	M-
1W	0.47~10	G : ±2	-25~+155	70	O	-	O	O	-	-
2W	0.47~10	J : ±5			-	O	O	O	O	-
3W	0.47~10	K : ±10			-	O	O	O	-	O

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	With specified tolerance	Measure resistance at 25°C
T.C.R	±350PPM/°C	+25°C/+125°C
Short Time Overload	±[2%+0.1Ω]	Rated power × 10 for 5sec
Resistance Against Soldering Test	±[2%+0.05Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[3%+0.1Ω]	40 ± 2°C 90~95%RH, 1.5hr ON/0.5 OFF cycle, 1,000hr
Load Life in Temperature	±[3%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5 OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

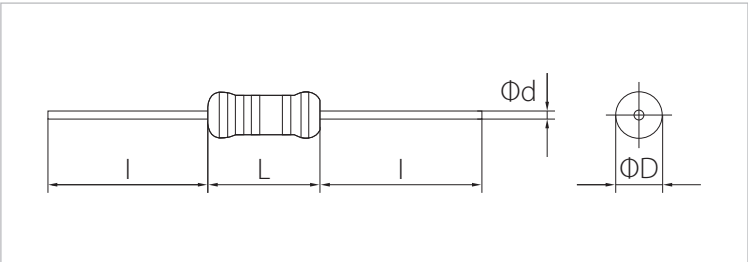


BCW is fusible wire wound resistor that is wound with special wire on a high quality ceramic rod and protected by special high temp Silicon coating. This resistor offering effect control In-Rush and Fusing, both are the most suitable for precision power circuit applications.

● Features

- Effect In-Rush current.
- Quick fusing at an excessive over load.
- Safe with flaming due to flaming proof coating.
- High reliability for performance.

● Dimension

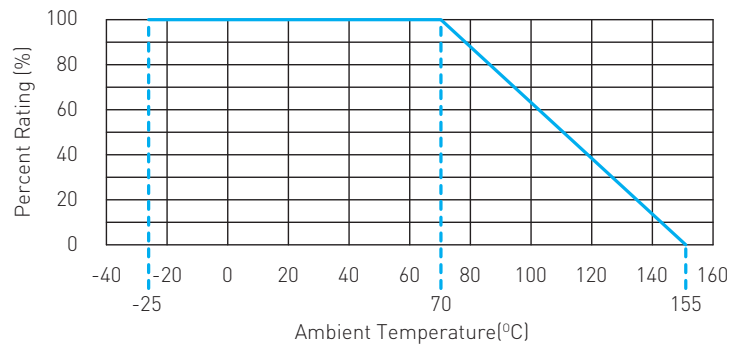


Type	Dimension (mm)			
	L ± 1.0	ΦD ± 0.5	l ± 3.0	Φd ± 0.02
1W	8.5	2.7	26.0	0.6

● Type Designation

BCW	01	T1	10R0	K
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	01 : 1W	T- : Axial Type	10R0 : 10Ω	K : ±10%

● Derating Curve



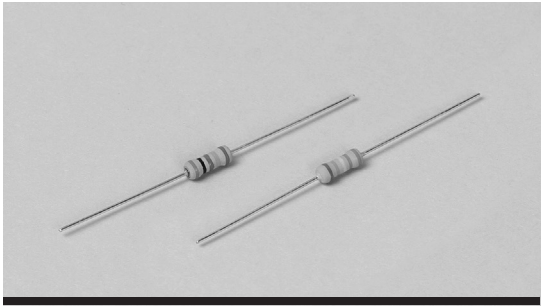
● Rating & Shape

Type	Max. Working Voltage (V)	Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type
						52mm
1W	50	10~15	K : ±10	-25~+155	70	O

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	With specified tolerance	Measure resistance at 25°C
T.C.R	±4000PPM/°C	+25°C/+125°C
Short Time Overload	±[5%+0.1Ω]	Rated power × 10 for 5sec
Resistance Against Soldering Test	±[2%+0.05Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5%+0.1Ω]	40 ± 2°C 90~95%RH, 1.5hr ON/0.5 OFF cycle, 1,000hr
Load Life in Temperature	±[5%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5 OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.



PRC is made by metal glazed and flame retardant coating on the surface with excellent anti-surge characteristics and stable and at even high resistance range. PRC comes with competitive price and its high performance is qualified.

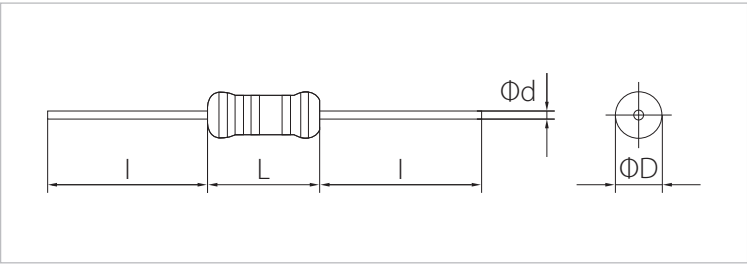
Features

- Excellent anti-surge characteristics.
- Highly stable against environmental conditions and over load.
- Wide range of resistance value.
- Available discharge path value.
- Flame retardant coating.

Approval

Agency	Item	File No.
	PRC 1/2W 480K~12M	E187666
	PRC 1/2W 470K~12M	5002752-4750-0001
	PRC 1W 470K~12M	
	PRM 1/2W	CQC1100106608

Dimension

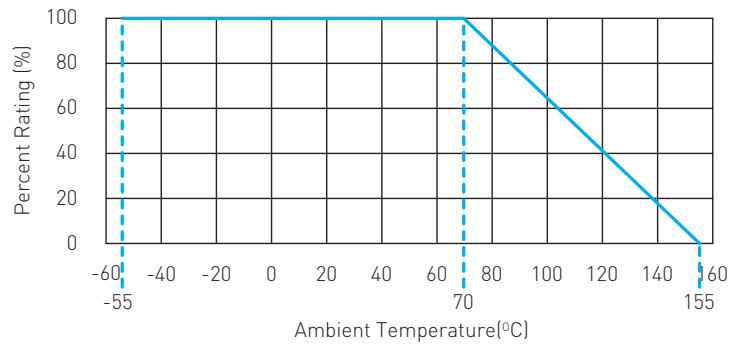


Type		Dimension (mm)			
		L	ΦD	l	Φd
PRM 1/4W		3.2±0.3	1.8±0.2	28.0±3.0	0.43±0.02
PRC 1/4W	PRM 1/2W	5.8±0.5	2.3±0.2	27.0±3.0	0.55±0.02
PRC 1/2W	PRM 1W	8.5±1.0	3.2±0.5	26.0±3.0	0.70±0.02
PRC 1W	PRM 2W	11.0±1.0	4.0±0.5	28.0±3.0	0.80±0.02
PRC 2W	PRM 3W	15.0±1.0	5.5±0.5	28.0±3.0	0.80±0.02

Type Designation

PRC	01	T3	10R0	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	94: 1/4W 92: 1/2W 01: 1W 02: 2W 03: 3W	T-: Axial Type F-/L-: Punching Type R-/M-: Forming Type	10R0: 10Ω 100K: 100KΩ 10M0: 10MΩ	F: ±1% G: ±2% J: ±5% K: ±10%

Derating Curve



Rating

Type		Max. Working Voltage (V)	Max. Overload Voltage (V)	Dielectric Withstanding Voltage (V)	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)
PRM 1/4W		300	500	300	100K~33M	F:±1 G:±2 J:±5 K:±10	-55~+155	70
PRC 1/4W	PRM 1/2W	700	1,000	500	3.3~33M			
PRC 1/2W	PRM 1W	1,000			1,500			
PRC 1W	PRM 2W		100K~33M					
PRC 2W	PRM 3W							

★ : 36M~360M only K grade

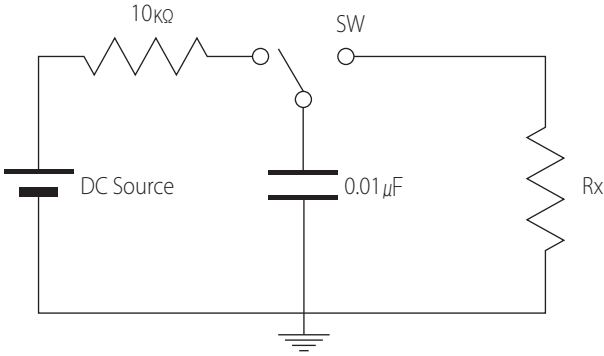
Shape

Type		Axial Type		Punching Type		Forming Type	
		52mm	63mm	F-	L-	R-	M-
PRM 1/4W		O	-	-	-	-	-
PRC 1/4W	PRM 1/2W	O	-	O	O	O	-
PRC 1/2W	PRM 1W	O	-	O	O	O	O
PRC 1W	PRM 2W	-	O	O	O	O	O
PRC 2W	PRM 3W	-	O	O	O	-	O

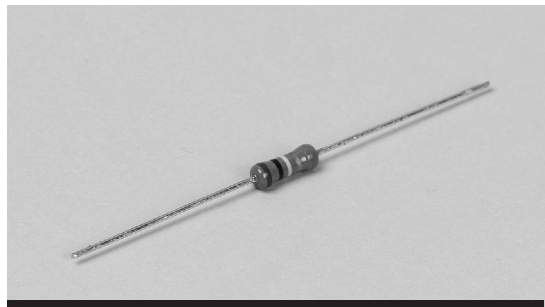
Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25°C
T.C.R	3.3Ω ~ 10KΩ : -1,000PPM/°C Over 11KΩ : ±350PPM/°C	+25°C/+125°C
Short Time Overload	±[1% + 0.05Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[2% + 0.05Ω]	260±5°C, 2~2.5mm, 10±1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5% + 0.1Ω]	40±2°C, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	±[5% + 0.1Ω]	70±2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Surge	±[10% + 0.1Ω]	Refer to *TEST circuit

*TEST Circuit



Resistance (Ω)	Pulse Voltage (kV)	Applied Time
3.3~6.2	10	2.5sec ON/ 2.5sec OFF 5cycles
6.8~10	7	
11~9.1K	5	
10K~91K	7	
100K~33M	10	
PRM 1/4W	2	

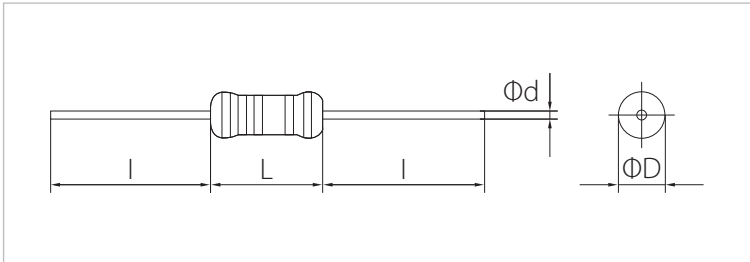


PRD is made by metal glazed coating on the ceramic rod and epoxy is coated on the surface with excellent anti-surge.

●Features

- Excellent anti-surge characteristics.
- Highly stable against environmental conditions and over load.
- Wide range of resistance value.
- Available discharge path value.
- Flame retardant coating.
- Good moisture - resistance.

●Dimension

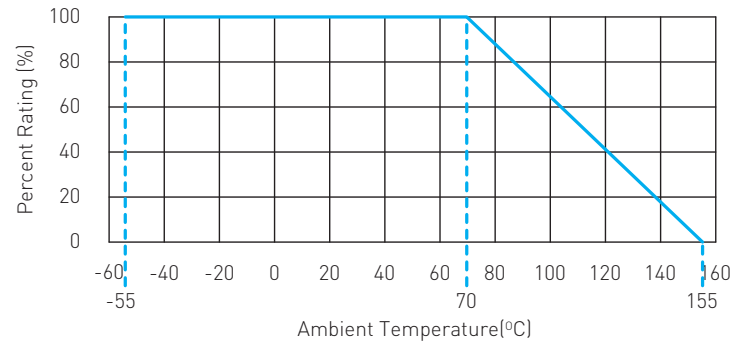


Type	Dimension (mm)			
	L ± 1.0	ΦD ± 0.5	l ± 3.0	Φd ± 0.02
1/2W	8.5	3.2	26.0	0.7
1W	11.0	4.0	26.0	0.7

●Type Designation

PRD	01	T1	10KΩ	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	92: 1/2W 01: 1W	T -: Axial Type	10R0: 10Ω 100K: 100KΩ 10M0: 10MΩ	G: ±2% J: ±5% K: ±10%

●Derating Curve



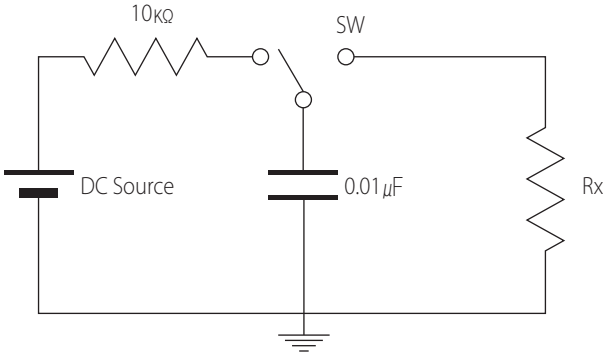
●Rating & Shape

Type	Max.Working Voltage (V)	Max. Overload Voltage (V)	Dielectric Withstanding Voltage (V)	Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type
PRM 1/4W	700	1,000	300	3.3~33M	G: ±2	-55~+155	70	O
1W	1,000	1,500	500	47K~33M	J: ±5 K: ±10			O

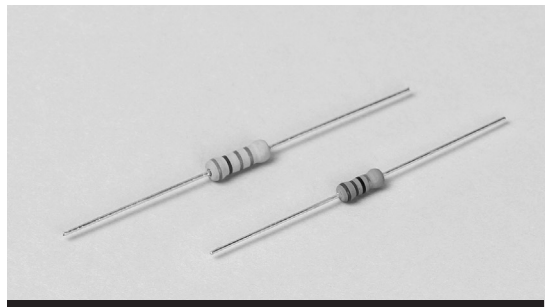
●Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25℃
T.C.R	3.3Ω ~ 10KΩ : -1,000PPM/℃ Over 11KΩ : ±350PPM/℃	+25℃/+125℃
Short Time Overload	±[1% + 0.05Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[2% + 0.05Ω]	260±5℃, 2~2.5mm, 10±1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5% + 0.1Ω]	40±2℃, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	±[5% + 0.1Ω]	70±2℃, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Surge	±[10% + 0.1Ω]	Refer to *TEST circuit

*TEST Circuit



Resistance (Ω)	Pulse Voltage (kV)	Applied Time
3.3~6.2	10	2.5sec ON/ 2.5sec OFF 5cycles
6.8~10	7	
11~9.1K	5	
10K~91K	7	
100K~33M	10	

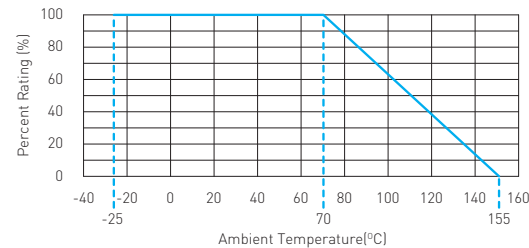


FN,FNS are fusible metal film resistors. These resistor have same characters of general resistors, but when is applied an over electric current prescribed, these is fused and the current. FNS is small type and suitable to be minimized space in the circuit

Features

- Function as resistor in normal condition.
- Quick open at an excessive over load.
- Safe without flaming due to flame proof coating.
- High reliability for performance.

Derating Curve



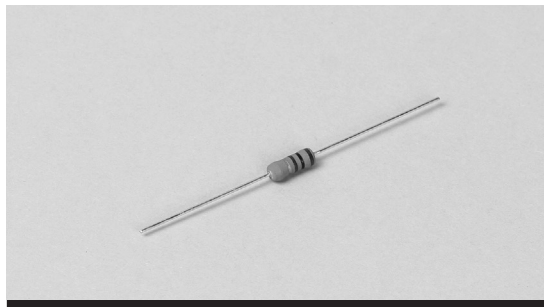
Rating & Shape

Type		Max. Working Voltage (V)	Dielectric Withstanding Voltage (V)	Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temp. (°C)	Axial Type		Punching Type	
								52mm	63mm	F-	L-
FN1/4W	FNS1/2W	200	200	0.47~1K	G : ±2 J : ±5 K : ±10	-25~+155	70	O	-	O	-
FN1/2W	FNS1W	250	250					O	-	O	O
FN1W	FNS2W	350	350					-	O	O	O
FN 2W								-	O	O	O

Performance

Test Items	Performance Requirements	Test Methods
Resistance	With specified tolerance	Measure resistance at 25°C
T.C.R	Within ± 350PPM/°C	+25°C/+125°C
Short Time Overload	±[2%+0.05Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[2%+0.05Ω]	260±5°C, 2~2.5mm, 10±1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5%+0.1Ω]	40±2°C, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	±[5%+0.1Ω]	70±2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Open	1.Residual resistance 100 times normal resistance 2.ARC discharge must not arise 3.Maximum electric current must be below twice	Resistance range : 0.47~1.0Ω Rated powerx25 – 1~30sec[FN1/4W ALL] Resistance range : Over 1.1Ω Rated powerx16 – 1~60sec

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

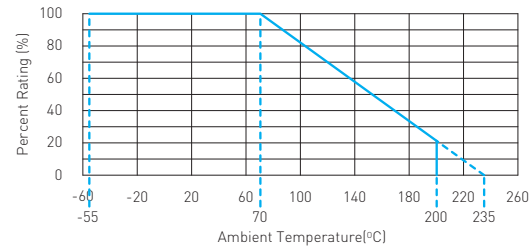


Metal Oxide Resistor is manufactured through the rationalized automation line and high quality control system. Flame proof type of the metal oxide film resistor is available from 1/2W to 3W. They are ideally suitable for power circuit use.

Features

- Small size power type resistor.
- Excellent thermal stability at a high temperature.
- Flame proof coating.
- Various types of forming are available.
- High reliability.
- Product with lead free meet RoHS requirements.

Derating Curve



Rating & Shape

Type	Max. Working Voltage (V)	Max. Overload Voltage (V)	Dielectric Withstanding Voltage (V)	Range(Ω)	Resistance Tolerance(%)	Operating Temp. Range (°C)	Ambient Temp. (°C)	Axial Type		Punching Type		Forming Type	
								52mm	63mm	F-	L-	R-	M-
1/2W	250	400	350	10~68K	G : ±2 J : ±5	-55~+200	70	O	-	O	O	O	O
1W	350	600	500	0.47~220K				O	-	O	O	O	O
2W				0.47~270K				-	O	O	O	O	O
3W	550	800		0.47~270K				-	O	O	O	-	O

Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25°C
T.C.R	Within ±350PPM/°C	+25°C/+125°C
Short Time Overload	±[2%+0.1Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[2%+0.05Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5%+0.1Ω]	40 ± 2°C 90~95%RH, 1.5hr ON/0.5 OFF cycle, 1,000hr
Load Life in Temperature	±[5%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5 OFF cycle, 1,000hr

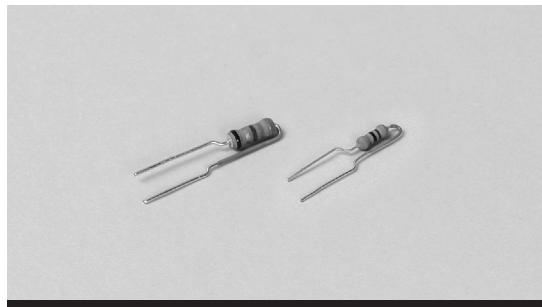
Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

SMR, SML

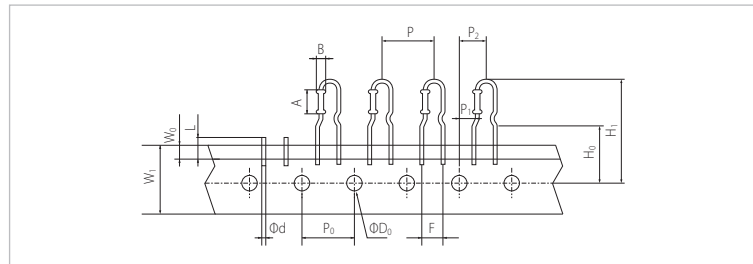
Super Mini Metal Oxide Film Resistor

Metal Oxide Film Resistor

RoHS HF



● Dimension



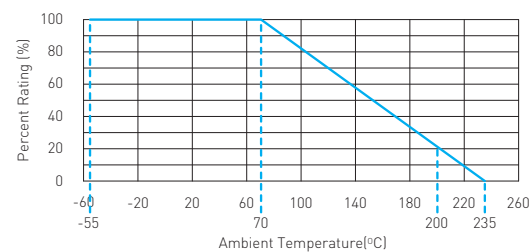
Type	Dimension (mm)						
	PO : ±1.0	Φd ±0.02	P : ±1.0	A : ±1.0	B : ±0.5	WO : ±0.5	W1 : ±0.5
SMR 1W	12.7	0.55	12.7	5.8	2.3	6.0	17.85
SMR 2W		0.65		8.2	3.8		
SML 3W		0.7		8.5	3.2		

Type	Dimension (mm)						
	L	ΦDO ±0.3	F : ±0.5	P1 : ±0.5	P2 : ±1.0	HO : ±0.5	H1
SMR 1W	MAX. 10.1	3.85	5.0	3.85	6.35	16.0	MAX. 28.0
SMR 2W							MAX. 32.0
SML 3W							

● Features

- Excellent thermal stability at a high temperature.
- Very small dimension.
- Radial type forming.
- Flame proof coating.
- Product with lead free meet RoHS requirements.

● Derating Curve



● Type Designation

SMR(L)	01	R1	10K0	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	01 : 1W 02 : 2W	T-: Axial Type F-/L-: Forming Type	1R00 : 1Ω 10R0 : 10Ω 10K0 : 10KΩ 100K : 100KΩ	G : ±2% J : ±5%

● Rating & Shape

Type	Max. Working Voltage (V)	Max. Overload Voltage (V)	Dielectric Withstanding Voltage (V)	Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temp. (°C)	Axial Type	Punching Type
SMR 1W	350	600	350	0.47~150K	J : ±5	-55~+200	70	O	O
SMR(L) 2W			500	0.47~200K				-	O

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25°C
T.C.R	Within ± 350PPM/°C	+25°C/+125°C
Short Time Overload	±[2% + 0.1Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[1% + 0.05Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5% + 0.1Ω]	40 ± 2°C, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	±[5% + 0.1Ω]	70 ± 2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr

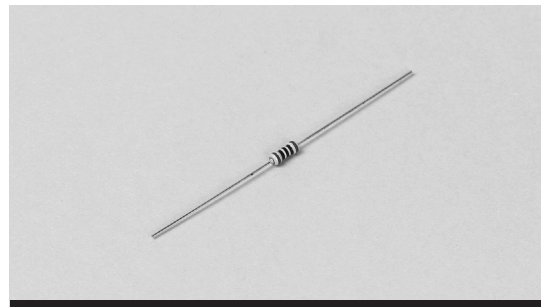
Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

RN

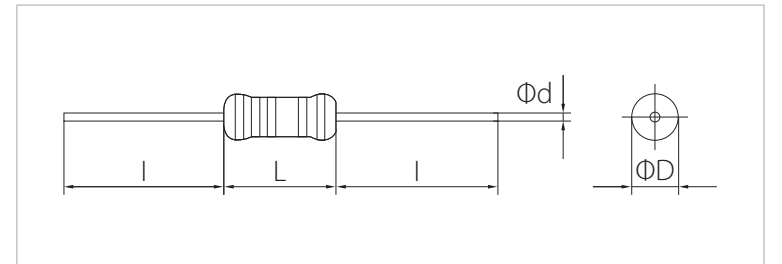
Precision Metal Film Resistor

Metal Film Resistor

RoHS HF



● Dimension



Type	Dimension (mm)			
	L	D	l	d
1/6W	3.2 ± 0.3	1.8 ± 0.2	28.0 ± 3.0	0.43 ± 0.02
1/4W	5.8 ± 0.5	2.3 ± 0.2	27.0 ± 3.0	0.55 ± 0.02
1/2W	8.5 ± 1.0	3.2 ± 0.2	26.0 ± 3.0	0.70 ± 0.02
1W	11.0 ± 1.0	4.0 ± 0.5	28.0 ± 3.0	0.80 ± 0.02

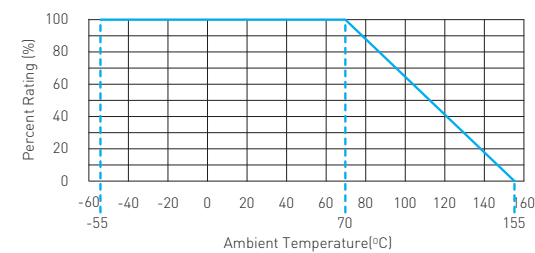
● Type Designation

RN	92	T1	10R0	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	96 : 1/6W 94 : 1/4W 92 : 1/2W 01 : 1W	T-: Axial Type S-: 26mm Type R-: Forming Type	10R0 : 10Ω 1K00 : 1KΩ 100K : 100KΩ	F : ±1% G : ±2% J : ±5%

● Features

- High precision and Low T.C.R. metal film resistor.
- Low current noise : Less than 0.2μV/V.
- Excellent stability for a long period of time.
- General / Flame retardant type.

● Derating Curve



● Rating & Shape

Type	Max. Working Voltage (V)	Max. Overload Voltage (V)	Dielectric Withstanding Voltage (V)	Range (Ω) & Tolerance (%)		Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temp. (°C)	Axial Type			Forming Type
				F (±1)	G (±2), J (±5)				26mm	52mm	63mm	
1/6W	150	300	300	10~100K	0.47~100K	F : ±1 G : ±2 J : ±5	-55~+155	70	O	O	-	-
1/4W	250	500	500	10~470K	0.47~100K				O	O	-	O
1/2W	350	700	700	10~470K	0.47~100K				-	O	-	O
1W				10~470K	0.47~100K				-	-	O	-

● Performance

*When pulse is applied to resistor, the peak value of pulse shall be within rated voltage.

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25°C
T.C.R	±100PPM/°C [Less than 10Ω ±350PPM/°C]	+25°C/+125°C
Short Time Overload	±[1%+0.05Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[1%+0.05Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5%+0.1Ω]	40 ± 2°C, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	±[5%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr

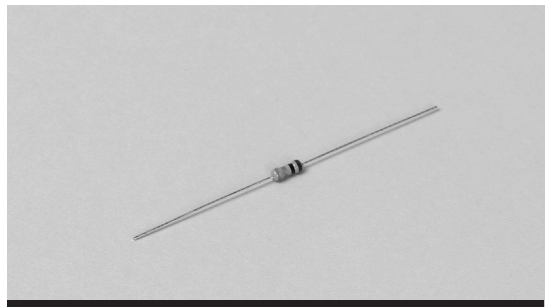
Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

RDM

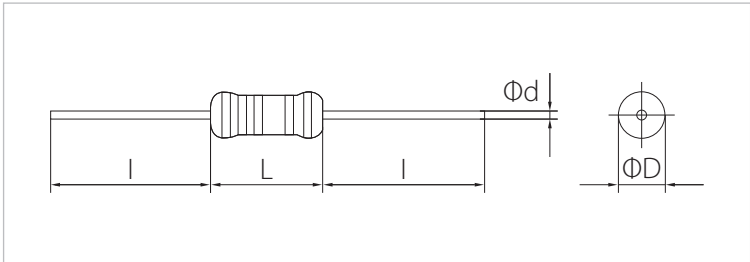
Small Carbon Film Resistor

Carbon Film Resistor

RoHS HF



● Dimension

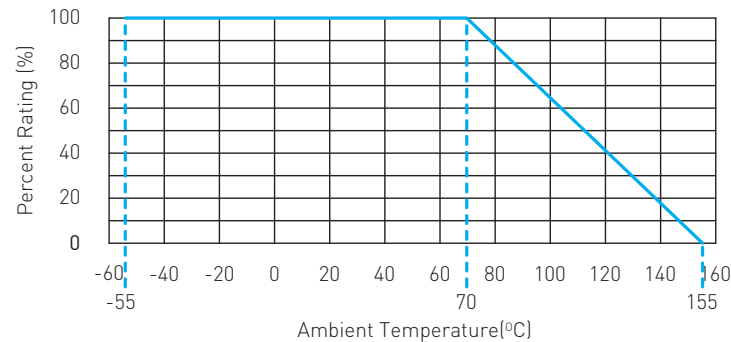


Type	Dimension (mm)			
	L	D	l	d
1/4W	3.2 ± 0.3	1.8±0.2	28.0±3.0	0.43±0.02
1/2W	5.8± 0.5	2.3±0.2	27.0±3.0	0.55±0.02

● Type Designation

RDM	92	T1	10R0	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	94: 1/4W 92: 1/2W	T-: Axial Type S-: 26mm Type	1R00: 1Ω 1K00: 1KΩ 1M00: 1MΩ	G: ±2% J: ±5%

● Derating Curve



● Rating & Shape

Type	Max. Working Voltage (V)	Max. Overload Voltage (V)	Dielectric Withstanding Voltage (V)	Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Axial Type	
1/4W	250	500	500	0.47~1M	G: ±2	-55~+155	70	O	O
1/2W	350	700	700		J: ±5			O	O

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25°C
T.C.R	Within ±350PPM/°C	+25°C/+125°C
Short Time Overload	±[2%+0.1Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[2%+0.05Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5%+0.1Ω]	40 ± 2°C 90~95%RH, 1.5hr ON/0.5 OFF cycle, 1,000hr
Load Life in Temperature	±[5%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr

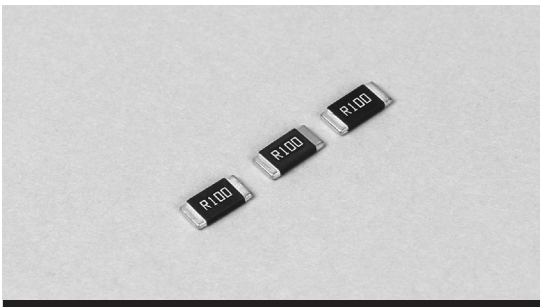
Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

CSR

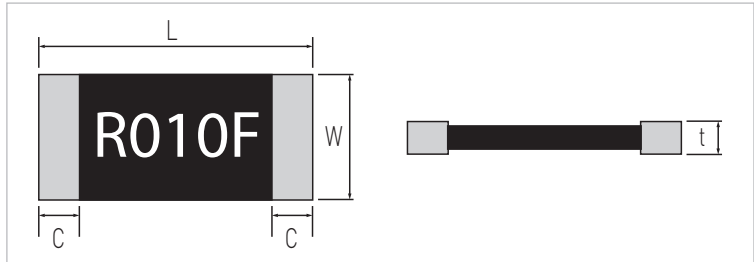
Current Sensing Resistor

Chip Resistor

RoHS HF



● Dimension



CSR is named as chip current sensing Resistor that is made by Metal Plate and covered Insulation polymer[UL94V-0] after forming terminal.

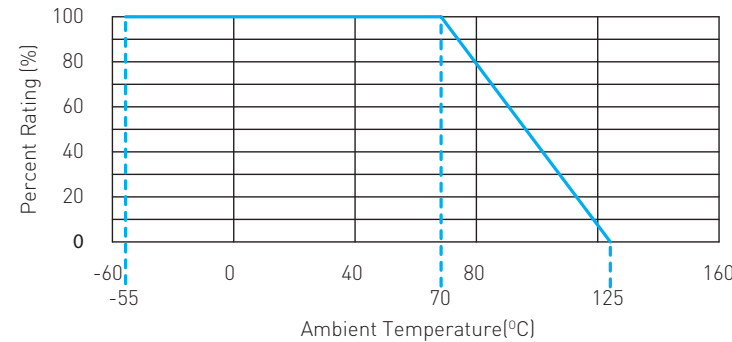
● Features

- Excellent current sensing, Voltage division and frequency response characteristics.
- Over coating is molding compound UL-94 grade.
- Low inductance less 1nH.
- 1/2W, 2W, 3W are now developed.

● Type Designation

CSR	01	TR	R010	F
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	92: 1/2W 01: 1W 02: 2W	TR: Reel Type	R001: 0.001Ω R010: 0.01Ω R100: 0.1Ω	F: ±1% G: ±2% J: ±5%

● Derating Curve



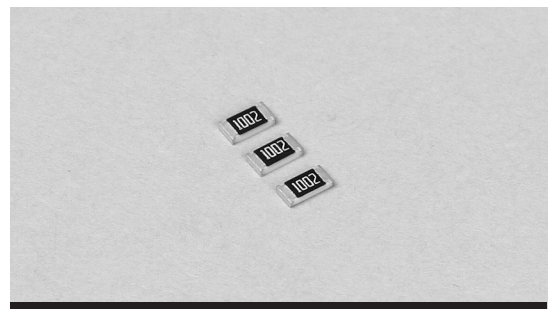
● Rating

Power Rating (W)	Size Code	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)
	mm				
1/2W	5025	0.003~0.06	F: ±1 G: ±2 J: ±5	-55~+125	70
1W / 2W	6332	0.001 ~ 0.1			

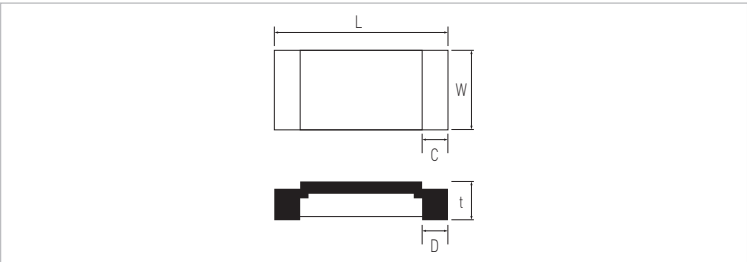
● Performance

Test Items	Performance Requirements	Test Methods
DC Resistance	Within specified tolerance	Measure resistance at 25°C
T.C.R	R≤2mΩ : ±275 2mΩ<R≤10mΩ : ±100 R>10mΩ : ±75	+25°C/+125°C
Short time Overload	±[1%+0.005Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Load Life in Moisture	±[2%+0.005Ω]	40 ± 2°C, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	±[2%+0.005Ω]	70 ± 2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.



● Dimension

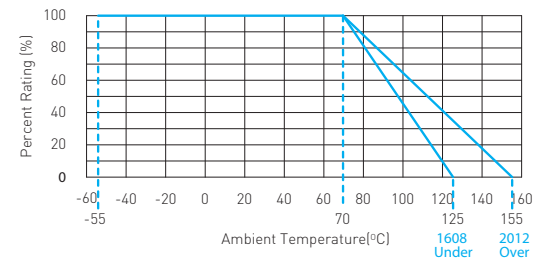


Type	Size Code	Dimension (mm)				
	mm	L	W	C	D	t
1/16W	1005	1.00 ±0.10	0.50±0.05	0.20±0.10	0.25±0.10	0.35±0.05
1/10W	1608	1.60±0.10	0.80±0.05	0.25~0.30	0.30±0.20	0.45±0.05
1/8W	2012	2.05±0.10	1.30±0.10	0.35~0.40	0.40±0.20	0.40~0.55
1/4W	3216	3.10±0.10	1.60±0.10	0.45±0.25	0.50±0.20	0.50~0.65
1/2W	5025	5.00±0.20	2.50±0.20	0.60±0.20	0.60±0.20	0.55±0.10
1W	6332	6.30±0.20	3.20±0.20	0.60±0.20	0.60±0.20	0.55±0.10

● Type Designation

RC	86	TR	1K00	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	86: 1/16W 80: 1/10W 98: 1/8W 94: 1/4W 92: 1/2W 01: 1W	TR: Reel Type	1R00: 1Ω 10R0: 10Ω 1K00: 1KΩ 1M00: 1MΩ	F: ±1% J: ±5%

● Derating Curve



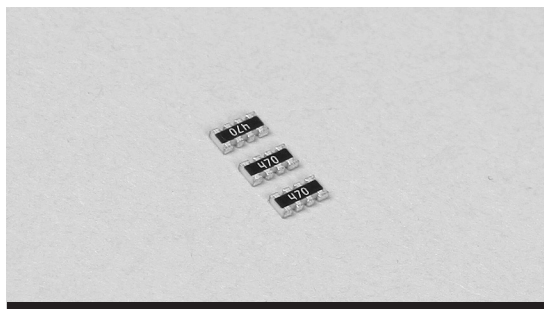
● Rating

Type	Power Rating (W)	Max. Working Voltage (V)	Range (Ω & Tolerance (%))		Operating Temp. Range (°C)	Ambient Temperature (°C)
			J±5	F±1		
86 (1005)	1/16	50	10~3.3M	10~1M	-55~+125	70
80 (1608)	1/10	50	0~3.3M	10~1M		
98 (2012)	1/8	100	0~10M	10~1M		
94 (3216)	1/4	200	1~10M	10~1M		
92 (5025)	1/2	200	1~10M	10~1M		
01 (6332)	1	200	1~10M	10~1M		

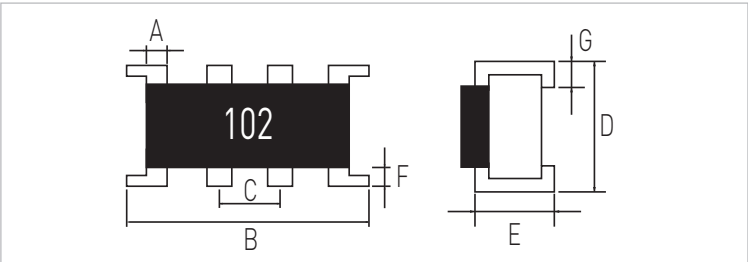
● Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measuring points are 10mm±1mm from the end of cap
T.C.R	R < 10Ω:±500PPM/ °C 10Ω < R < 1MΩ:±200PPM/ °C R > 1MΩ:±350PPM/ °C	+25°C/+125°C
Short time Overload	±[2%+0.1Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[2%+0.1Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5%+0.1Ω]	40 ± 2°C, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	±[5%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.



● Dimension



Type	Dimension (mm)						
	A	B	C	D	E	F	G
1/16W	0.56±0.10	3.20±0.20	0.80±0.05	1.60±0.20	0.50±0.10	0.30±0.10	0.30MAX

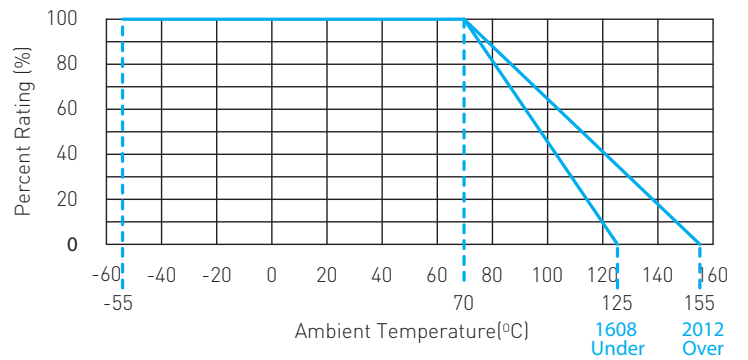
● Features

- Excellent current sensing, Voltage division and frequency response characteristics.
- Over coating is molding compound UL-94 grade.
- Low inductance less 1nH.
- 1/2W, 2W, 3W are now developed.

● Type Designation

RCA	86	TR	1K00	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	86: 1/16W	TR: Reel Type	10R0: 10Ω 100R: 100Ω 1K00: 1KΩ 10K0: 10KΩ	J: ±5%

● Derating Curve



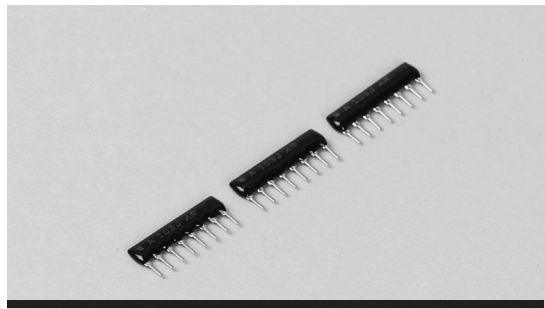
● Rating & Shape

Type	Power Rating (W)	Max. Working Voltage (V)	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)
86	1/6	50	6.8~15K	J: ±5	-55~+125	70

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25°C
T.C.R	R < 10Ω:±500PPM/ °C 10Ω < R < 1MΩ:±200PPM/ °C R > 1MΩ:±350PPM/ °C	+25°C/+125°C
Short Time Overload	±[2%+0.1Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[2%+0.1Ω]	260 ± 5°C, 2~2.5mm, 10 ± 1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[5%+0.1Ω]	40 ± 2°C, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	±[5%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

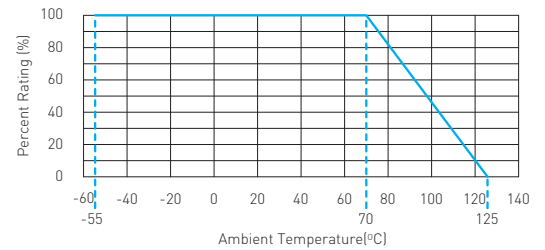


RA has qualified metal glaze elements on high grade alumina substrates with strong clip-construction terminals, and pricing from automated mass production. RAS has a narrower pitch than RA.

● Features

- Small in size with high precision package. It is suitably used in printed circuit.
- Automated mass production and competitive prices accordingly.

● Derating Curve



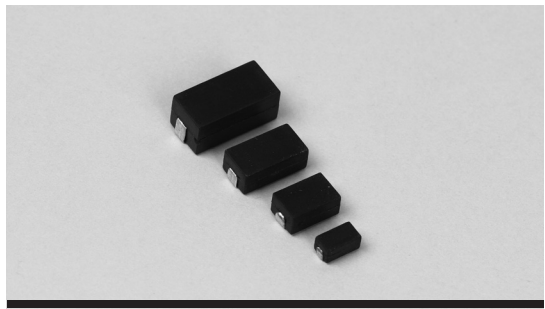
● Rating

Type		Max. Working Voltage (V)	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)
RA 1/4W	RAS 1/4W	200	10~22M	J:±5	55~+125	70

● Performance

Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25°C
T.C.R	R < 10Ω:±500PPM/ °C 10Ω < R < 1MΩ :±200PPM/ °C R > 1MΩ:±350PPM/ °C	+25°C/+125°C
Short Time Overload	±[2%+0.1Ω]	Rated voltage x2.5 for 5sec or Max overload voltage
Resistance Against Soldering Test	±[2%+0.1Ω]	260 ± 5°C,2~2.5mm,10 ± 1sec measure resistance After1hr at room temp
Load Life in Moisture	±[5%+0.1Ω]	40 ± 2°C,90~95%RH,1.5hr ON/0.5hr OFF cycle,1,000hr
Load Life in Temperature	±[5%+0.1Ω]	70 ± 2°C,1.5hr ON/0.5hr OFF cycle,1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

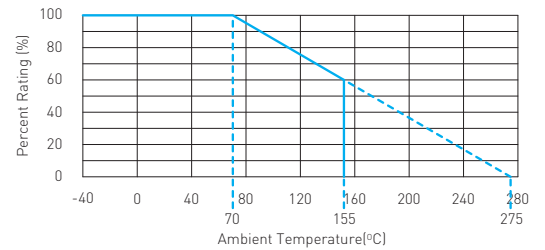


SMD TYPE WIRE WOUND resistance of SWR, you can deal with the existing LEAD TYPE resistance. The product can be manufactured with high-rated and have a variety of resistances.

● Features

- High power ratings for SMD.
- A wide resistance range.
- Excellent overload capability.
- Compliant terminals eliminate risk of solder fillet cracking.

● Derating Curve



● Rating

Type	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)
1/2W	0.051~5.1	G : ±2 J : ±5	-40~+155	70
1W	0.051~20			
2W	0.051~20			
3W	0.051~20			
5W	0.051~20			

● Performance

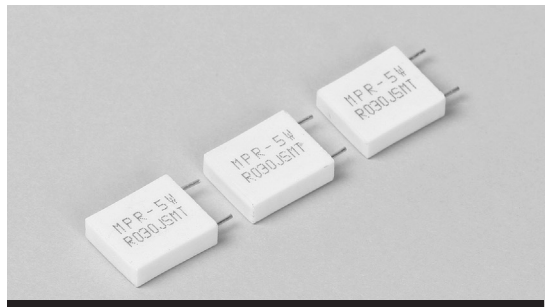
Test Items	Performance Requirements	Test Methods
Resistance	With specified tolerance	Measure resistance at 25°C
T.C.R	±400PPM/°C	+25°C/+125°C
Short Time Overload	±[2%+0.05Ω]	Rated voltage x2.5 for 5sec
Resistance Against Soldering Test	±[1%+0.05Ω]	260 ± 5°C,2~2.5mm,10 ± 1sec measure resistance After1hr at room temp
Load Life in Moisture	±[3%+0.1Ω]	40 ± 2°C,90~95%RH,1.5hr ON/0.5hr OFF cycle,1,000hr
Load Life in Temperature	±[3%+0.1Ω]	70 ± 2°C,1.5hr ON/0.5hr OFF cycle,1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

MPR Non Inductive Metal Plate Resistor

Cement Resistor

RoHS HF



Type Designation

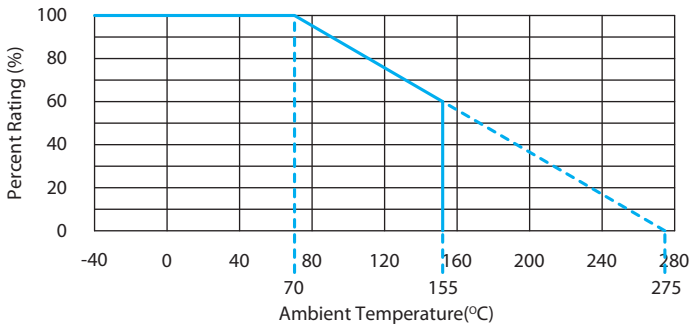
MPR	05	V	R015	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	02 : 2W 05 : 5W 10 : 10W	V-Type VF-Type VL-Type SL-Type	R015 : 0.015Ω R150 : 0.15ΩT	G : ±2% J : ±5% K : ±10%

MPR is non-inductive metal plate inserted into the ceramic case and finally sealed and insulated with inorganic fillers. It use for current sensing.

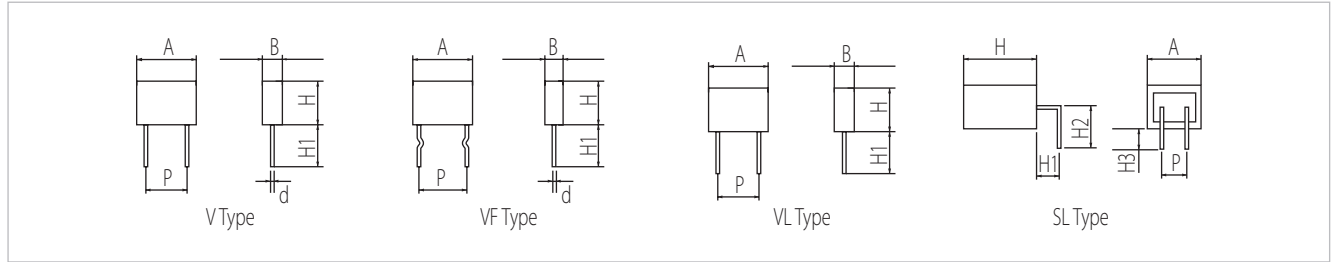
Features

- Power type resistor made with resistant element of metallic.
- Flame proof resistor in ceramic case.
- Excellent stability to heat and moisture.
- Automatic insertion is available.
- Product with lead free meet RoHS requirements.
- Low inductance.
- Space saving.

Derating Curve



Dimension & Rating



Power Rating	Resistance Range (Ω)	Resistance Tolerance (%)	Operating Temp. Range (°C)	Ambient Temperature (°C)	Style	Dimension (mm)							
						A	B	H	H1	H2	H3	P	Φd
2W	0.02~0.08	G : ±2 J : ±5 K : ±10	-40~+200	70	V-	14.5±1.0	5.0±1.0	9.0±1.0	4.5±0.5	-	-	10.0±1.0	0.8±0.02
5W	0.01~1.0				V-	14.5±1.0	5.0±1.0	18.0±1.0	4.5±0.5	-	-	10.0±1.0	
					VF				13.5±1.0	4.5±0.5	-		
					VL				14.0±0.5	-	-		
					SL				3.0±0.5	6.25±0.5	3.4±0.4		
10W					V-	26.5±1.5	5.0±1.0	18.0±1.5	4.5±0.5	-	-	20.0±1.0	
					VF				13.5±1.0	4.5±0.5	-		

Performance

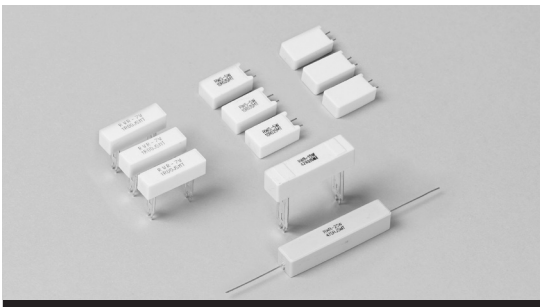
Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25°C
T.C.R	Over 0.1Ω : Within±400 Under 0.1Ω : Within ±600	Rated power x 10 for 5sec
Short Time Overload	±[2%+0.1Ω]	+25°C/+125°C
Resistance Against Soldering Test	±[2%+0.05Ω]	260±5°C, 10±1sec measure resistance After 1hr at room temp
Load Life in Moisture	±[3%+0.1Ω]	40±2°C, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	±[3%+0.1Ω]	70±2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

RWR / RWS / RSR

Cement Resistor

RoHS HF



- Flame Proof Square Type Wire-Wound Resistor with Glass Core (RWR)
- Flame Proof Square Type Wire-Wound Resistor with Ceramic Rod (RWS)
- Flame Proof Square Type Metal Oxide Film Resistor (RSR)

RWR/RWS/RSR type resistor are developed for high thermal dissipation in a small volume. These types, having good thermal conduction, are mounted with inorganic materials. They are the most useful for power circuit of various electronic equipment.

Features

- Flame proof inorganic construction.
- Designed to utilize heat sink effect and designed small.
- Highly stable to heat and moisture.
- Excellent protective characteristic of inrush current.

Type Designation

RWR	05	V-	1R00	J
Products Code	Power Rating	Style	Nominal Resistance	Resistance Tolerance
	05 : 5W 07 : 7W 10 : 10W 15 : 15W 20 : 20W 25 : 25W	A- : Bulk Type V- : Vertical Type P- : Pin Type PD : Double Pin Type SP : Short Double Pin Type	R470 : 0.47Ω 1R00 : 1Ω 1K00 : 1KΩ	J : ±5% K : ±10%

Rating

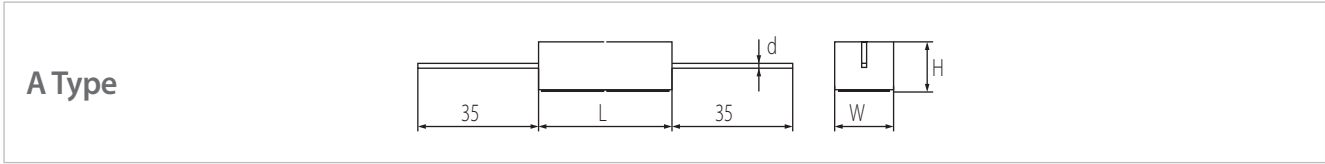
Type	Max. Working Voltage (V)	Max. Overload Voltage (V)	Resistance Range (Ω)	Resistance Tolerance (%)	TCR (PPM/°C)	Operating Temp. Range (°C)	Ambient Temperature (°C)		
RWR 03	$\sqrt{P \times R}$	$\sqrt{P \times R \times 10}$	0.24~100	J : ±5% K : ±10%	20Ω ≥ ±260 20Ω < ±400	-40~+200	70		
RWR 05			0.47~100						
RWR 07			0.2~100						
RWR 10									
RWR 15									
RWR 20									
RWR 25									
RWS 05	$\sqrt{P \times R}$	$\sqrt{P \times R \times 10}$	0.1~10		±400	-40~+155	70		
RWS 07			0.1~150						
RWS 10			0.1~270						
RSR 05	350	700	10~100K			±350		-55~+155	
RSR 07	500	1,000	10~51K						

Performance

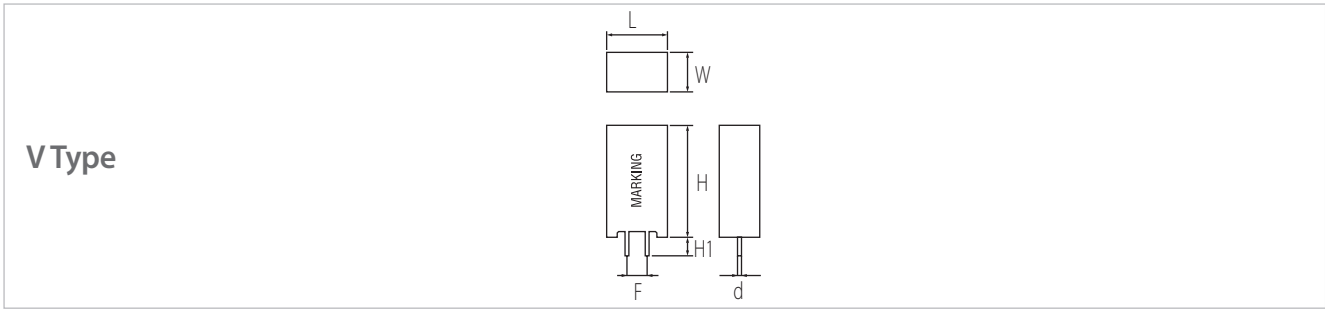
Test Items	Performance Requirements	Test Methods
Resistance	Within specified tolerance	Measure resistance at 25°C
Short Time Overload	Within ±[2% + 0.1Ω]	RSR : Rated voltage x2.5 for 5sec/ RW* : Rated power x 10 for 5sec
Resistance Against Soldering Test	±[2%+0.05Ω]	260±5°C, 10±1sec measure resistance After 1hr at room temp
Load Life in Moisture	RSR : ±[5%+0.1Ω] RW* : ±[3%+0.1Ω]	40±2°C, 90~95%RH, 1.5hr ON/0.5hr OFF cycle, 1,000hr
Load Life in Temperature	RSR : ±[5%+0.1Ω] RW* : ±[3%+0.1Ω]	70 ± 2°C, 1.5hr ON/0.5hr OFF cycle, 1,000hr

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

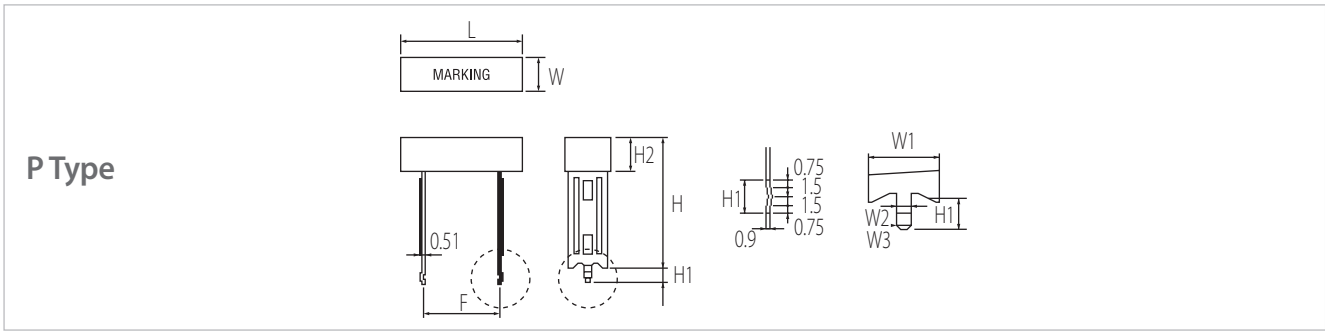
●Dimension



Type	Power Rating	Dimension (mm)			
		L±1.5	W±1.0	H±1.0	Φd±0.02
R** 05	5W	22.0	9.5	9.0	0.8
R** 07	7W	35.0	9.5	9.5	
R** 10	10W	48.0	9.5	9.5	



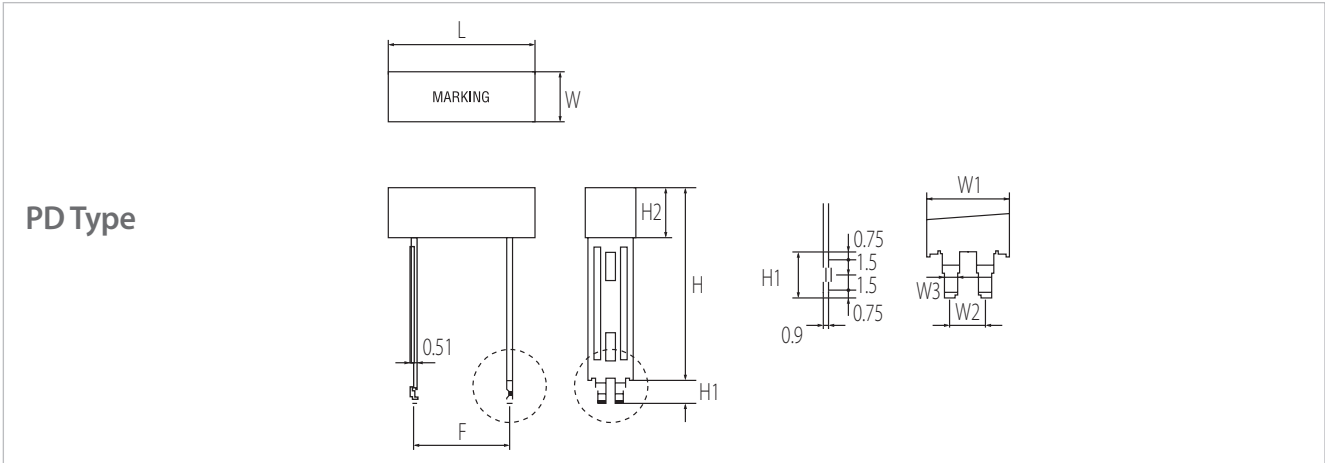
Type	Power Rating	Dimension (mm)					
		L±1.5	W±1.0	H±1.0	H1±0.5	F±0.5	Φd±0.02
R** 03	3W	11.0	8.0	20.0	4.5	5.0	0.7
R** 05	5W	14.0	9.5	26.0			0.8
R** 07	7W	14.0	9.5	40.0			
R** 10	10W	16.0	11.5	35.0			



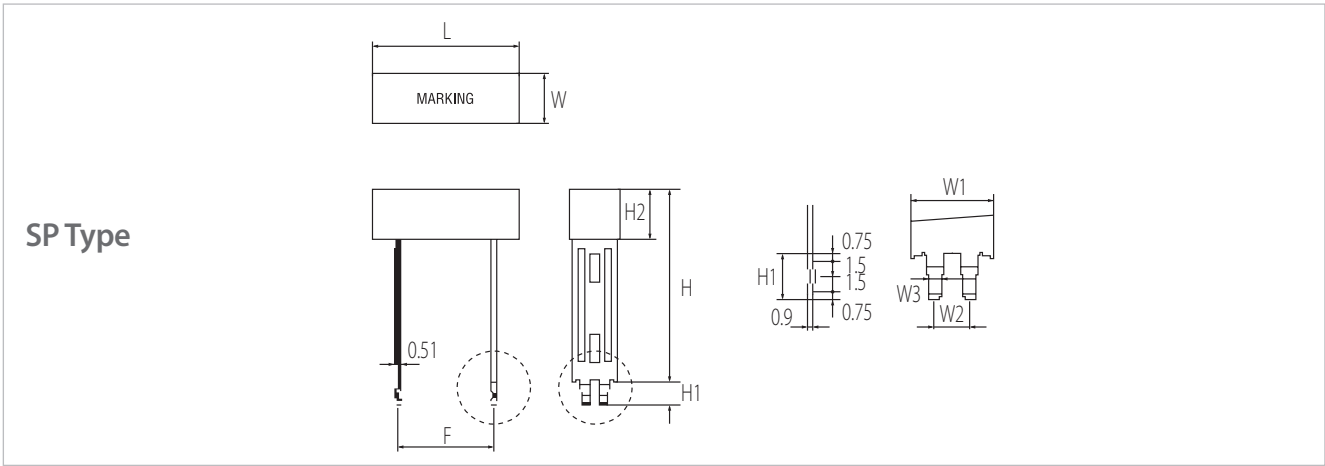
Type	Power Rating	Dimension (mm)								
		L±1.5	W±1.0	W1±0.4	W2±0.1	W3±0.1	H MAX	H1±0.5	H2±1.0	F±1.0
R** 05	5W	28.0	9.5	7.5	1.4	1.5	26.0	4.5	9.5	15.0
R** 07	7W	35.0	9.5	7.5	1.4	1.5	26.0	4.5	9.5	22.5
R** 10	10W	48.0	9.5	7.5	1.4	1.5	26.0	4.5	9.5	35.0
R** 15	15W	48.0	12.5	10.0	2.7	3.0	42.0	5.0	12.5	35.0
R** 20	20W	63.0	12.5	10.0	2.7	3.0	42.0	5.0	12.5	45.0
R** 25	25W	63.0	16.0	10.0	2.7	3.0	42.0	5.0	16.0	45.0

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

●Dimension



Type	Power Rating	Dimension (mm)								
		L±1.5	W±1.0	W1±0.4	W2±0.1	W3±0.1	H MAX	H1±0.5	H2±1.0	F±1.0
R** 05	5W	27.0	10.0	8.5	3.5	1.5	36	4.5	9.5	15.0
R** 07	7W	35.0	10.0	8.5	3.5	1.5	36	4.5	9.5	22.5
R** 10	10W	48.0	10.0	8.5	3.5	1.5	36	4.5	9.5	35.0
R** 15	15W	48.0	12.5	9.5	3.5	1.5	40	4.5	12.5	35.0
R** 20	20W	63.5	12.5	9.5	3.5	1.5	40	4.5	12.5	47.5
R** 25	25W	63.5	16.0	9.5	3.5	1.5	40	4.5	16.0	47.5

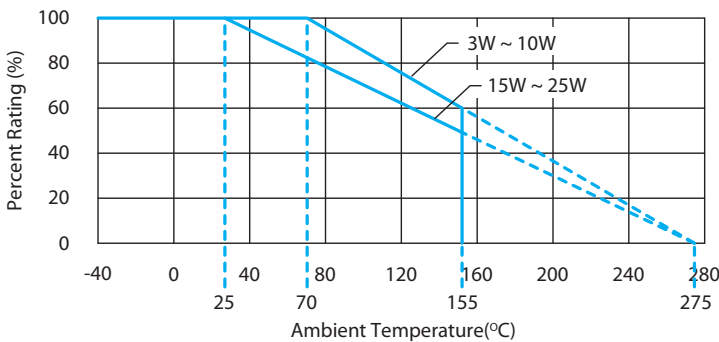
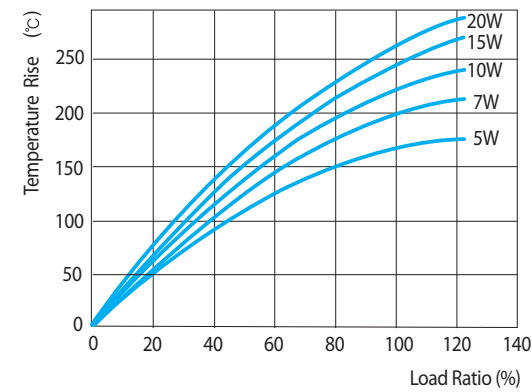


Type	Power Rating	Dimension (mm)								
		L±1.5	W±1.0	W1±0.4	W2±0.1	W3±0.1	H MAX	H1±0.5	H2±1.0	F±1.0
R** 05	5W	27.0	10.0	7.3	3.5	1.5	26.0	4.5	9.5	15.0
R** 07	7W	35.0	10.0	7.3	3.5	1.5	26.0	4.5	9.5	22.5
R** 10	10W	48.0	10.0	7.3	3.5	1.5	26.0	4.5	9.5	35.0

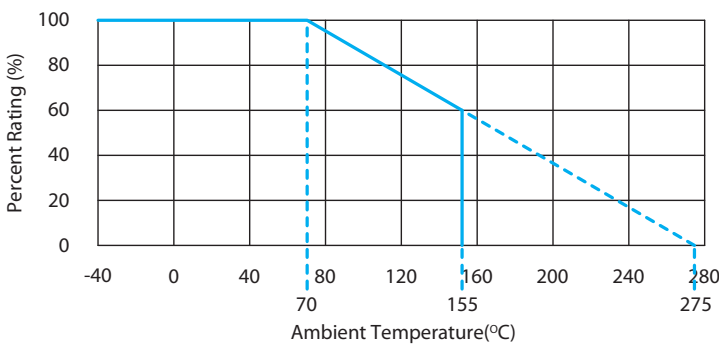
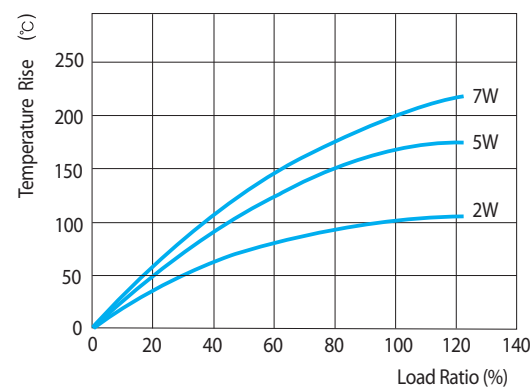
Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Derating Curve

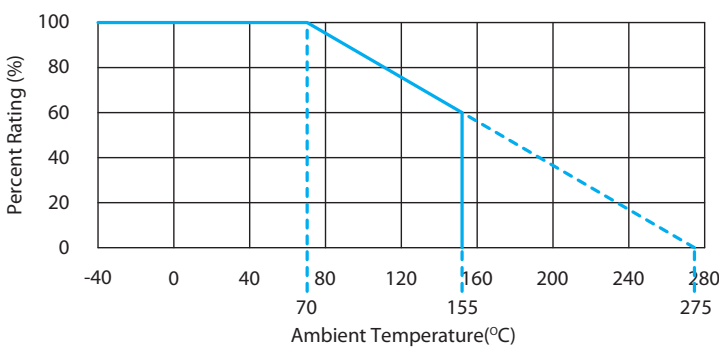
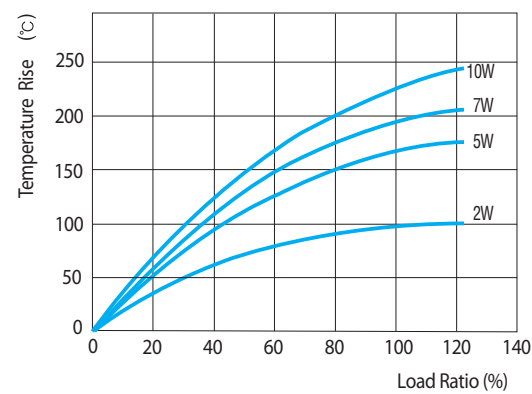
RWR



RWS

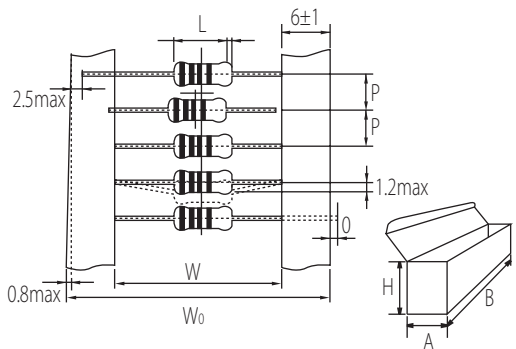


RSR



SECONDARY PROCESSES AND PACKING

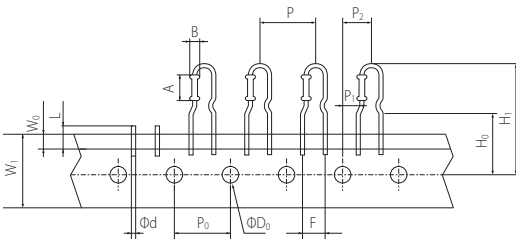
Standard Taping Type



Taping			
Type	W	W0	P
S1	26 ^{+1.5} ₋₀	38 ^{+1.5} ₋₀	5.0±0.5
T1	52 ^{+2.0} ₋₁	64 ^{+2.0} ₋₁	5.0±0.5
T3	63±2	75±2	5.0±0.5
T4	63±2	75±2	10.0±0.5

Inner Box			
Type	A±5	B±10	H±5
S1	50	255	100
T1	75	255	107
T3	85	255	105
T4	85	255	105

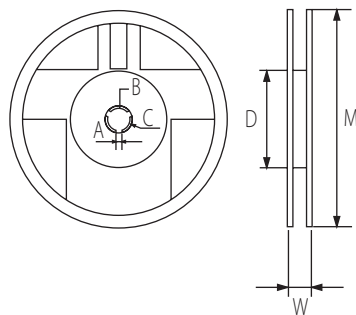
R-Forming Taping Type



Power Rating	P ₀ ±1.0	Φd±0.02	P±1.0	A±1.0	B±0.5	W ₀ ±0.5	W ₁ ±0.5	ΦD ₀ ±0.5	F±0.5	P ₁ ±0.5	P ₂ ±1.0	H ₀ ±0.5	H ₁
1/2W	12.7	0.55	12.7	5.8	2.3	6.0	17.85	3.85	5.0	3.85	6.35	16.0	Max 28.0
1W	12.7	0.7	12.7	8.5	3.2	6.0	17.85	3.85	5.0	3.85	6.35	16.0	Max 32.0
2W	12.7	0.65	12.7	8.5	3.8	6.0	17.85	3.85	5.0	3.85	6.35	16.0	Max 32.0

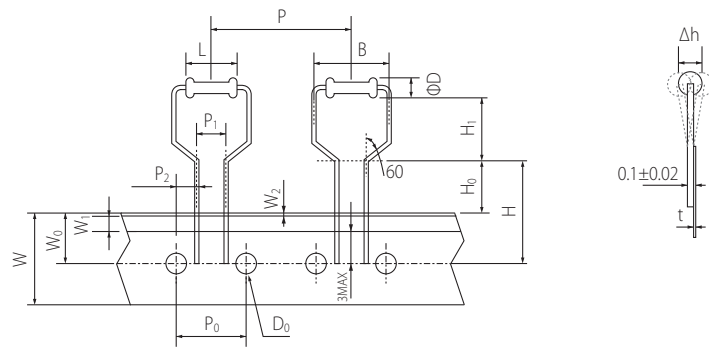
SECONDARY PROCESSES AND PACKING

Chip Reel Type



Power Rating	Dimension (mm)					
	W	M	A	B	C	D
RC-86	12.5 ±0.5	178 ±2.0	2.0 ±0.5	13.5 ±0.5	21.0 ±0.5	60.0 ±2.0
RC-80						
RC-98						
RC-94						
RC-92						
RC-01						
RCA-86						
CSR						
PS2	17.5±0.5	330.0±2.0	2.0±0.5	13.5±0.5	21.0±0.5	100.0±2.0

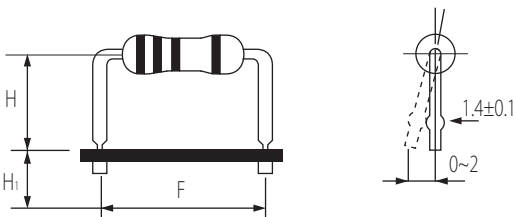
M-Forming Taping Type



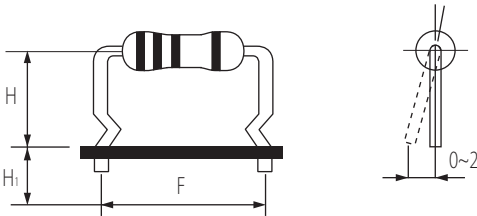
Power Rating	ΦD±0.5	L±1.0	L/W±0.02	B	P±1.0	P0±0.3	P1±0.5	P2±0.4	W±0.5
1W(S)	2.3	5.8	0.70	Max 11.0	25.4	12.7	5.0	3.85	18.0
1W	3.2	8.5	0.70	Max 13.0	25.4	12.7	5.0	3.85	18.0
2W	3.8	8.5	0.70	Max 13.0	25.4	12.7	5.0	3.85	18.0
3W	5.5	15.0	0.80	Max 20.0	25.4	12.7	5.0	3.85	18.0

Power Rating	W1±1.0	W1	W2	H±1.0	H0±0.5	H1±0.5	ΦD0±0.2	Δh±2.5	t±0.5
1W(S)	9.0	Max 5.0	Max 1.5	16.0	7.0	9.0	4.0	0	0.35
1W	9.0	Max 5.0	Max 1.5	16.0	7.0	9.0	4.0	0	0.35
2W	9.0	Max 5.0	Max 1.5	16.0	7.0	9.0	4.0	0	0.35
3W	9.0	Max 5.0	Max 1.5	16.0	7.0	9.0	4.0	0	0.35

Punching Bulk Type



F-Type



L-Type

Power Rating		Rod Size	Punching Type	Dimension (mm)		
Normal Type	Small Type			F±1.0	H±1.0	H1±0.5
1/4W	1/2W	1.7X5.5	F3	10.0	7.0	4.5
1/2W	1W	2.5X8	F3	15.0	8.0	4.5
			FA	15.0	9.5	4.0
1W	2W	3X11	F3	15.0	9.0	4.5
			F4	20.0	9.0	4.5
			F5	15.0	5.0	5.5
			F7	20.0	6.5	3.7
			F8	17.0	9.0	4.5
			F9	15.0	9.0	5.5
			FA	20.0	9.5	4.0
2W	3W	4.5X14	F1	20.0	13.0	4.5
			F3	20.0	7.0	4.0
			F4	25.0	10.0	4.5
1/2W	1W	2.5X8	FA	20.0	13.5	4.0
			L2	15.0	10.0	4.5
1W	2W	3X11	L3	15.0	7.0	3.5
2W	3W	4.5X14	L1	20.0	13.0	4.5
			L3	20.0	7.0	3.5

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.

Specification given here in may be changed at any time without prior notice. Please confirm technical specifications before you order or use.