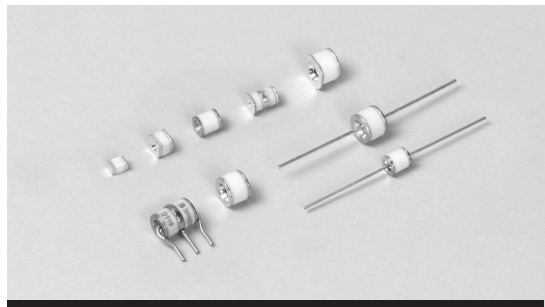




A tube be consisted with gas made up by inert gases and Arrangement of isolated electrode in Gas Discharge Tube. GDT that helps protect circuit from a voltage spikes.

● 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

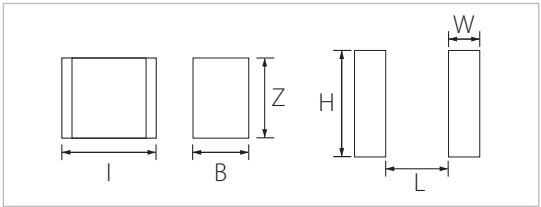
Agency	Item	File No.
	All Protector	E208457

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



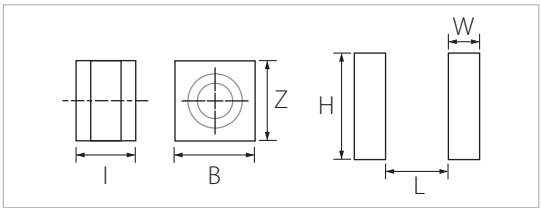
Division	Dimension (mm)					
	T±0.3	B±0.3	Z±0.3	L	H	W
3216	3.2	1.6	1.6	2.0	1.8	1.2
4532	4.5	3.2	2.7	3.5	3.5	0.975

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

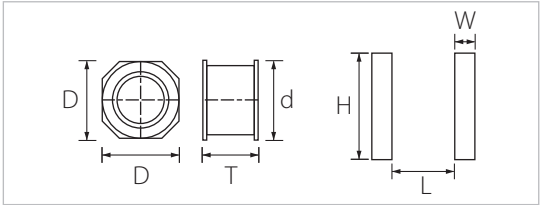
● Characteristics

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

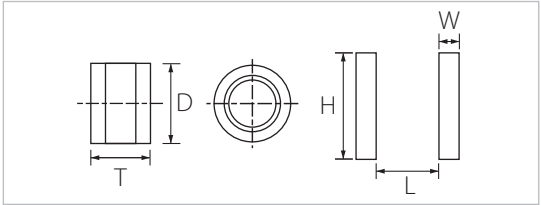
● Dimension

- S Type



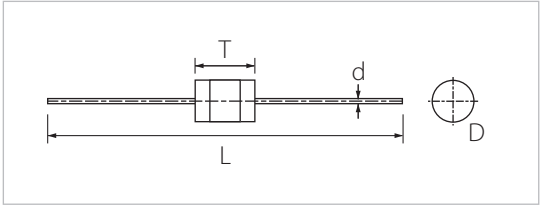
Division	Dimension (mm)						
	D±0.3	D1±0.3	T±0.5	d±0.5	L	H	W
2R55	5.0	5.0	4.7	5.0	3.3	5.8	1.2
2R64	6.2	6.2	4.2	6.0	2.2	5.0	1.3
2R86	8.3	8.3	6.0	8.3	4.4	9.0	1.2

- 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

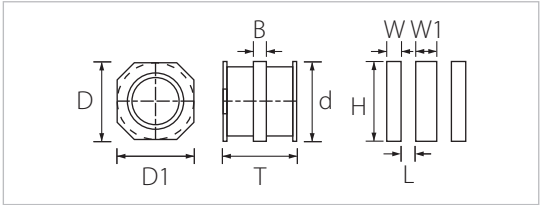
● Characteristics

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/μs	8/20μs		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

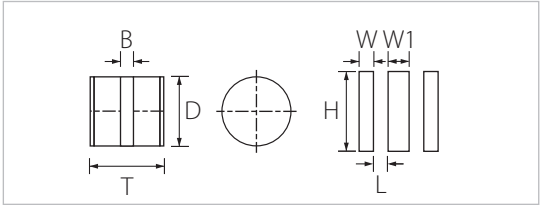
● Dimension

- S Type

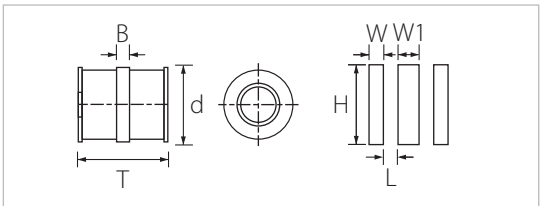


Division	Dimension (mm)								
	D±0.3	D1±0.3	B±0.2	T±0.5	d±0.3	L	H	W	W1
3R57	5.0	5.0	1.5	7.5	5.0	2.0	5.0	1.5	2.5

- C Type

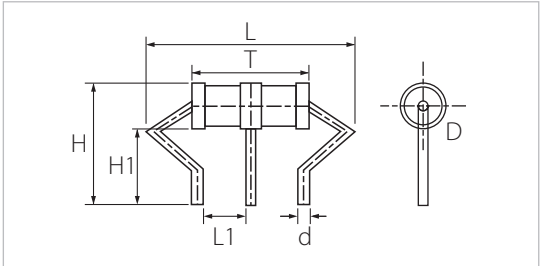


Division	Dimension (mm)						
	D±0.3	B±0.2	T±0.5	L	H	W	W1
3R68	6.0	1.5	8.5	2.0	6.0	1.5	2.5



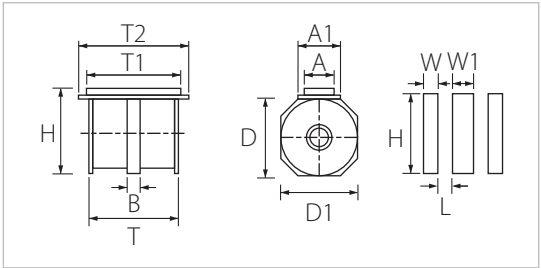
Division	Dimension (mm)						
	D±0.3	B±0.2	T±0.5	L	H	W	W1
3R81	8.0	1.5	10.0	2.0	8.0	1.5	2.5

- 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



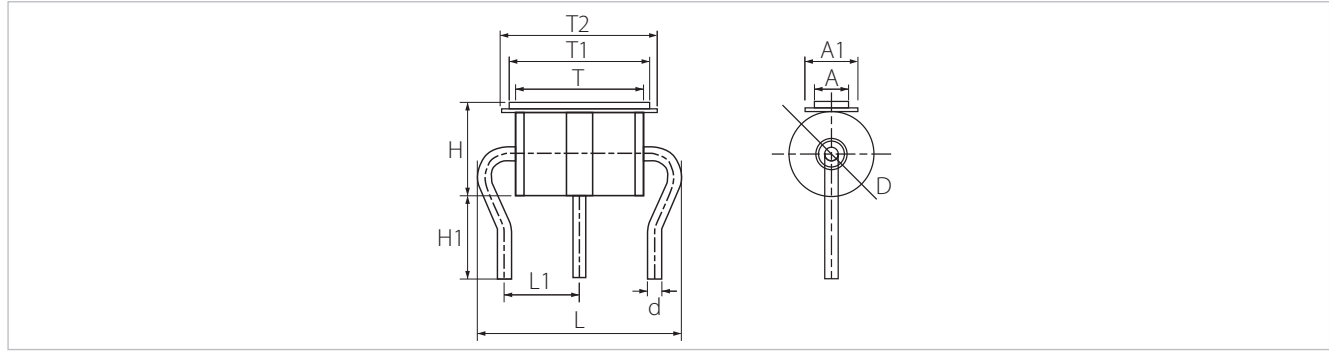
Division	Dimension (mm)					
	D±0.3	D1±0.3	A±0.1	A1±0.1	H±0.3	T±0.5
3R57	5.0	5.0	2.0	3.1	5.6	7.5

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

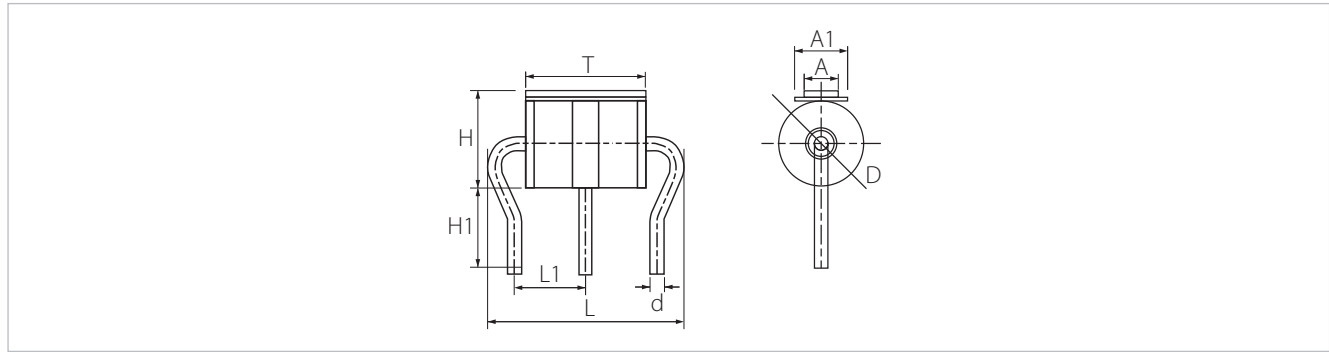
3-Electrode

● Dimension

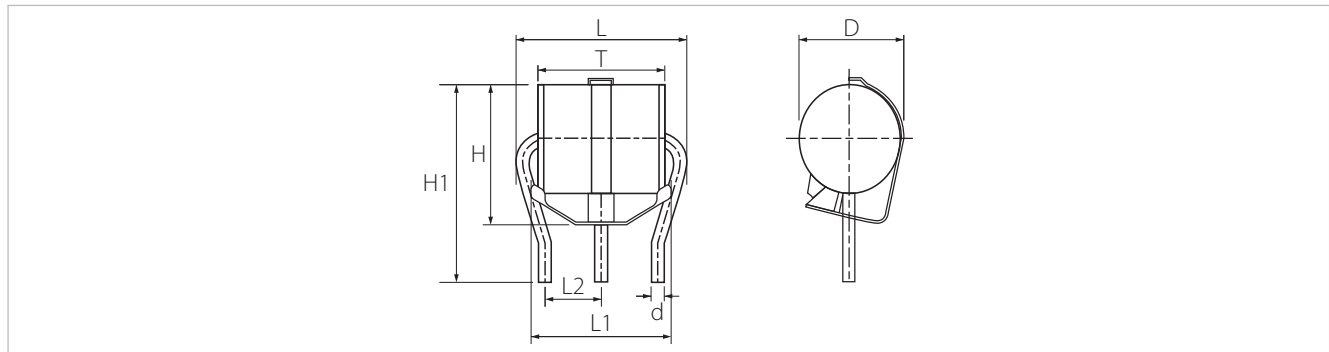
- F Type



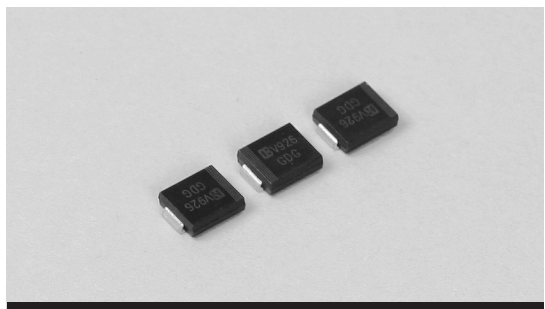
Division	Dimension (mm)										
	D±0.3	A±0.1	A1±0.1	T±0.5	T1±0.2	T2±0.2	L	L1±0.3	H±0.8	H1±0.5	D±0.05
3R57	5.0	2.0	3.1	7.5	8.3	9.2	12.0 MAX	4.4	5.6	5.0	0.8



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

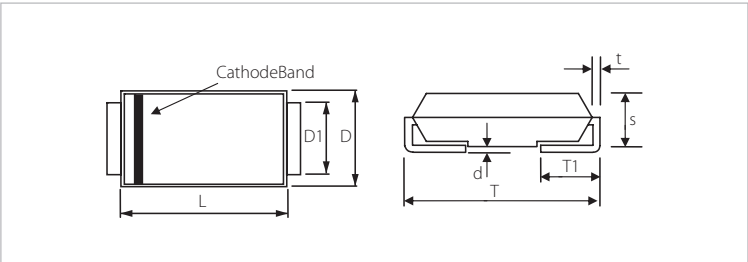


STV is a type of voltage suppressing device, also known as TVP or ABD They can limit, or clamp, an over-voltage spike to within a safe range in pica-seconds, protecting circuits from damage.

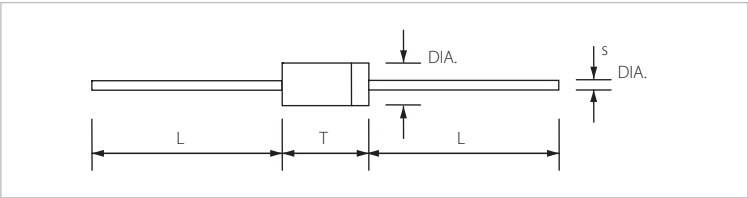
● Features

- 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.

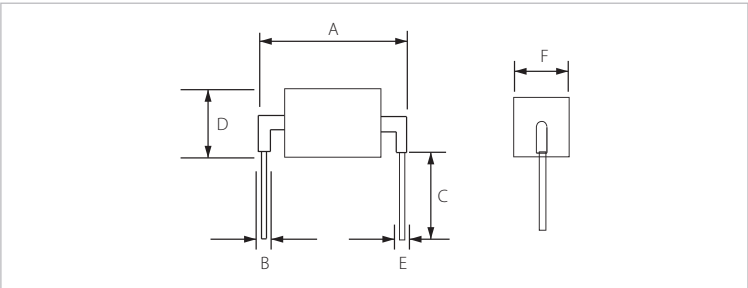
● Dimension



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