

# SMBJ / SMCJ Series

## Surface Mount Voltage Suppressors

**multicomp** PRO



### Features

- For surface mounted applications in order to optimise board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Excellent clamping capability
- Low inductance
- Typical ID less than 1 $\mu$ A above 10V

### Specifications

Repetition Rate (duty cycle)	: 0.05% (SMCJ) 0.01% (SMBJ)
Fast Response Time	: Typically less than 1 ps from 0 volts to BV min.
High Temperature Soldering	: 250°C / 10 seconds (SMCJ) 260°C / 10 seconds (SMBJ)

### Mechanical Data

Case	: JEDEC DO-214AA moulded plastic over passivated junction (SMCJ) JEDEC DO-214AB moulded plastic over passivated junction (SMBJ)
Terminals	: Solder plated, solderable per MIL-STD-750, Method 2026
Polarity	: Indicated by cathode band
Standard Packaging	: 16mm tape per (EIA 481) (SMCJ) 12mm tape per (EIA 481) (SMBJ)
Weight	: 0.007 ounce, 0.21g (SMCJ) 0.003 ounce, 0.093g (SMBJ)

### Maximum Ratings and Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified

Rating	Symbol	Value	Units
Peak pulse power dissipation on 10 / 1,000 $\mu$ s waveform (Note 1 and 2 - Fig 1)	PPPM	Minimum 600	Watts
Peak pulse current on 10 / 1,000 $\mu$ s waveform (Note 1 - Fig 3)	IPPM	-	Amperes
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method - note 2 and 3)	IFSM	100	Amperes
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

#### Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above TA = 25°C per Fig. 2
2. Mounted on 8mm<sup>2</sup> copper pads to each terminal (SMCJ)  
Mounted on 5mm<sup>2</sup> (0.013mm thick) land areas (SMBJ)
3. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum

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### Maximum Ratings and Characteristic Curves

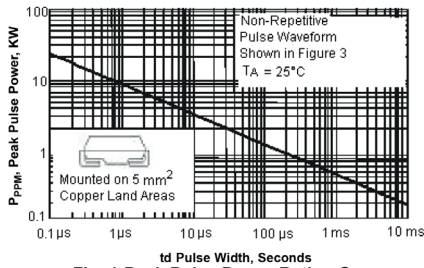


Fig. 1-Peak Pulse Power Rating Curve

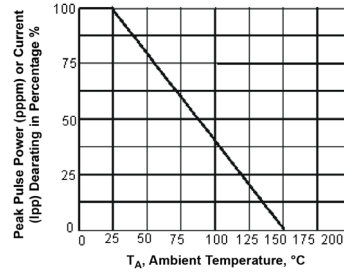


Fig. 2 Pulse Derating Curve

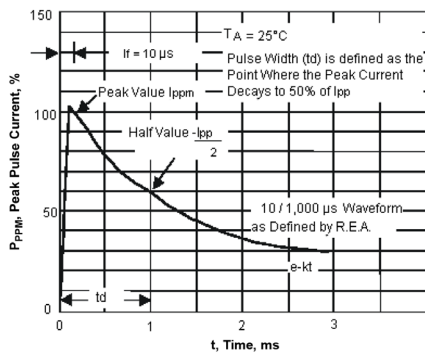


Fig. 3-Pulse Waveform

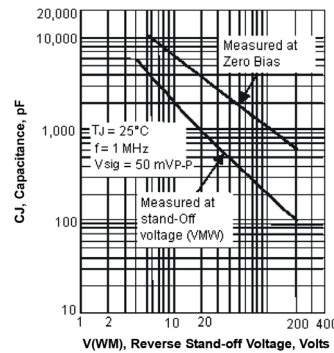


Fig. 4-Typical Junction Capacitance

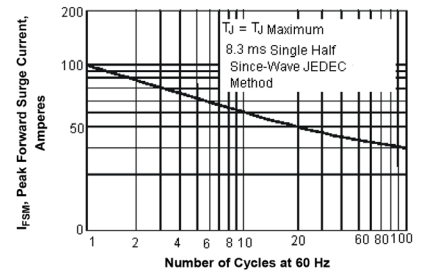


Fig. 5-Maximum Non-Repetitive Peak Forward Surge Current

### Uni-Directional 600 Watt Surface Mount TVS

Stand-off Voltage $V_{rm}$ (V)	Breakdown Voltage $V_{br}$ (V) Minimum at $I_T$	Breakdown Voltage $V_{br}$ (V) Maximum at $I_T$	Test Current $I_{test}$ (mA)	Maximum Clamping Voltage $V_{clamp}$ (V)	Peak Pulse Current $I_{pp}$ (A)	Part Number
5	6.4	7.25	10	9.2	65.2	SMBJ5.0A
7.5	8.33	9.58	1	12.9	46.5	SMBJ7.5A
12	13.3	15.3		19.9	30.2	SMBJ12A
15	16.7	19.2		24.4	24	SMBJ15A
24	26.7	30.7		38.9	15.4	SMBJ24A
30	33.3	38.3		48.4	12.4	SMBJ30A

### Uni-Directional 1,500 Watt Surface Mount TVS

Stand-off Voltage $V_{rm}$ (V)	Breakdown Voltage $V_{br}$ (V) Minimum at $I_T$	Breakdown Voltage $V_{br}$ (V) Maximum at $I_T$	Test Current $I_{test}$ (mA)	Maximum Clamping Voltage $V_{clamp}$ (V)	Peak Pulse Current $I_{pp}$ (A)	Part Number
5	6.4	7.25	10	9.2	163	SMCJ5.0A
6	6.67	7.67		10.3	145.6	SMCJ6.0A

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Stand-off Voltage $V_{rm}$ (V)	Breakdown Voltage $V_{br}$ (V) Minimum at IT	Breakdown Voltage $V_{br}$ (V) Maximum at IT	Test Current $I_{test}$ (mA)	Maximum Clamping Voltage $V_{clamp}$ (V)	Peak Pulse Current $I_{pp}$ (A)	Part Number
9	10	11.5	1	15.4	97.4	SMCJ9.0A
12	13.3	15.3		19.9	75.3	SMCJ12A
15	16.7	19.2		24.4	61.5	SMCJ15A
22	24.4	28		35.5	42.2	SMCJ22A
33	36.7	42.2		53.3	28.1	SMCJ33A
48	53.3	61.3		77.4	19.4	SMCJ48A

### Uni-Directional 600 Watt Surface Mount TVS

Stand-off Voltage $V_{rm}$ (V)	Breakdown Voltage $V_{br}$ (V) Minimum at IT	Breakdown Voltage $V_{br}$ (V) Maximum at IT	Test Current $I$ (mA)	Maximum Clamping Voltage $V_{clamp}$ (V)	Peak Pulse Current $I_{PP}$ (A)	Part Number
5	6.4	7.25	10	9.2	65.2	SMBJ5.0CA
7.5	8.33	9.58	1	12.9	46.5	SMBJ7.5CA
12	13.3	15.3		19.9	30.2	SMBJ12CA
15	16.7	19.2		24.4	24	SMBJ15CA
24	26.7	30.7		38.9	15.4	SMBJ24CA
30	33.3	38.3		48.4	12.4	SMBJ30CA

### Bi-Directional 1,500 Watt Surface Mount TVS

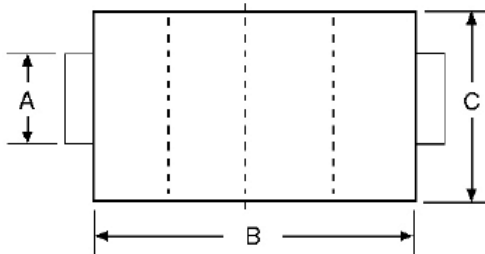
Stand-off Voltage $V_{rm}$ (V)	Breakdown Voltage $V_{br}$ (V) Minimum at IT	Breakdown Voltage $V_{br}$ (V) Maximum at IT	Test Current $I_{test}$ (mA)	Maximum Clamping Voltage $V_{clamp}$ (V)	Peak Pulse Current $I_{pp}$ (A)	Part Number
5	6.4	7.25	10	9.2	163	SMCJ5.0CA
6	6.67	7.67		10.3	145.6	SMCJ6.0CA
9	10	11.5	1	15.4	97.4	SMCJ9.0CA
12	13.3	15.3		19.9	75.3	SMCJ12CA
15	16.7	19.2		24.4	61.5	SMCJ15CA
22	24.4	28		35.5	42.2	SMCJ22CA
33	36.7	42.2		53.3	28.1	SMCJ33CA
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### Diagram

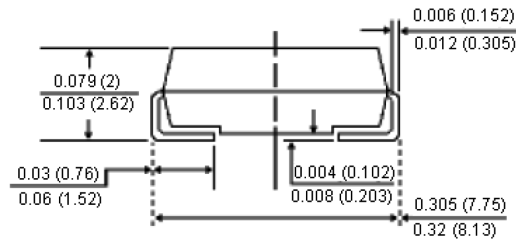
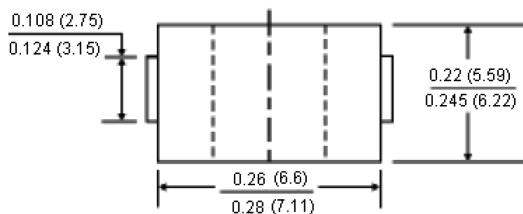


### Dimension Table

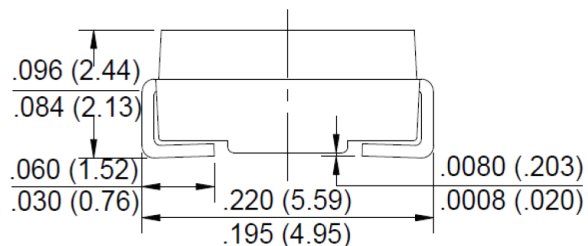
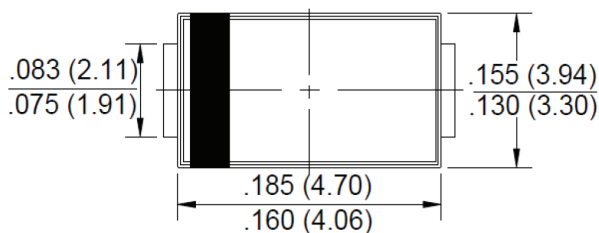
Rating (W)	Type	Dimensions		
		A	B	C
600	SMBJ	2.11	4.57	3.94
1,500	SMCJ	3.15	7.11	6.22

Dimensions : Millimetres

### SMC/DO-214AB

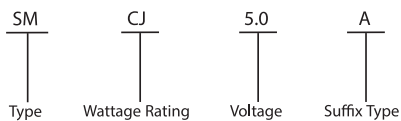


### SMB/DO-214AA



Dimensions : Inches (Millimetres)

### Part Number Explanation



- Wattage Rating** : BJ = 600W and CJ = 1,500W
- Voltage** : 5, 6, 7.5, 9, 12, 15, 22, 24, 30, 33 and 48 Volts
- Suffix Type** : A = Uni-directional and CA = Bi-directional

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