

# SMBJ / SMCJ Series



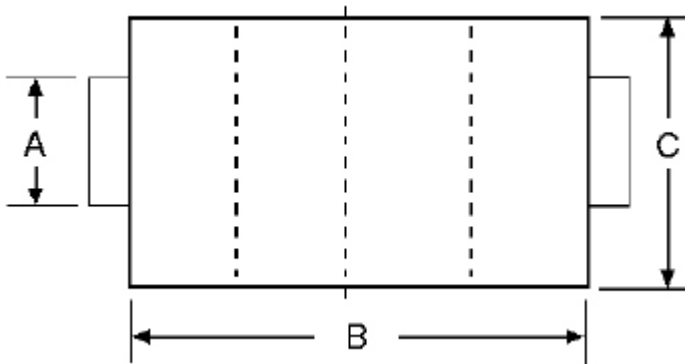
## Surface Mount Voltage Suppressors

### Transient Voltage Suppressor

### 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
- Repetition Rate (duty cycle) : 0.05% (SMCJ)  
: 0.01% (SMBJ)
- Fast Response Time : Typically less than 1 ps from 0 volts to BV minimum
- Typical  $I_D$  less than 1  $\mu A$  above 10 V
- High Temperature Soldering : 250°C / 10 seconds (SMCJ)  
: 260°C / 10 seconds (SMBJ)



### 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

### Mechanical Data

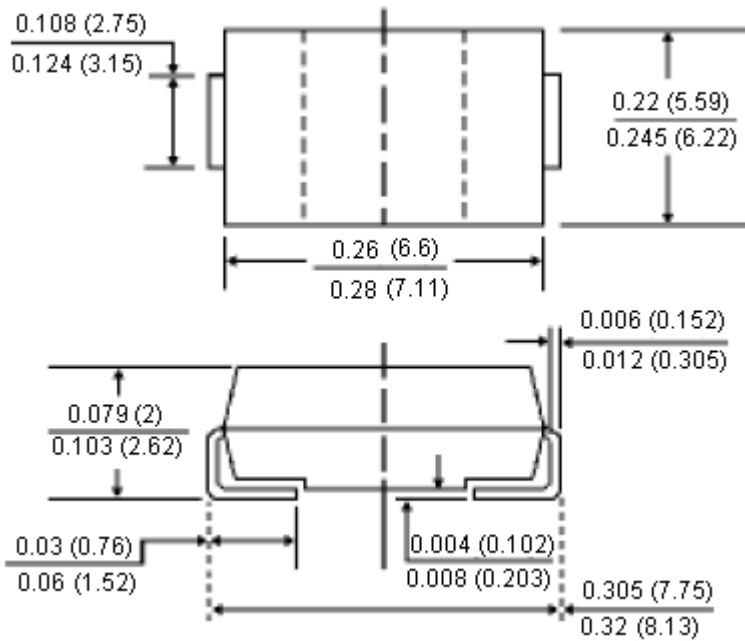
- Case : JEDEC DO-214AA moulded plastic over passivated junction (SMCJ)  
: JEDEC DO-214AB moulded plastic over passivated junction (SMBJ)
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Standard Packaging : 16 mm tape per (EIA 481) (SMCJ)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

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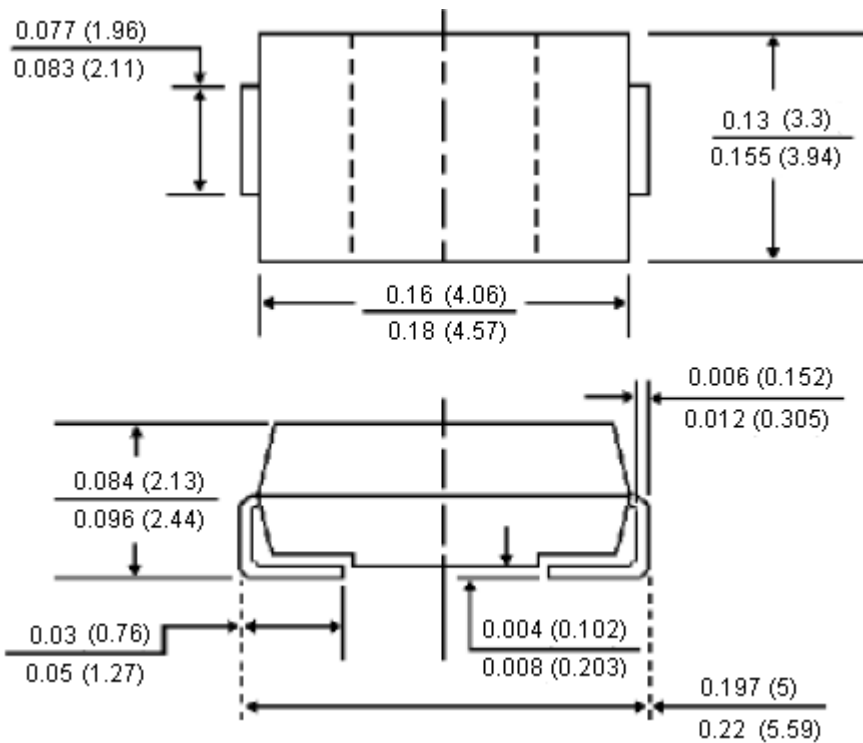
## Surface Mount Voltage Suppressors

### SMC/DO-214AB



Dimensions : Inches (Millimetres)

### SMB/DO-214AA



Dimensions : Inches (Millimetres)

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## Surface Mount Voltage Suppressors

### 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)	$P_{PPM}$	Minimum 600	Watts
Peak pulse current on 10 / 1,000 $\mu$ s waveform (Note 1 - Fig 3)	$I_{PPM}$	-	Amperes
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method - note 2 and 3)	$I_{FSM}$	100	Amperes
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	°C

#### Notes:

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

### Maximum Ratings and Characteristic Curves

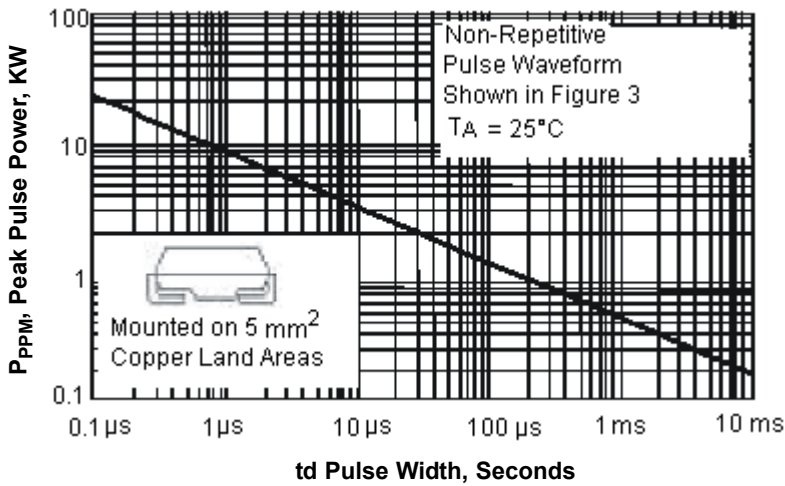


Fig. 1-Peak Pulse Power Rating Curve

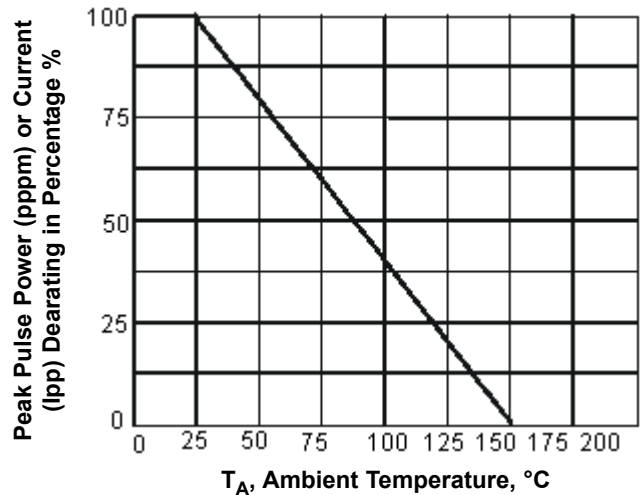


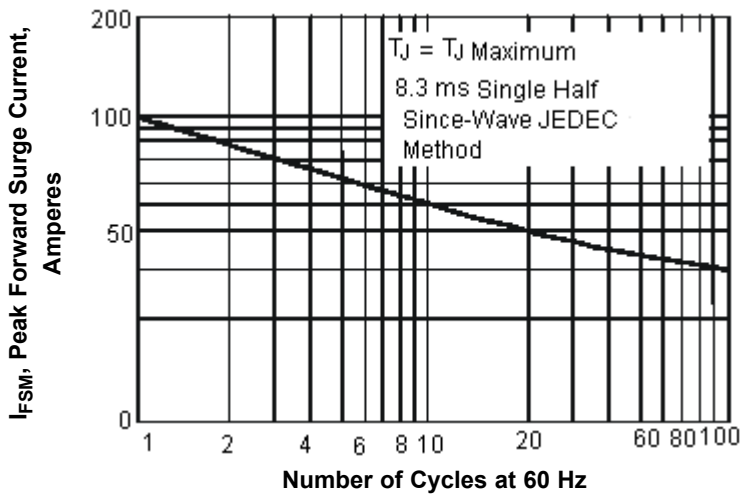
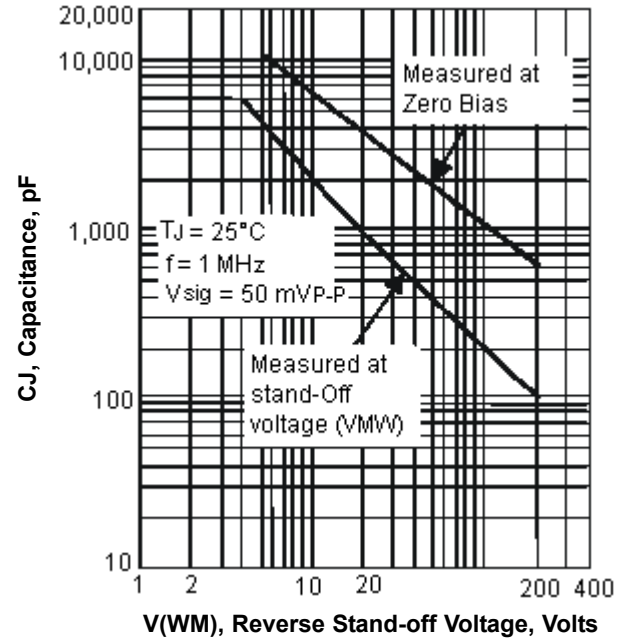
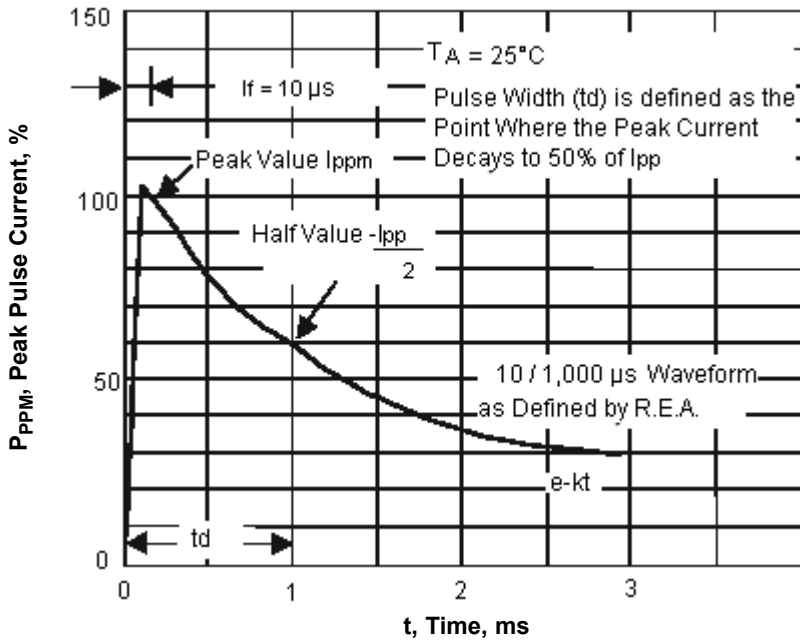
Fig. 2 Pulse Derating Curve

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## Surface Mount Voltage Suppressors

### Maximum Ratings and Characteristic Curves



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## Surface Mount Voltage Suppressors

### Uni-Directional 600 Watt Surface Mount TVS

Device Marking Code	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
KE	5	6.4	7.25	10	9.2	65.2	SMBJ5.0A
KP	7.5	8.33	9.58	1	12.9	46.5	SMBJ7.5A
LE	12	13.3	15.3		19.9	30.2	SMBJ12A
LM	15	16.7	19.2		24.4	24	SMBJ15A
LZ	24	26.7	30.7		38.9	15.4	SMBJ24A
MK	30	33.3	38.3		48.4	12.4	SMBJ30A

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

Device Marking Code	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
GDE	5	6.4	7.25	10	9.2	163	SMCJ5.0A
GDG	6	6.67	7.67		10.3	145.6	SMCJ6.0A
GDV	9	10	11.5	1	15.4	97.4	SMCJ9.0A
GEE	12	13.3	15.3		19.9	75.3	SMCJ12A
GEM	15	16.7	19.2		24.4	61.5	SMCJ15A
GEX	22	24.4	28		35.5	42.2	SMCJ22A
GFM	33	36.7	42.2		53.3	28.1	SMCJ33A
GFX	48	53.3	61.3		77.4	19.4	SMCJ48A

### Uni-Directional 600 Watt Surface Mount TVS

Device Marking Code	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
AE	5	6.4	7.25	10	9.2	65.2	SMBJ5.0CA
AP	7.5	8.33	9.58	1	12.9	46.5	SMBJ7.5CA
BE	12	13.3	15.3		19.9	30.2	SMBJ12CA
BM	15	16.7	19.2		24.4	24	SMBJ15CA
BZ	24	26.7	30.7		38.9	15.4	SMBJ24CA
CK	30	33.3	38.3		48.4	12.4	SMBJ30CA

# SMBJ / SMCJ Series

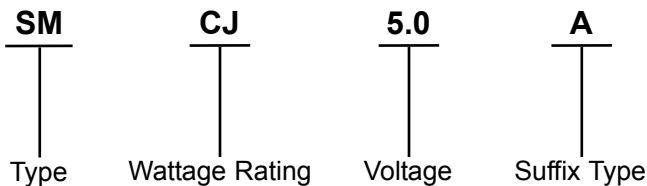


## Surface Mount Voltage Suppressors

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

Device Marking Code	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
BDE	5	6.4	7.25	10	9.2	163	SMCJ5.0CA
BDG	6	6.67	7.67		10.3	145.6	SMCJ6.0CA
BDV	9	10	11.5	1	15.4	97.4	SMCJ9.0CA
BEE	12	13.3	15.3		19.9	75.3	SMCJ12CA
BEM	15	16.7	19.2		24.4	61.5	SMCJ15CA
BEX	22	24.4	28		35.5	42.2	SMCJ22CA
BFM	33	36.7	42.2		53.3	28.1	SMCJ33CA
BFX	48	53.3	61.3		77.4	19.4	SMCJ48CA

### Part Number Explanation:



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

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