

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 μA above 10V
- 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 μs waveform (Note 1 and 2 - Fig 1)	P_{PPM}	Minimum 600	Watts
Peak pulse current on 10 / 1,000 μs 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	
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 $T_A = 25^\circ C$ per Fig. 2
2. Mounted on 8mm² copper pads to each terminal (SMCJ)
Mounted on 5mm² (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:

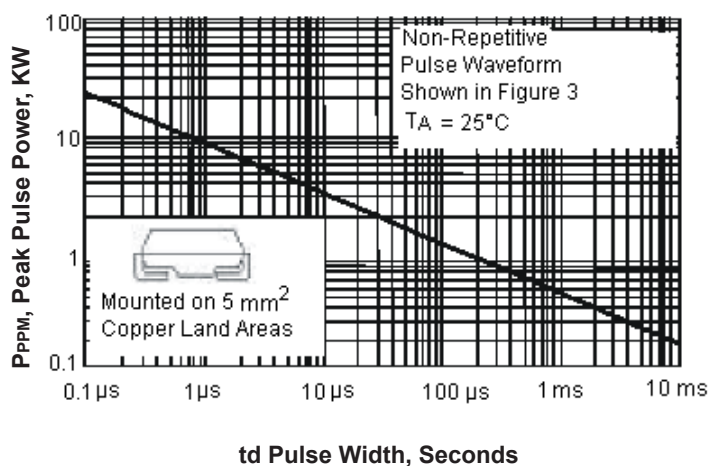


Fig. 1-Peak Pulse Power Rating Curve

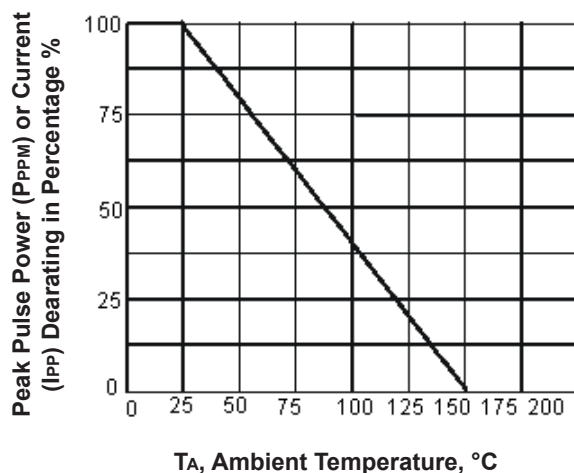


Fig. 2 Pulse Derating Curve

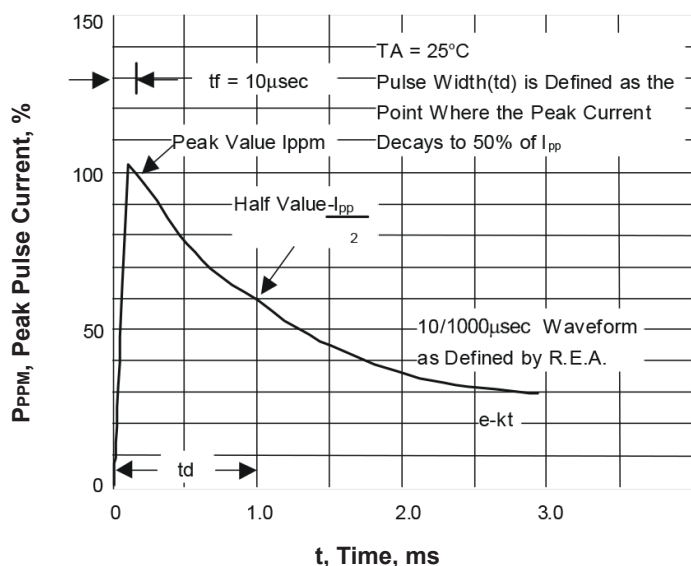


Fig. 3-Pulse Waveform

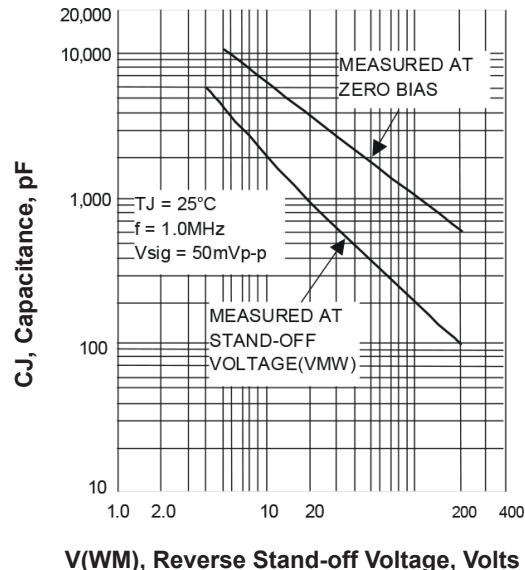


Fig. 4-Typical Junction Capacitance

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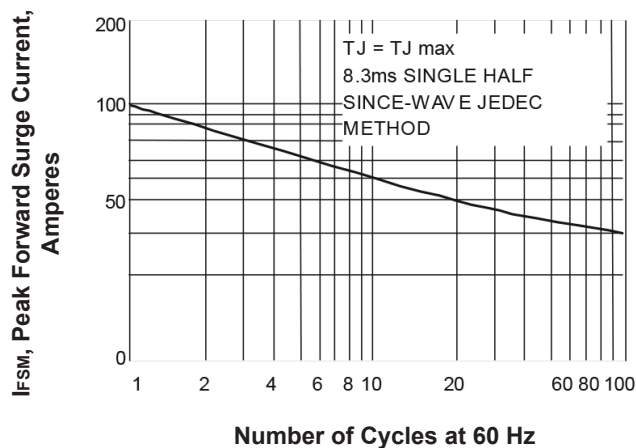
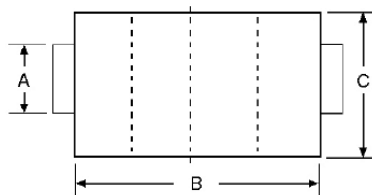


Fig. 5-Max. Non-Repetitive Peak Forward Surge Current

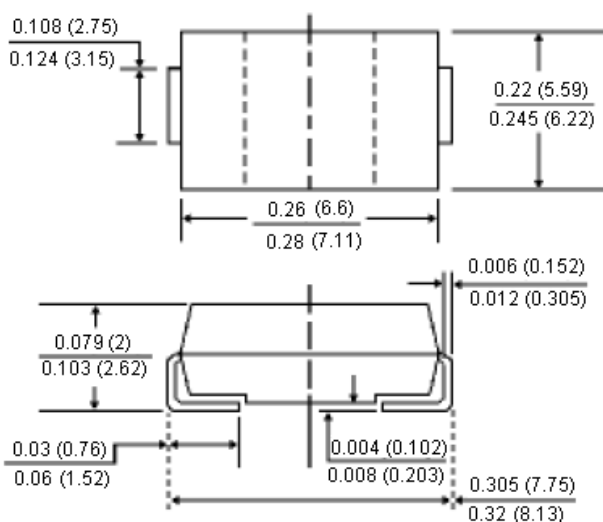
Dimension:



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



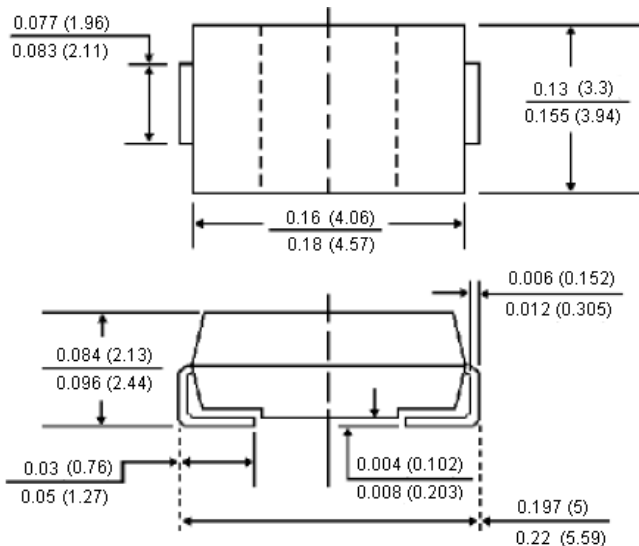
Dimensions : Inches (Millimetres)

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Surface Mount Voltage Suppressors



SMB/DO-214AA



Dimensions : Inches (Millimetres)

Uni-Directional 600 Watt Surface Mount TVS

Device Marking Code	Stand-off Voltage V_{rm} (V)	Breakdown Voltage V_{br} (V) Min. at IT	Breakdown Voltage V_{br} (V) Max. at IT	Test Current I_{test} (mA)	Max 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) Min. at IT	Breakdown Voltage V_{br} (V) Max. at IT	Test Current I_{test} (mA)	Max 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	1	10.3	145.6	SMCJ6.0A
GDV	9	10	11.5		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

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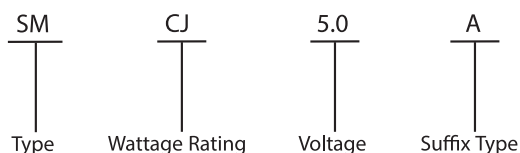
Bi-Directional 600 Watt Surface Mount TVS

Device Marking Code	Stand-off Voltage V_{rm} (V)	Breakdown Voltage V_{br} (V) Min. at IT	Breakdown Voltage V_{br} (V) Max. at IT	Test Current I_{test} (mA)	Max 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

Bi-Directional 1,500 Watt Surface Mount TVS

Device Marking Code	Stand-off Voltage V_{rm} (V)	Breakdown Voltage V_{br} (V) Min. at IT	Breakdown Voltage V_{br} (V) Max. at IT	Test Current I_{test} (mA)	Max 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	1	10.3	145.6	SMCJ6.0CA
BDV	9	10	11.5		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

Part Number Table

Description	Part Number
Bi-directional TVS Diode, 600W, 12V, DO-214AA	P6SMBJ12CA

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