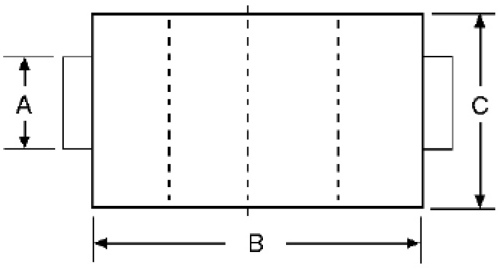
SMBJ / 1.5SMCJ Series
Surface Mount Voltage Suppressors

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% (1.5SMCJ)
  0.01% (SMBJ)
- Fast Response Time : Typically less than 1 ps from 0 volts to BV min.
- Typical I_D less than 1µA above 10V
- High Temperature Soldering : 250°C / 10 seconds (1.5SMCJ)
  260°C / 10 seconds (SMBJ)



Dimension Table:

Rating (W)	Type	Dimensions		
		A (mm)	B (mm)	C (mm)
600	SMBJ	2.11	4.57	3.94
1,500	1.5SMCJ	3.15	7.11	6.22

Mechanical Data

Case : JEDEC DO-214AB moulded plastic over passivated junction (SMBJ)
JEDEC DO-214AA moulded plastic over passivated junction (1.5SMCJ)

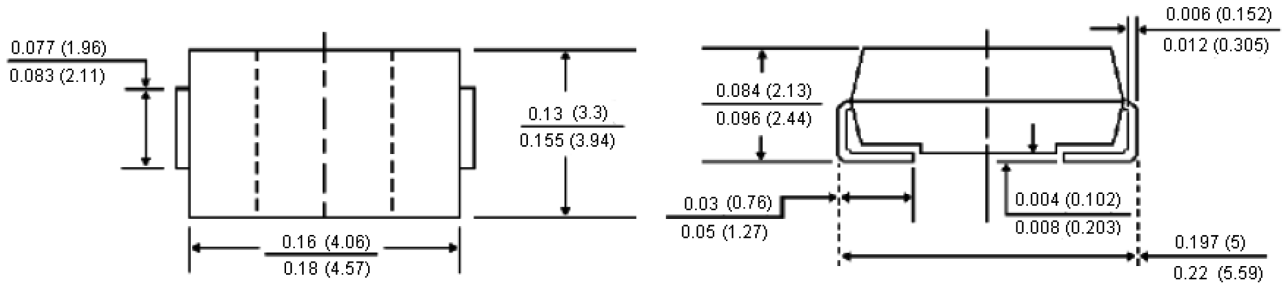
Terminals : Solder plated, solderable per MIL-STD-750, Method 2026

Polarity : Indicated by cathode band

Standard Packaging : 12 mm tape per (EIA 481) (SMBJ)
16 mm tape per (EIA 481) (1.5SMCJ)

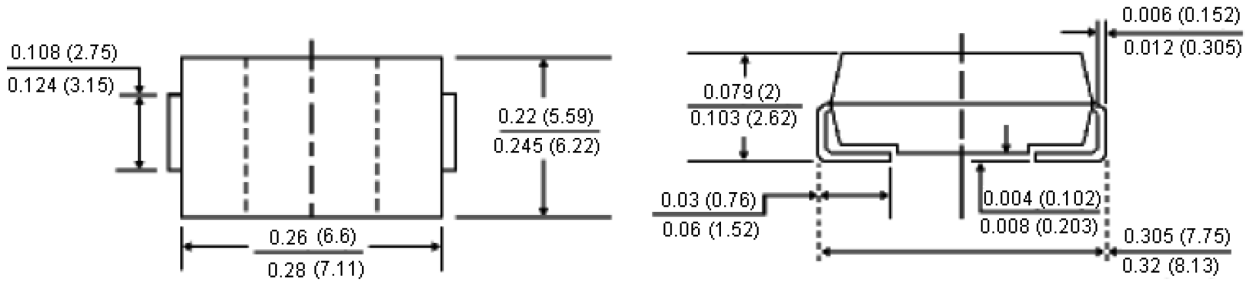
Weight : 0.003 ounce, 0.093 g (SMBJ)
0.007 ounce, 0.21 g (1.5SMCJ)

SMB/DO-214AA



Dimensions : Inches (Millimetres)

1.5SMC/DO-214AB



Dimensions : Inches (Millimetres)

Maximum Ratings and Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified

Rating	Symbol	Value	Units
Peak pulse power dissipation on 10 / 1,000µs waveform (Note 1 and 2 - Fig 1)	P_{PPM}	Minimum 600	Watts
Peak ulse current on 10 / 1,000µs 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°C per Fig. 2
2. Mounted on 8mm^2 copper pads to each terminal (1.5SMCJ)
Mounted on 5mm^2 (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

Maximum Ratings and Characteristic Curves

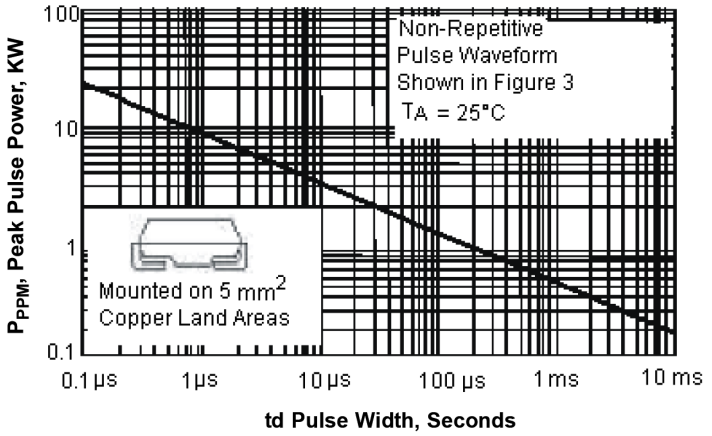


Fig. 1-Peak Pulse Power Rating Curve

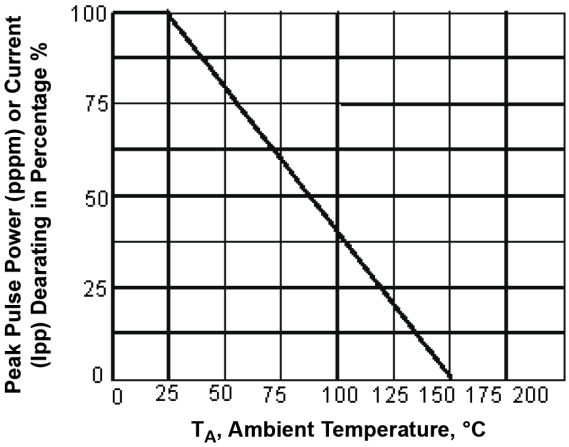


Fig. 2 Pulse Derating Curve

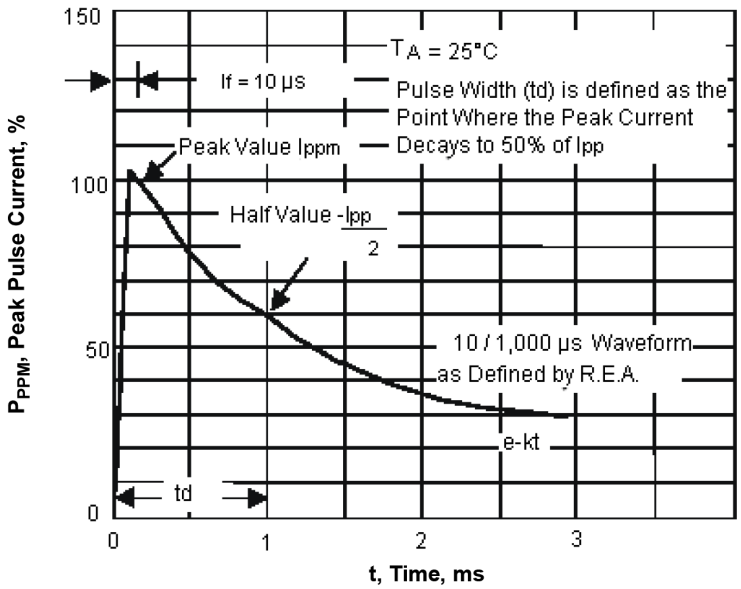


Fig. 3-Pulse Waveform

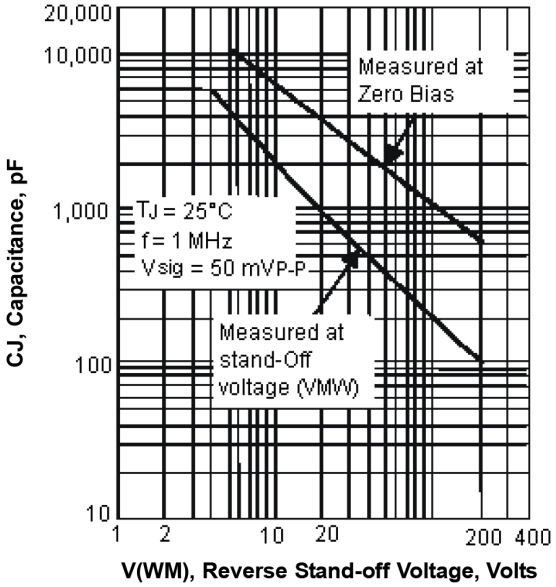


Fig. 4-Typical Junction Capacitance

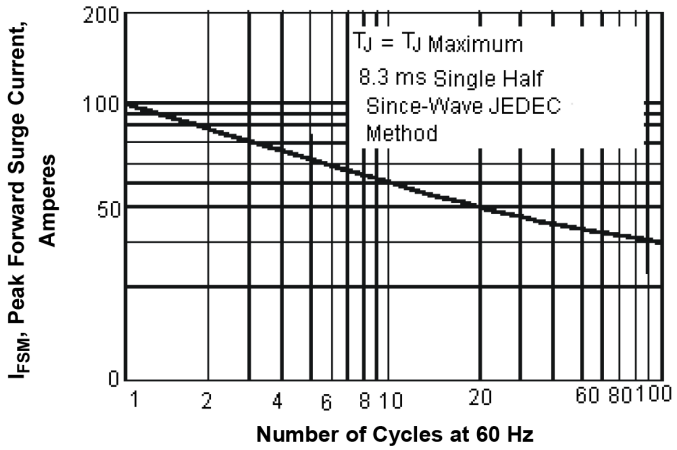


Fig. 5-Maximum Non-Repetitive Peak Forward Surge Current

Uni-Directional 600 Watt Surface Mount TVS

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	1.5SMCJ5.0A
GDG	6	6.67	7.67		10.3	145.6	1.5SMCJ6.0A
GDV	9	10	11.5	1	15.4	97.4	1.5SMCJ9.0A
GEE	12	13.3	15.3		19.9	75.3	1.5SMCJ12A
GEM	15	16.7	19.2		24.4	61.5	1.5SMCJ15A
GEX	22	24.4	28		35.5	42.2	1.5SMCJ22A
GFM	33	36.7	42.2		53.3	28.1	1.5SMCJ33A
GFX	48	53.3	61.3		77.4	19.4	1.5SMCJ48A

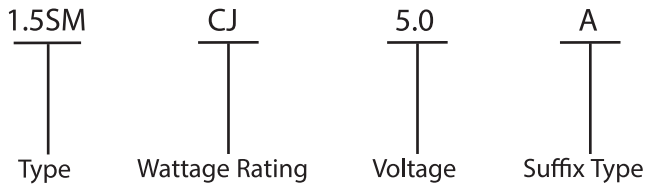
Uni-Directional 600 Watt Surface Mount TVS

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
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

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
BDE	5	6.4	7.25	10	9.2	163	1.5SMCJ5.0CA
BDG	6	6.67	7.67		10.3	145.6	1.5SMCJ6.0CA
BDV	9	10	11.5	1	15.4	97.4	1.5SMCJ9.0CA
BEE	12	13.3	15.3		19.9	75.3	1.5SMCJ12CA
BEM	15	16.7	19.2		24.4	61.5	1.5SMCJ15CA
BEX	22	24.4	28		35.5	42.2	1.5SMCJ22CA
BFM	33	36.7	42.2		53.3	28.1	1.5SMCJ33CA
BFX	48	53.3	61.3		77.4	19.4	1.5SMCJ48CA

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