

Unidirectional and Bidirectional Surface Mount Transient Voltage Suppressor



Features:

- Rating to 400V V_{BR}
- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL recognition 94V-0
- Typical IR less than 1 μ A above 10V
- Fast response time : typically less than 1ns for Uni-direction, less than 5ns of Bi-direction, from 0 Volts to BV min

Mechanical Data:

Case	: Molded Plastic
Polarity	: Cathode band denotes uni-directional device No cathode band denotes bi-directional device
Weight	: 0.002 ounces, 0.093 grams
Reverse Voltage	: 4 to 440 Volts
Power Dissipation	: 600 Watts

Maximum Ratings and Electrical Characteristics:

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%

Characteristics	Symbol	Values	Unit
Peak Power Dissipation at $T_A = 25^\circ\text{C}$ TP = 1ms (Note 1, 2)	P_{PK}	600	Watts
Peak Forward Surge Current 8.3ms Single Half Sine-Wave Super Imposed on Rated Load (JEDEC Method)	I_{FSM}	100	Amps
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$	$P_{M(AV)}$	5	Watts
Max. Instantaneous Forward Voltage at 50A for Uni-Directional Devices Only (Note 3)	V_F	3.5 / 5	Volts
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	20	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	100	
Typical Junction Capacitance (Note 4)	C_J	2000	pF
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}		

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25^\circ\text{C}$ per Fig. 1.
2. Thermal Resistance junction to Lead
3. $V_F < 3.5\text{V}$ for $V_{BR} \leq 200\text{V}$ and $V_F < 6.5\text{V}$ for $V_{BR} \geq 201\text{V}$
4. Measured at 1MHz and applied reverse voltage of 4V DC
5. The typical data above is for reference only

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Part Number		Marking		Reverse Stand off Voltage	Breakdown Voltage V_{BR} Volts @ I_T		Test Current I_T	Max. Clamping Voltage $V_C@I_{PP}$	Max. Peak Pulse Current	Max. Reverse Leakage at V_R
Uni.	Bi.	Uni.	Bi.	V_R (V)	Min. (V)	Max. (V)	@ I_T (mA)	V_C (V)	I_{PP} (A)	I_R (μ A)
-	SMBJ13CA+	-	BG	13	14.4	15.9	1	21.5	28	1
SMBJ58A+	-	NG	-	58	64.4	71.2	1	93.6	6.5	1
	SMBJ7.0CA+	-	AM	7	7.78	8.6	10	12	50	200

Note: For Bidirectional type having V_{RWM} of 10 volts and less, the I_R limit is double.

Ratings and Characteristic Curves

FIG.1-PULSE DERATING CURVE

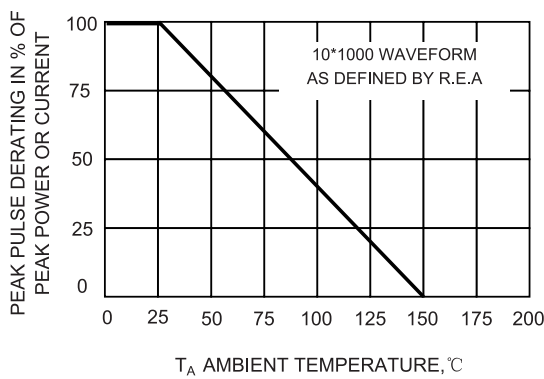


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

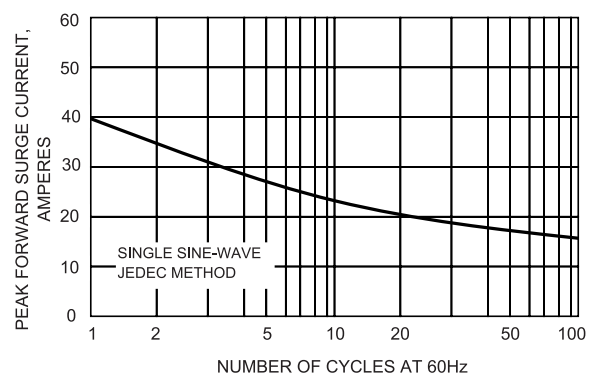


FIG.3-PULSE WAVEFORM

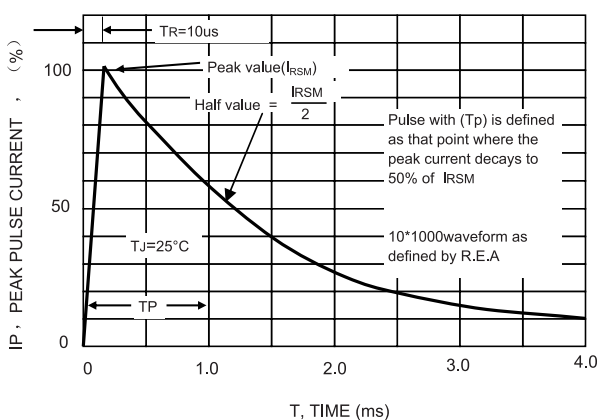
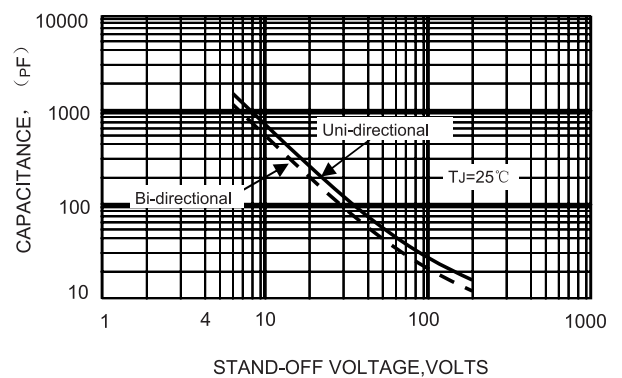


FIG.4-TYPICAL JUNCTION CAPACITANCE



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FIG.5-PULSE RATING CURVE

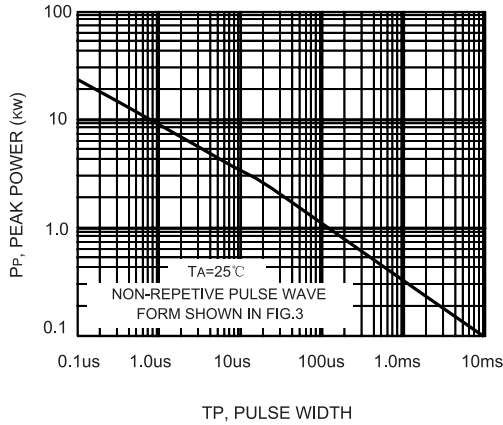
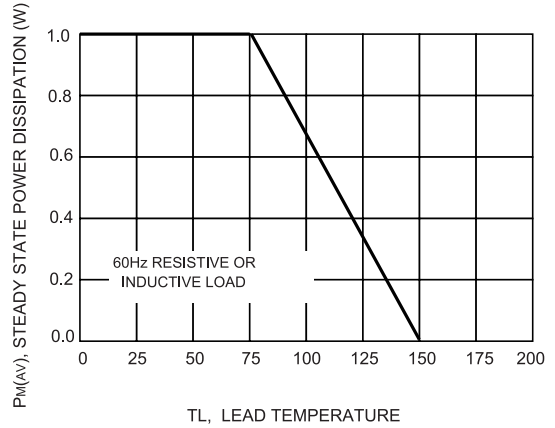
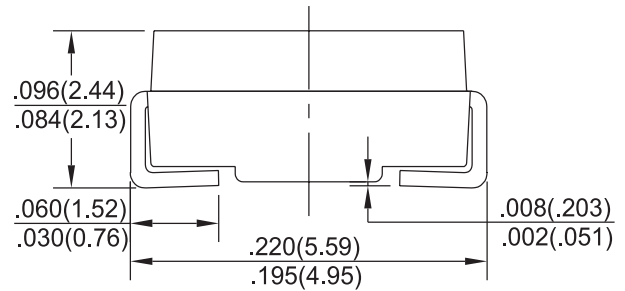
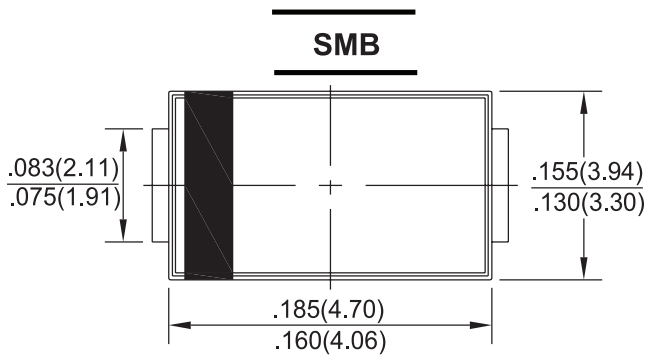


FIG.6-STEADY STATE POWER DERATING CURVE



Dimensions:



Dimensions : Inches (Millimetres)

Part Number Table

Description	Part Number
TVS - Diodes 600W 13V Bi-directional	SMBJ13CA+
Tvs - Diodes 600W 58V Unidirectional	SMBJ58A+
Tvs - Diodes 600W 7V Bi-Directional	SMBJ7.0CA+

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