

# SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Reverse Standoff Voltage: 5.0 to 600 V

Peak Pulse Power: 600 W

## FEATURES

- Uni-directional and Bi-directional versions available
- 5.0V to 600V reverse standoff voltages
- Glass passivated die construction
- 600W peak pulse power dissipation
- Excellent clamping capability
- Fast response time

## MECHANICAL DATA

- Case: SMB molded plastic body
- Terminals: solderable per MIL-STD 202, method 208
- Polarity indicator: cathode band (uni-directional only)
- Weight: 0.09 grams

## PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode



Simplified outline SMB symbol

## MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at  $T_A = 25^\circ\text{C}$  ambient temperature unless otherwise specified.

PARAMETER	SYMBOLS	VALUE	UNITS
Peak Pulse Power Dissipation (Non repetitive current pulse derated above $T_A=25^\circ\text{C}$ ) <sup>(NOTE 1)</sup>	$P_{PPM}$	600	W
Peak Forward Surge Current <sup>(Note 1,2,3)</sup>	$I_{FSM}$	100	A
Steady State Power Dissipation at $T_L=75^\circ\text{C}$	$P_{(AV)}$	5.0	W
Maximum Instantaneous Forward Voltage at $I_{PP}=50\text{A}$ (unidirectional only) <sup>(Note 1,2,3)</sup>	$V_{BR}<200\text{V}$ $V_{BR}\geq 200\text{V}$	3.5 5.0	V
Operating Junction Temperature Range	$T_J$	-55 to + 150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to + 175	$^\circ\text{C}$

**NOTE:** 1. Valid provided that terminals are kept at ambient temperature.

2. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.

3. Measured on 8.3ms single half sine-wave. For uni-directional devices only.

## ELECTRICAL CHARACTERISTICS

Ratings at  $T_A = 25^\circ\text{C}$  ambient temperature unless otherwise specified.

Type		Reverse Stand-off Voltage	Breakdown Voltage <sup>NOTE 2</sup>		Test Current	Reverse Leakage Current <sup>NOTE 3</sup>	Clamp Voltage Max.	Peak Pulse Current
(Uni)	(Bi) <sup>NOTE 1</sup>	$V_{RWM}$	$V_{(BR)}$		$I_T$	$I_R@V_{RWM}$	$V_C@I_{PP}$	$I_{PP}$
		V	Min(V)	Max(V)	mA	uA	V	A
RND SMBJ5A	RND SMBJ5CA	5	6.4	7	10	800	9.2	65.3
RND SMBJ6A	RND SMBJ6CA	6	6.67	7.37	10	800	10.3	58.3
RND SMBJ7.5A	RND SMBJ7.5CA	7.5	8.33	9.21	1	100	12.9	46.6
RND SMBJ8A	RND SMBJ8CA	8	8.89	9.83	1	50	13.6	44.2
RND SMBJ10A	RND SMBJ10CA	10	11.1	12.3	1	5	17	35.3
RND SMBJ11A	RND SMBJ11CA	11	12.2	13.5	1	5	18.2	33
RND SMBJ12A	RND SMBJ12CA	12	13.3	14.7	1	5	19.9	30.2
RND SMBJ13A	RND SMBJ13CA	13	14.4	15.9	1	5	21.5	28
RND SMBJ15A	RND SMBJ15CA	15	16.7	18.5	1	5	24.4	24.6
RND SMBJ16A	RND SMBJ16CA	16	17.8	19.7	1	5	26	23.1
RND SMBJ17A	RND SMBJ17CA	17	18.9	20.9	1	5	27.6	21.8
RND SMBJ18A	RND SMBJ18CA	18	20	22.1	1	5	29.2	20.6
RND SMBJ20A	RND SMBJ20CA	20	22.2	24.5	1	5	32.4	18.6
RND SMBJ22A	RND SMBJ22CA	22	24.4	26.9	1	5	35.5	16.9
RND SMBJ24A	RND SMBJ24CA	24	26.7	29.5	1	5	38.9	15.5
RND SMBJ26A	RND SMBJ26CA	26	28.9	31.9	1	5	42.1	14.3
RND SMBJ28A	RND SMBJ28CA	28	31.1	34.4	1	5	45.4	13.3
RND SMBJ30A	RND SMBJ30CA	30	33.3	36.8	1	5	48.4	12.4
RND SMBJ33A	RND SMBJ33CA	33	36.7	40.6	1	5	53.3	11.3
RND SMBJ36A	RND SMBJ36CA	36	40	44.2	1	5	58.1	10.4
RND SMBJ40A	RND SMBJ40CA	40	44.4	49.1	1	5	64.5	9.3
RND SMBJ43A	RND SMBJ43CA	43	47.8	52.8	1	5	69.4	8.7

Type		Reverse Stand-off Voltage	Breakdown Voltage <sup>NOTE 2</sup>		Test Current	Reverse Leakage Current <sup>NOTE 3</sup>	Clamp Voltage Max.	Peak Pulse Current
(Uni)	(Bi) <sup>NOTE 1</sup>	V <sub>RWM</sub>	V <sub>(BR)</sub>		I <sub>T</sub>	I <sub>R</sub> @ V <sub>RWM</sub>	V <sub>C</sub> @ I <sub>PP</sub>	I <sub>PP</sub>
		V	Min(V)	Max(V)	mA	uA	V	A
RND SMBJ48A	RND SMBJ48CA	48	53.3	58.9	1	5	77.4	7.8
RND SMBJ51A	RND SMBJ51CA	51	56.7	62.7	1	5	82.4	7.3
RND SMBJ54A	RND SMBJ54CA	54	60	66.3	1	5	87.1	6.9
RND SMBJ58A	RND SMBJ58CA	58	64.4	71.2	1	5	93.6	6.5
RND SMBJ60A	RND SMBJ60CA	60	66.7	73.7	1	5	96.8	6.2
RND SMBJ64A	RND SMBJ64CA	64	71.1	78.6	1	5	103	5.9
RND SMBJ78A	RND SMBJ78CA	78	86.7	95.8	1	5	126	4.8
RND SMBJ85A	RND SMBJ85CA	85	94.4	104	1	5	137	4.4
RND SMBJ90A	RND SMBJ90CA	90	100	111	1	5	146	4.1
RND SMBJ100A	RND SMBJ100CA	100	111	123	1	5	162	3.7
RND SMBJ110A	RND SMBJ110CA	110	122	135	1	5	177	3.4
RND SMBJ120A	RND SMBJ120CA	120	133	147	1	5	193	3.1
RND SMBJ150A	RND SMBJ150CA	150	167	185	1	5	243	2.5
RND SMBJ160A	RND SMBJ160CA	160	178	197	1	5	259	2.3

**NOTES:** 1 Suffix "C" denotes Bi-directional device.

2 V<sub>(BR)</sub> measured with I<sub>T</sub> current pulse = 300s

3. For Bi-Directional devices having V<sub>RWM</sub> of 10V and under, the I<sub>R</sub> is doubled

## RATINGS AND CHARACTERISTIC CURVES

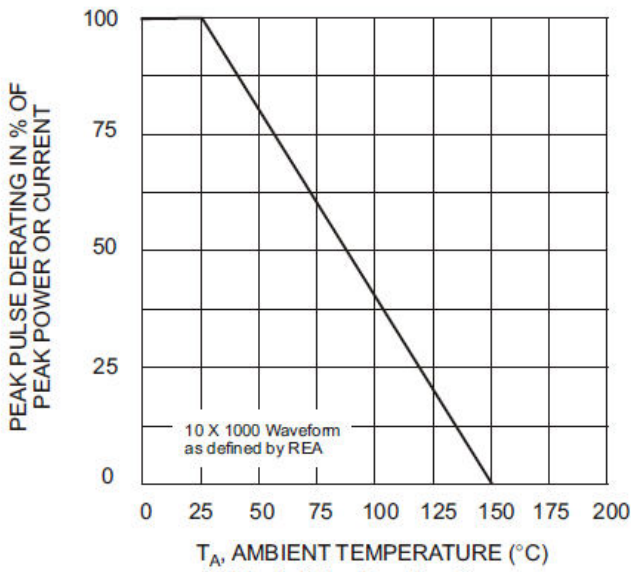


Fig. 1 Pulse Derating Curve

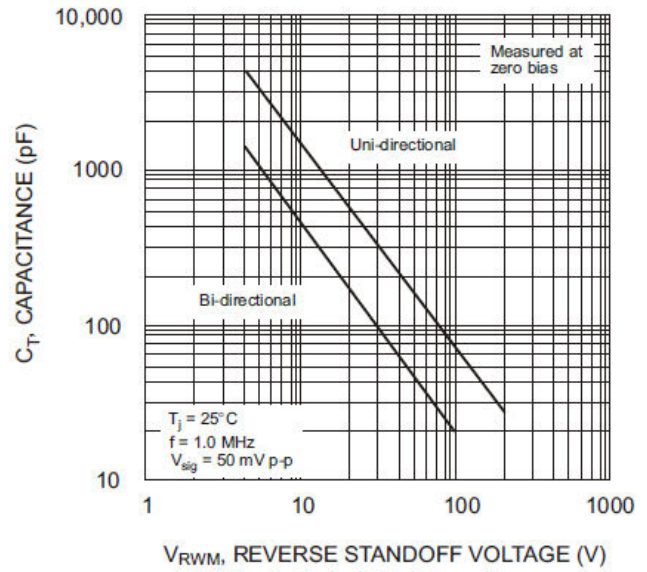


Fig. 2 Typical Total Capacitance

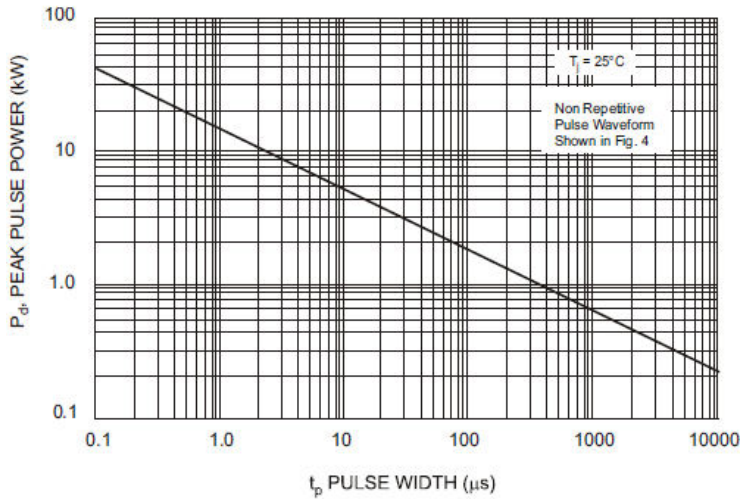


Fig. 3 Pulse Rating Curve

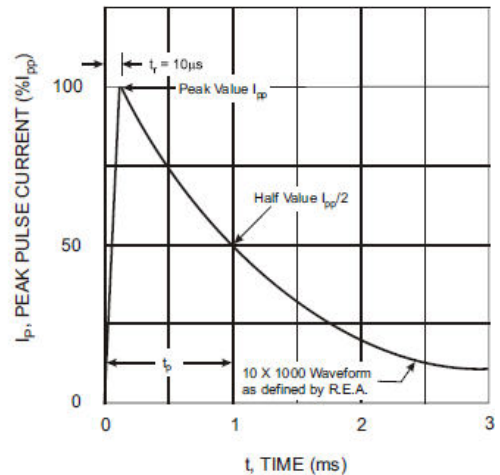


Fig. 4 Pulse Waveform

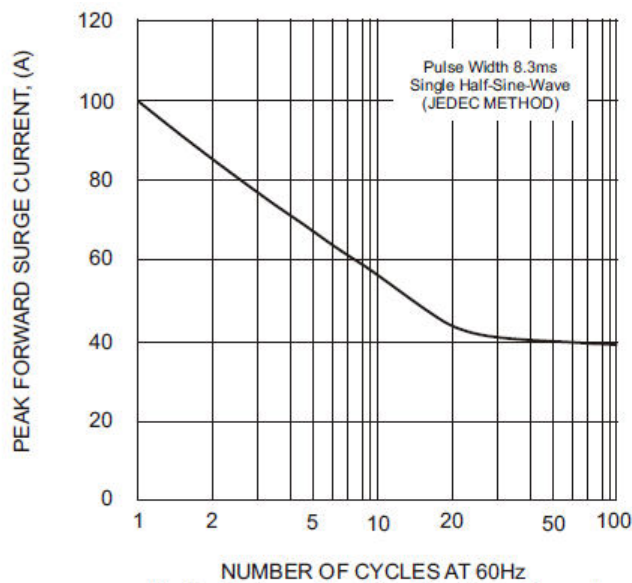


Fig. 5, Maximum Non-Repetitive Surge Current

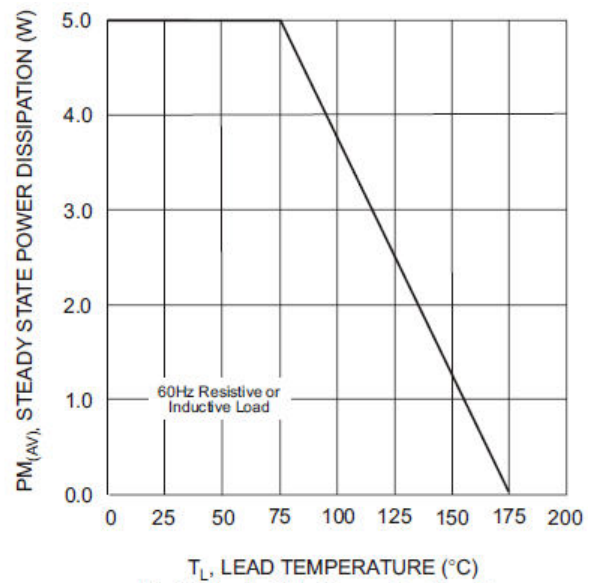
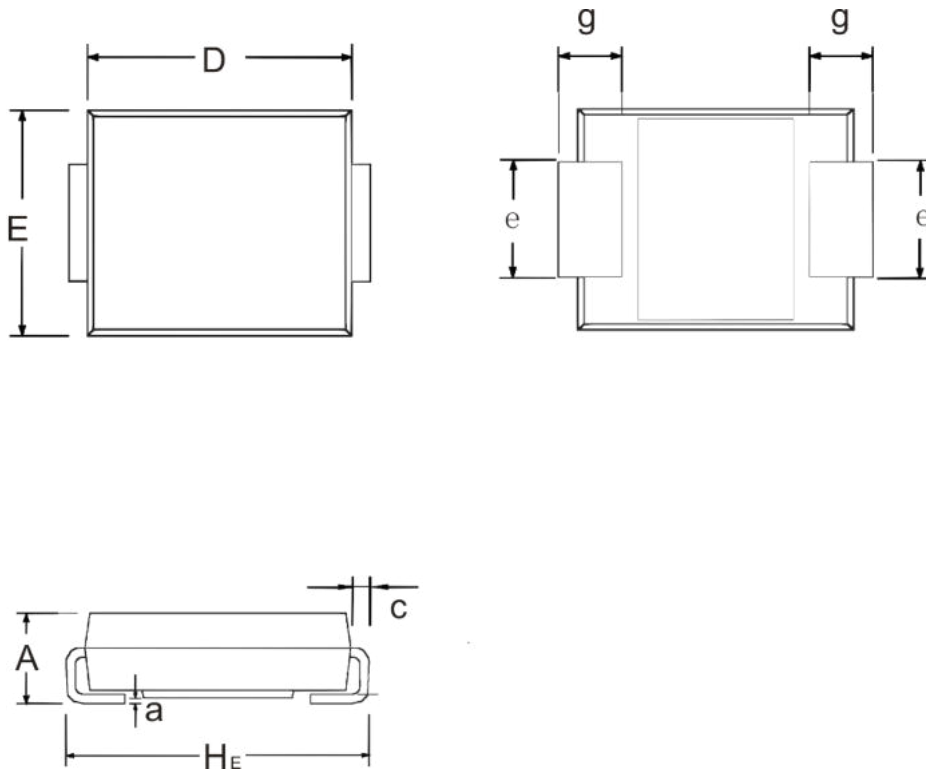


Fig. 6 Steady State Power Derating Curve

**PACKAGE OUTLINE**



SMB Dimensions Data

UNIT		A	D	E	H <sub>E</sub>	a	c	e	g
mm	max	2.45	4.65	3.94	5.59	0.203	0.305	2.20	1.52
	min	2.05	4.05	3.30	5.21	-	0.152	1.80	0.76
mil	max	96	183	155	220	8	12	86	60
	min	81	160	130	205	-	6	71	30

**ORDERING INFORMATION**

Device	Package	Shipping
SMBJ SERIES	SMB	3,000/ Tape & Reel (13 inches)