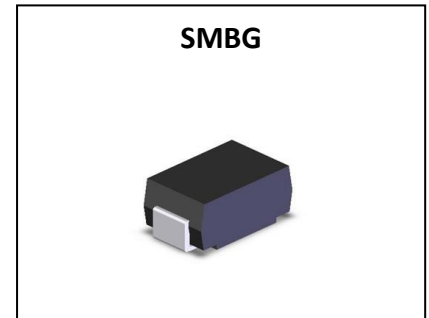


Feature

- Glass passivated chip
- 1000W peak pulse power capability with a 10/1000us waveform
- Repetitive rate (duty cycle): 0.01%
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- Lead and body according with Rohs standard
- Complies with following standards:
 - IEC 61000-4-2(ESD) immunity test level 4
 - Air discharge : $\pm 15\text{kV}$
 - Contact discharge: $\pm 8\text{kV}$



Mechanical Data

- Case: SMB/DO214AA Molded plastic
- Lead: Solderable per MIL-STD-750, method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

Marking

- 1.0SMB
XXCA/XXA
XX: From 6.8 To 530

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 us waveform	P_{PP}	1000	W
Peak pulse current with a 10/1000 us waveform	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	5.0	W
Peak forward surge current, 8.3 ms single half sinewave unidirectional only ¹⁾	I_{FSM}	100	A
Maximum instantaneous forward voltage at 50A for unidirectional only ²⁾	V_F	3.5/6.5	V
Thermal resistance	$R_{\theta JL}$	20	$^\circ\text{C/W}$
	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Junction Temperature	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

(1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25^\circ\text{C}$ per Fig.2.

(2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal

(3) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 6.5\text{V}$ for devices of $V_{BR} > 201\text{V}$

Electrical Characteristics (T_a=25°C unless otherwise specified)

Part Number	Part Number	Reverse Stand-off Voltage VR (V)	Breakdown Voltage VBR (Volts) @ IT		Test Current IT (mA)	Maximum Clamping Voltage VC @ IPP (Volts)	Maximum Peak Pulse Current IPP (A)	Maximum Reverse Leakage IR @ VR (μA)
			MIN	MAX				
1.0SMB6.8A	1.0SMB6.8CA	5.8	6.45	7.14	10	10.5	97.50	1000
1.0SMB7.5A	1.0SMB7.5CA	6.4	7.13	7.88	10	11.3	90.75	500
1.0SMB8.2A	1.0SMB8.2CA	7.0	7.79	8.61	10	12.1	84.75	200
1.0SMB9.1A	1.0SMB9.1CA	7.8	8.65	9.55	1	13.4	76.75	50
1.0SMB10A	1.0SMB10CA	8.6	9.50	10.50	1	14.5	70.75	10
1.0SMB11A	1.0SMB11CA	9.4	10.50	11.60	1	15.6	65.75	5
1.0SMB12A	1.0SMB12CA	10.2	11.40	12.60	1	16.7	61.50	5
1.0SMB13A	1.0SMB13CA	11.1	12.40	13.70	1	18.2	56.25	1
1.0SMB15A	1.0SMB15CA	12.8	14.30	15.80	1	21.2	48.25	1
1.0SMB16A	1.0SMB16CA	13.6	15.20	16.80	1	22.5	45.50	1
1.0SMB18A	1.0SMB18CA	15.3	17.10	18.90	1	25.5	40.25	1
1.0SMB20A	1.0SMB20CA	17.1	19.00	21.00	1	27.7	37.00	1
1.0SMB22A	1.0SMB22CA	18.8	20.90	23.10	1	30.6	33.50	1
1.0SMB24A	1.0SMB24CA	20.5	22.80	25.20	1	33.2	30.75	1
1.0SMB27A	1.0SMB27CA	23.1	25.70	28.40	1	37.5	27.25	1
1.0SMB30A	1.0SMB30CA	25.6	28.50	31.50	1	41.4	24.75	1
1.0SMB33A	1.0SMB33CA	28.2	31.40	34.70	1	45.7	22.50	1
1.0SMB36A	1.0SMB36CA	30.8	34.20	37.80	1	49.9	20.50	1
1.0SMB39A	1.0SMB39CA	33.3	37.10	41.00	1	53.9	19.00	1
1.0SMB43A	1.0SMB43CA	36.8	40.90	45.20	1	59.3	17.25	1
1.0SMB47A	1.0SMB47CA	40.2	44.70	49.40	1	64.8	15.75	1
1.0SMB51A	1.0SMB51CA	43.6	48.50	53.60	1	70.1	14.50	1
1.0SMB56A	1.0SMB56CA	47.8	53.20	58.80	1	77.0	13.25	1
1.0SMB62A	1.0SMB62CA	53.0	58.90	65.10	1	85.0	12.00	1
1.0SMB68A	1.0SMB69CA	58.1	64.60	71.40	1	92.0	11.25	1
1.0SMB75A	1.0SMB75CA	64.1	71.30	78.80	1	103.0	10.00	1
1.0SMB82A	1.0SMB82CA	70.1	77.90	86.10	1	113.0	9.00	1
1.0SMB91A	1.0SMB91CA	77.8	86.50	95.50	1	125.0	8.25	1
1.0SMB100A	1.0SMB100CA	85.5	95.0	105.0	1	137.0	7.50	1
1.0SMB110A	1.0SMB110CA	94.0	105.0	116.0	1	152.0	6.75	1
1.0SMB120A	1.0SMB120CA	102	114.0	126.0	1	165.0	6.25	1
1.0SMB130A	1.0SMB130CA	111	124.0	137.0	1	179.0	5.75	1
1.0SMB150A	1.0SMB150CA	128	143.0	158.0	1	207.0	5.00	1
1.0SMB160A	1.0SMB160CA	136	152.0	168.0	1	219.0	4.75	1
1.0SMB170A	1.0SMB170CA	145	162.0	179.0	1	234.0	4.50	1
1.0SMB180A	1.0SMB180CA	154	171.0	189.0	1	246.0	4.25	1
1.0SMB200A	1.0SMB200CA	171	190.0	210.0	1	274.0	3.75	1
1.0SMB220A	1.0SMB220CA	185	209.0	231.0	1	328.0	3.25	1
1.0SMB250A	1.0SMB250CA	214	237.0	263.0	1	344.0	3.00	1

Electrical Characteristics (T_a=25°C unless otherwise specified)

Part Number	Part Number	Reverse Stand-off Voltage VR (V)	Breakdown Voltage VBR (Volts) @ IT		Test Current IT (mA)	Maximum Clamping Voltage VC @ IPP (Volts)	Maximum Peak Pulse Current IPP (A)	Maximum Reverse Leakage IR @ VR (μA)
			MIN	MAX				
UNI	BI							
1.0SMB300A	1.0SMB300CA	256	285.0	315.0	1	414.0	2.50	1
1.0SMB350A	1.0SMB350CA	300	332.0	368.0	1	482.0	2.25	1
1.0SMB400A	1.0SMB400CA	342	380.0	420.0	1	548.0	2.00	1
1.0SMB440A	1.0SMB440CA	376	418.0	462.0	1	602.0	1.75	1
1.0SMB480A	1.0SMB480CA	408	456.0	504.0	1	658.0	1.50	1
1.0SMB510A	1.0SMB510CA	434	485.0	535.0	1	698.0	1.50	1
1.0SMB530A	1.0SMB530CA	450	503.0	556.0	1	725.0	1.50	1

Typical Characteristics

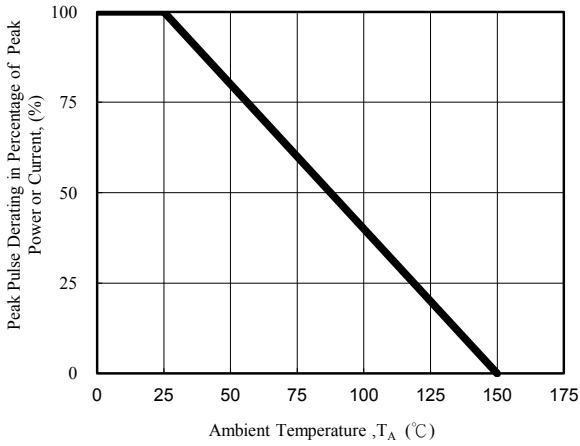


Fig. 1 - Pulse Derating Curve

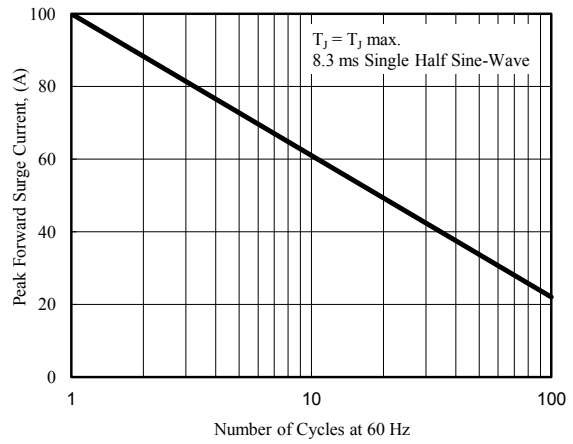


Fig. 2 - Maximum Non-Repetitive Surge Current

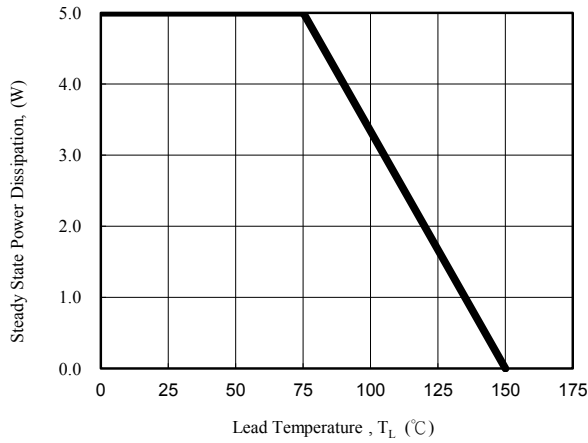


Fig. 3 - Steady State Power Derating Curve

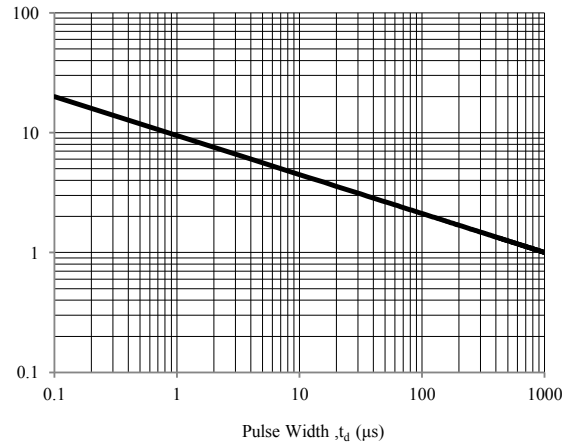


Fig. 4 - Peak Pulse Power Rating Curve

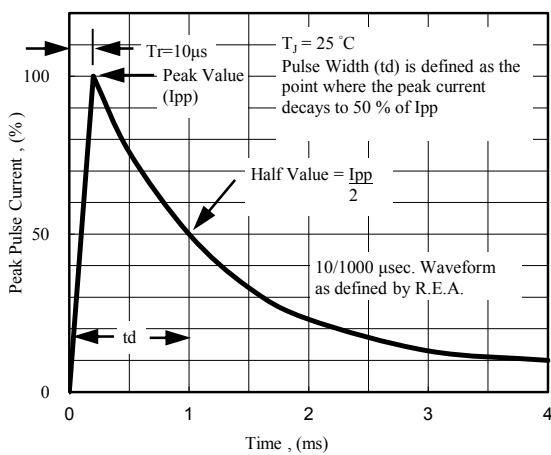


Fig. 5 - Pulse Waveform

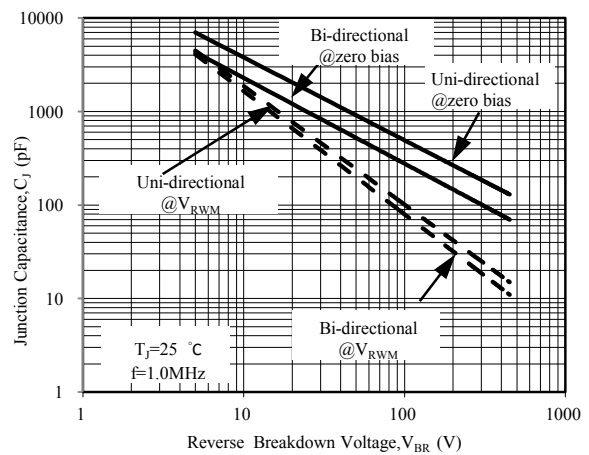
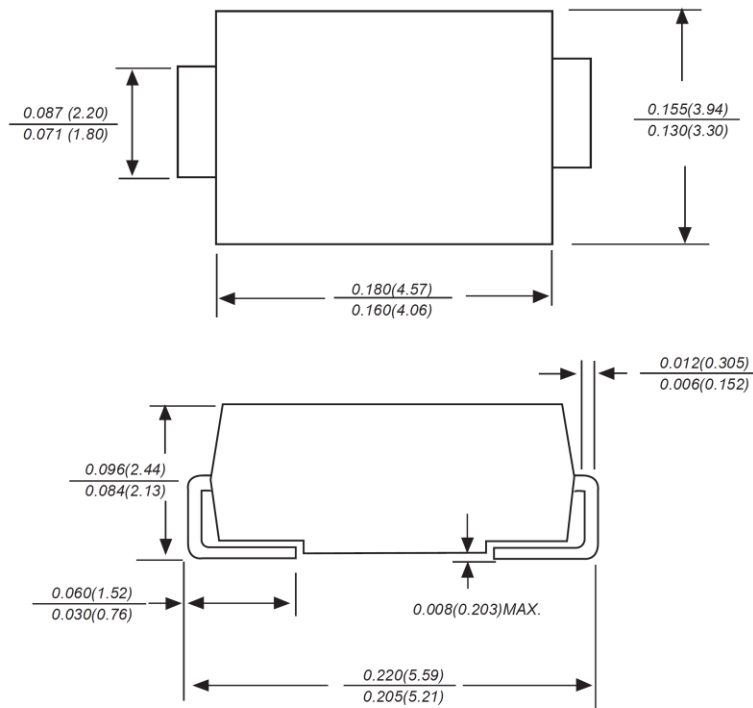


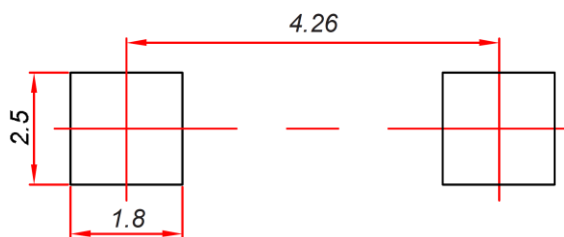
Fig. 6 - Typical Junction Capacitance

SMBG Package Outline Dimensions



Dimensions in inches and (millimeters)

SMBG Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05mm$.
3. The pad layout is for reference purposes only.