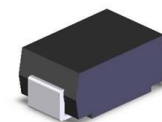


Feature

- Glass passivated chip
- 600W 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: $\pm 8\text{kV}$

SMBG



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

- SMBJ
XXCA/XXA
XX: From 5.0 To 440

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}	600	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 25A for unidirectional only ²⁾	V_F	3.5/5.0	V
Thermal resistance	$R_{\theta JL}$	20	$^\circ\text{C}/\text{W}$
	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

- 1) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum;
- 2) $V_F < 3.5\text{V}$ 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)
UNI	BI		MIN	MAX				
SMBJ5.0A	SMBJ5.0CA	5	6.4	7	10	9.2	65.2	800
SMBJ6.0A	SMBJ6.0CA	6	6.67	7.37	10	10.3	58.3	800
SMBJ6.5A	SMBJ6.5CA	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0A	SMBJ7.0CA	7	7.78	8.6	10	12	50.0	200
SMBJ7.5A	SMBJ7.5CA	7.5	8.33	9.21	1	12.9	46.5	100
SMBJ8.0A	SMBJ8.0CA	8	8.89	9.83	1	13.6	44.1	50
SMBJ8.5A	SMBJ8.5CA	8.5	9.44	10.4	1	14.4	41.7	20
SMBJ9.0A	SMBJ9.0CA	9	10	11.1	1	15.4	39.0	10
SMBJ10A	SMBJ10CA	10	11.1	12.3	1	17	35.3	5
SMBJ11A	SMBJ11CA	11	12.2	13.5	1	18.2	33.0	5
SMBJ12A	SMBJ12CA	12	13.3	14.7	1	19.9	30.2	5
SMBJ13A	SMBJ13CA	13	14.4	15.9	1	21.5	27.9	5
SMBJ14A	SMBJ14CA	14	15.6	17.2	1	23.2	25.9	5
SMBJ15A	SMBJ15CA	15	16.7	18.5	1	24.4	24.6	5
SMBJ16A	SMBJ16CA	16	17.8	19.7	1	26	23.1	5
SMBJ17A	SMBJ17CA	17	18.9	20.9	1	27.6	21.8	5
SMBJ18A	SMBJ18CA	18	20	22.1	1	29.2	20.6	5
SMBJ20A	SMBJ20CA	20	22.2	24.5	1	32.4	18.6	5
SMBJ22A	SMBJ22CA	22	24.4	26.9	1	35.5	16.9	5
SMBJ24A	SMBJ24CA	24	26.7	29.5	1	38.9	15.4	5
SMBJ26A	SMBJ26CA	26	28.9	31.9	1	42.1	14.3	5
SMBJ28A	SMBJ28CA	28	31.1	34.4	1	45.4	13.2	5
SMBJ30A	SMBJ30CA	30	33.3	36.8	1	48.4	12.4	5
SMBJ33A	SMBJ33CA	33	36.7	40.6	1	53.3	11.3	5
SMBJ36A	SMBJ36CA	36	40	44.2	1	58.1	10.4	5
SMBJ40A	SMBJ40CA	39	44.4	49.1	1	64.5	9.3	5
SMBJ43A	SMBJ43CA	42	47.8	52.8	1	69.4	8.7	5
SMBJ45A	SMBJ45CA	45	50	55.3	1	72.7	8.3	5
SMBJ48A	SMBJ48CA	48	53.3	58.9	1	77.4	7.8	5
SMBJ51A	SMBJ51CA	51	56.7	62.7	1	82.4	7.3	5
SMBJ54A	SMBJ54CA	54	60	66.3	1	87.1	6.9	5
SMBJ58A	SMBJ58CA	58	64.4	71.2	1	93.6	6.4	5
SMBJ60A	SMBJ60CA	62	66.7	73.7	1	96.8	6.2	5
SMBJ64A	SMBJ64CA	66	71.1	78.6	1	103	5.8	5
SMBJ70A	SMBJ70CA	70	77.8	86	1	113	5.3	5
SMBJ75A	SMBJ75CA	75	83.3	92.1	1	121	5.0	5
SMBJ78A	SMBJ78CA	78	86.7	95.8	1	126	4.8	5
SMBJ85A	SMBJ85CA	85	94.4	104	1	137	4.4	5
SMBJ90A	SMBJ90CA	90	100	111	1	146	4.1	5

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				
SMBJ100A	SMBJ100CA	100	111	123	1	162	3.7	5
SMBJ110A	SMBJ110CA	110	122	135	1	177	3.4	5
SMBJ120A	SMBJ120CA	120	133	147	1	193	3.1	5
SMBJ130A	SMBJ130CA	130	144	159	1	209	2.9	5
SMBJ150A	SMBJ150CA	150	167	185	1	243	2.5	5
SMBJ160A	SMBJ160CA	160	178	197	1	259	2.3	5
SMBJ170A	SMBJ170CA	170	189	209	1	275	2.2	5
SMBJ180A	SMBJ180CA	180	201	222	1	292	2.1	5
SMBJ190A	SMBJ190CA	190	211	233	1	306	2.0	5
SMBJ200A	SMBJ200CA	200	224	247	1	324	1.9	5
SMBJ210A	SMBJ210CA	210	233	258	1	324	1.8	5
SMBJ220A	SMBJ220CA	220	246	272	1	356	1.7	5
SMBJ250A	SMBJ250CA	250	279	309	1	405	1.5	5
SMBJ300A	SMBJ300CA	300	335	371	1	486	1.3	5
SMBJ350A	SMBJ350CA	350	391	432	1	567	1.1	5
SMBJ400A	SMBJ400CA	400	447	494	1	648	0.9	5
SMBJ440A	SMBJ440CA	440	492	543	1	713	0.8	5

Notes:

- (1) $t_p \leq 50\text{ms}$ Pulse test: $t_p \leq 50\text{ms}$
- (2) Surge current waveform per Fig. 3 and derated per Fig.2.
- (3) For bi-directional types having VWM of 10 V and less, the I_R limit is doubled
- (4) For the bi-directional SMBJ5.0CA, the maximum V_{BR} is 7.25 V

Typical Characteristics

FIG1: Peak Pulse Power Rating Curve

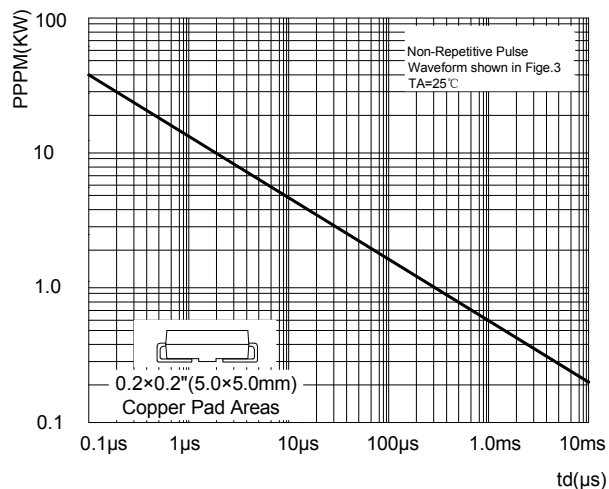


FIG2: Pulse Power or Current vs. Initial Junction Temperature

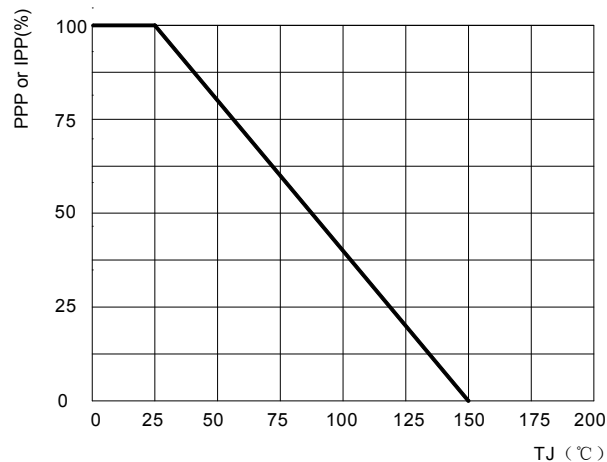


FIG3: Pulse Waveform

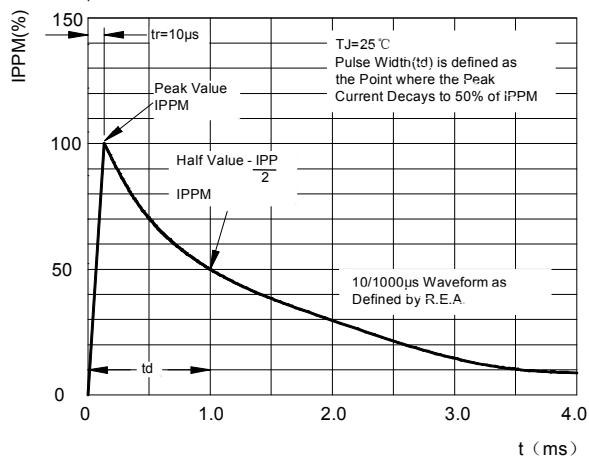


FIG4: Typical Transient Thermal Impedance

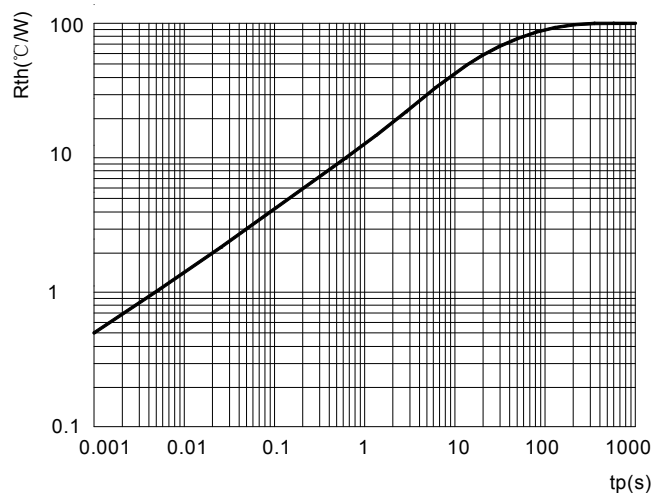


FIG5: Maximum Non-Repetitive Surge Current

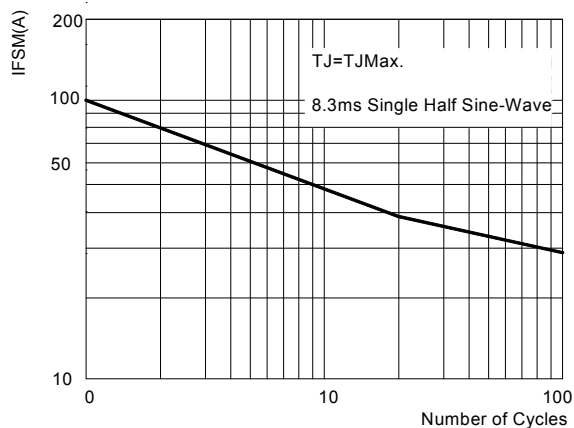
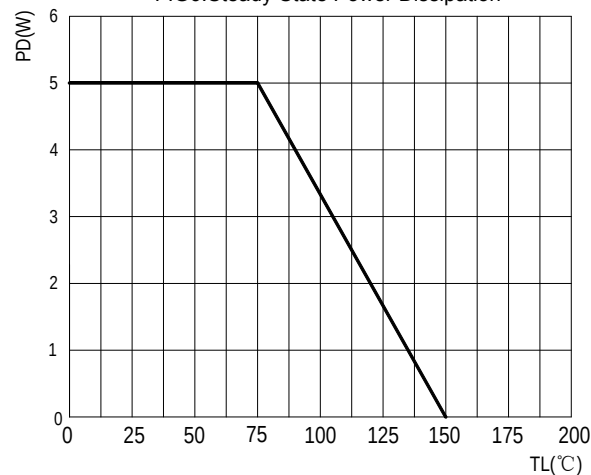
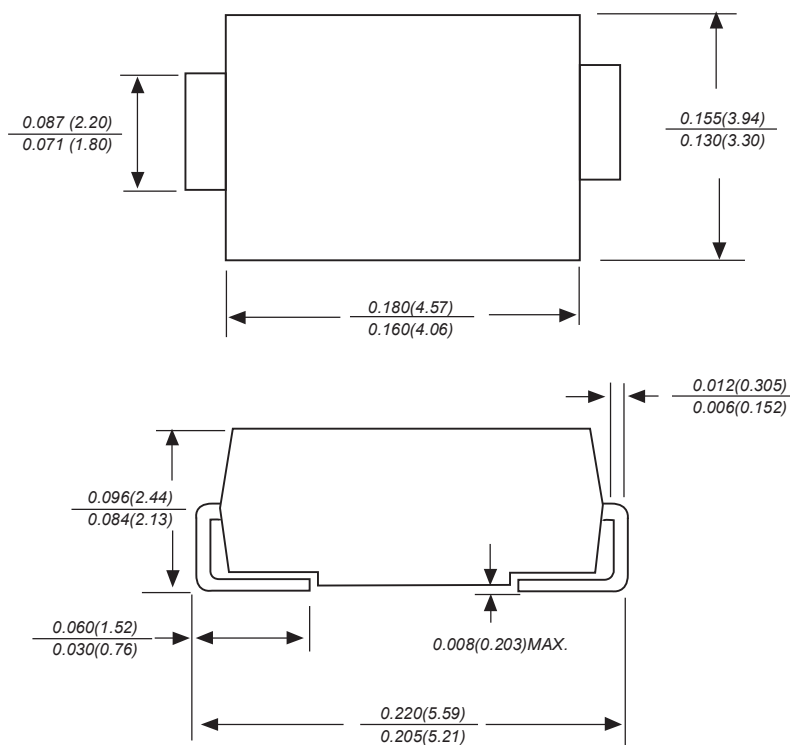


FIG6: Steady State Power Dissipation

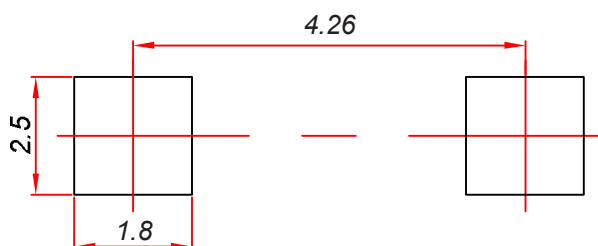


SMBG Package Outline Dimensions



Dimensions in inches and (millimeters)

SMBG Suggested Pad Layout



Note:

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