

Working Voltage: 5.0 to 440 V

Peak Pulse Power: 600 W

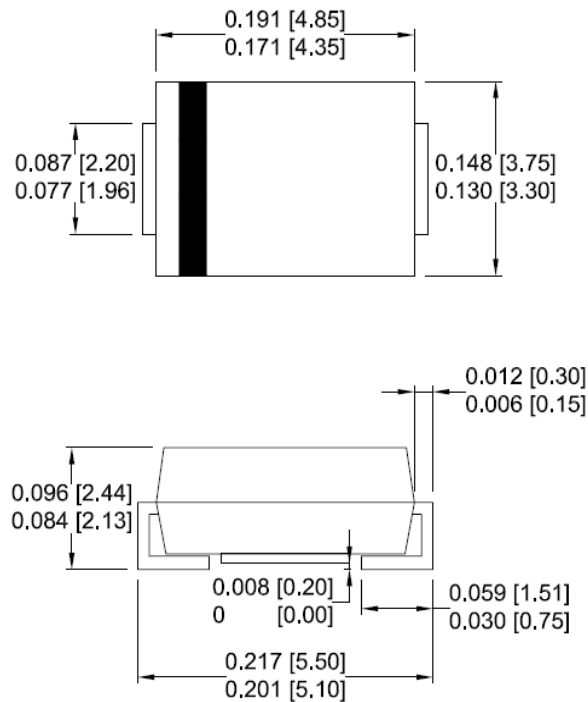
Features

- Glass passivated chip
- 600 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

Mechanical Data

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

SMB/ DO-214AA



Dimensions: inch[mm]

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

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PP}	600	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	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 sine-wave unidirectional only ⁽²⁾	I_{FSM}	100	A
Maximum instantaneous forward voltage at 50 A for unidirectional only ⁽³⁾	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^{\circ}\text{C}$ per Fig.1

(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$

Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR} @ I_T			Maximum Reverse Leakage I_R @ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C @ I_{PP} (V)
		Min (V)	Max (V)	I_T (mA)				
SMBJ5.0	SMBJ5.0C	6.40	7.30	10	800	5.0	62.50	9.6
SMBJ5.0A	SMBJ5.0CA	6.40	7.00	10	800	5.0	65.22	9.2
SMBJ6.0	SMBJ6.0C	6.67	8.15	10	800	6.0	52.63	11.4
SMBJ6.0A	SMBJ6.0CA	6.67	7.37	10	800	6.0	58.25	10.3
SMBJ6.5	SMBJ6.5C	7.22	8.82	10	500	6.5	48.78	12.3
SMBJ6.5A	SMBJ6.5CA	7.22	7.98	10	500	6.5	53.57	11.2
SMBJ7.0	SMBJ7.0C	7.78	9.51	10	200	7.0	45.11	13.3
SMBJ7.0A	SMBJ7.0CA	7.78	8.60	10	200	7.0	50.00	12.0
SMBJ7.5	SMBJ7.5C	8.33	10.20	1	100	7.5	41.96	14.3
SMBJ7.5A	SMBJ7.5CA	8.33	9.21	1	100	7.5	46.51	12.9
SMBJ8.0	SMBJ8.0C	8.89	10.90	1	50	8.0	40.00	15.0
SMBJ8.0A	SMBJ8.0CA	8.89	9.83	1	50	8.0	44.12	13.6
SMBJ8.5	SMBJ8.5C	9.44	11.50	1	10	8.5	37.74	15.9
SMBJ8.5A	SMBJ8.5CA	9.44	10.40	1	10	8.5	41.67	14.4
SMBJ9.0	SMBJ9.0C	10.00	12.20	1	5	9.0	35.50	16.9
SMBJ9.0A	SMBJ9.0CA	10.00	11.10	1	5	9.0	38.96	15.4
SMBJ10	SMBJ10C	11.10	13.60	1	5	10.0	31.91	18.8
SMBJ10A	SMBJ10CA	11.10	12.30	1	5	10.0	35.29	17.0
SMBJ11	SMBJ11C	12.20	14.90	1	1	11.0	29.85	20.1
SMBJ11A	SMBJ11CA	12.20	13.50	1	1	11.0	32.97	18.2
SMBJ12	SMBJ12C	13.30	16.30	1	1	12.0	27.27	22.0
SMBJ12A	SMBJ12CA	13.30	14.70	1	1	12.0	30.15	19.9
SMBJ13	SMBJ13C	14.40	17.60	1	1	13.0	25.21	23.8
SMBJ13A	SMBJ13CA	14.40	15.90	1	1	13.0	27.91	21.5
SMBJ14	SMBJ14C	15.60	19.10	1	1	14.0	23.26	25.8
SMBJ14A	SMBJ14CA	15.60	17.20	1	1	14.0	25.86	23.2
SMBJ15	SMBJ15C	16.70	20.40	1	1	15.0	22.30	26.9
SMBJ15A	SMBJ15CA	16.70	18.50	1	1	15.0	24.59	24.4
SMBJ16	SMBJ16C	17.80	21.80	1	1	16.0	20.83	28.8
SMBJ16A	SMBJ16CA	17.80	19.70	1	1	16.0	23.08	26.0
SMBJ17	SMBJ17C	18.90	23.10	1	1	17.0	19.67	30.5
SMBJ17A	SMBJ17CA	18.90	20.90	1	1	17.0	21.74	27.6
SMBJ18	SMBJ18C	20.00	24.40	1	1	18.0	18.63	32.2
SMBJ18A	SMBJ18CA	20.00	22.10	1	1	18.0	20.55	29.2
SMBJ19	SMBJ19C	21.13	25.76	1	1	19.0	17.64	34.0
SMBJ19A	SMBJ19CA	21.10	23.30	1	1	19.0	19.49	30.8
SMBJ20	SMBJ20C	22.20	27.10	1	1	20.0	16.76	35.8
SMBJ20A	SMBJ20CA	22.20	24.50	1	1	20.0	18.52	32.4
SMBJ22	SMBJ22C	24.40	29.80	1	1	22.0	15.23	39.4
SMBJ22A	SMBJ22CA	24.40	26.90	1	1	22.0	16.90	35.5
SMBJ24	SMBJ24C	26.70	32.60	1	1	24.0	13.95	43.0
SMBJ24A	SMBJ24CA	26.70	29.50	1	1	24.0	15.42	38.9
SMBJ26	SMBJ26C	28.90	35.30	1	1	26.0	12.88	46.6
SMBJ26A	SMBJ26CA	28.90	31.90	1	1	26.0	14.25	42.1
SMBJ28	SMBJ28C	31.10	38.00	1	1	28.0	12.00	50.0
SMBJ28A	SMBJ28CA	31.10	34.40	1	1	28.0	13.22	45.4
SMBJ30	SMBJ30C	33.30	40.70	1	1	30.0	11.21	53.5
SMBJ30A	SMBJ30CA	33.30	36.80	1	1	30.0	12.40	48.4
SMBJ33	SMBJ33C	36.70	44.90	1	1	33.0	10.17	59.0
SMBJ33A	SMBJ33CA	36.70	40.60	1	1	33.0	11.26	53.3
SMBJ36	SMBJ36C	40.00	48.90	1	1	36.0	9.33	64.3
SMBJ36A	SMBJ36CA	40.00	44.20	1	1	36.0	10.33	58.1

Note:

1. Suffix 'A' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double

Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR} @ I_T			Maximum Reverse Leakage I_R @ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C @ I_{PP} (V)
		Min (V)	Max (V)	I_T (mA)				
SMBJ40	SMBJ40C	44.40	54.30	1	1	40.0	8.40	71.4
SMBJ40A	SMBJ40CA	44.40	49.10	1	1	40.0	9.30	64.5
SMBJ43	SMBJ43C	47.80	58.40	1	1	43.0	7.82	76.7
SMBJ43A	SMBJ43CA	47.80	52.80	1	1	43.0	8.65	69.4
SMBJ45	SMBJ45C	50.00	61.10	1	1	45.0	7.47	80.3
SMBJ45A	SMBJ45CA	50.00	55.30	1	1	45.0	8.25	72.7
SMBJ48	SMBJ48C	53.30	65.10	1	1	48.0	7.02	85.5
SMBJ48A	SMBJ48CA	53.30	58.90	1	1	48.0	7.75	77.4
SMBJ51	SMBJ51C	56.70	69.30	1	1	51.0	6.59	91.1
SMBJ51A	SMBJ51CA	56.70	62.70	1	1	51.0	7.28	82.4
SMBJ54	SMBJ54C	60.00	73.30	1	1	54.0	6.23	96.3
SMBJ54A	SMBJ54CA	60.00	66.30	1	1	54.0	6.89	87.1
SMBJ58	SMBJ58C	64.40	78.70	1	1	58.0	5.83	103.0
SMBJ58A	SMBJ58CA	64.40	71.20	1	1	58.0	6.41	93.6
SMBJ60	SMBJ60C	66.70	81.50	1	1	60.0	5.61	107.0
SMBJ60A	SMBJ60CA	66.70	73.70	1	1	60.0	6.20	96.8
SMBJ64	SMBJ64C	71.10	86.90	1	1	64.0	5.26	114.0
SMBJ64A	SMBJ64CA	71.10	78.60	1	1	64.0	5.83	103.0
SMBJ70	SMBJ70C	77.80	95.10	1	1	70.0	4.80	125.0
SMBJ70A	SMBJ70CA	77.80	86.00	1	1	70.0	5.31	113.0
SMBJ75	SMBJ75C	83.30	102.00	1	1	75.0	4.48	134.0
SMBJ75A	SMBJ75CA	83.30	92.10	1	1	75.0	4.96	121.0
SMBJ78	SMBJ78C	86.70	106.00	1	1	78.0	4.32	139.0
SMBJ78A	SMBJ78CA	86.70	95.80	1	1	78.0	4.76	126.0
SMBJ80	SMBJ80C	88.96	108.80	1	1	80.0	4.19	143.2
SMBJ80A	SMBJ80CA	88.80	97.60	1	1	80.0	4.63	129.6
SMBJ85	SMBJ85C	94.40	115.00	1	1	85.0	3.97	151.0
SMBJ85A	SMBJ85CA	94.40	104.00	1	1	85.0	4.38	137.0
SMBJ90	SMBJ90C	100.00	122.00	1	1	90.0	3.75	160.0
SMBJ90A	SMBJ90CA	100.00	111.00	1	1	90.0	4.11	146.0
SMBJ100	SMBJ100C	111.00	136.00	1	1	100.0	3.35	179.0
SMBJ100A	SMBJ100CA	111.00	123.00	1	1	100.0	3.70	162.0
SMBJ110	SMBJ110C	122.00	149.00	1	1	110.0	3.06	196.0
SMBJ110A	SMBJ110CA	122.00	135.00	1	1	110.0	3.39	177.0
SMBJ120	SMBJ120C	133.00	163.00	1	1	120.0	2.80	214.0
SMBJ120A	SMBJ120CA	133.00	147.00	1	1	120.0	3.11	193.0
SMBJ130	SMBJ130C	144.00	176.00	1	1	130.0	2.60	231.0
SMBJ130A	SMBJ130CA	144.00	159.00	1	1	130.0	2.87	209.0
SMBJ140	SMBJ140C	155.68	190.40	1	1	140.0	2.39	250.6
SMBJ140A	SMBJ140CA	155.00	171.00	1	1	140.0	2.65	226.8
SMBJ150	SMBJ150C	167.00	204.00	1	1	150.0	2.24	268.0
SMBJ150A	SMBJ150CA	167.00	185.00	1	1	150.0	2.47	243.0
SMBJ160	SMBJ160C	178.00	218.00	1	1	160.0	2.09	287.0
SMBJ160A	SMBJ160CA	178.00	197.00	1	1	160.0	2.32	259.0
SMBJ170	SMBJ170C	189.00	231.00	1	1	170.0	1.97	304.0
SMBJ170A	SMBJ170CA	189.00	209.00	1	1	170.0	2.18	275.0
SMBJ180	SMBJ180C	200.16	244.80	1	1	180.0	1.86	322.2
SMBJ180A	SMBJ180CA	200.00	220.00	1	1	180.0	2.06	291.6
SMBJ188A	SMBJ188CA	209.00	231.00	1	1	188.0	2.00	304.0
SMBJ190	SMBJ190C	211.28	258.40	1	1	190.0	1.76	340.1
SMBJ190A	SMBJ190CA	211.00	232.00	1	1	190.0	1.95	307.8
SMBJ200A	SMBJ200CA	224.00	247.00	1	1	200.0	1.85	324.0
SMBJ220A	SMBJ220CA	246.00	272.00	1	1	220.0	1.69	356.0
SMBJ250A	SMBJ250CA	279.00	309.00	1	1	250.0	1.48	405.0
SMBJ300A	SMBJ300CA	335.00	371.00	1	1	300.0	1.23	486.0
SMBJ350A	SMBJ350CA	391.00	432.00	1	1	350.0	1.06	567.0
SMBJ400A	SMBJ400CA	447.00	494.00	1	1	400.0	0.93	648.0
SMBJ440A	SMBJ440CA	492.00	543.00	1	1	440.0	0.84	713.0

Ratings and Characteristics Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

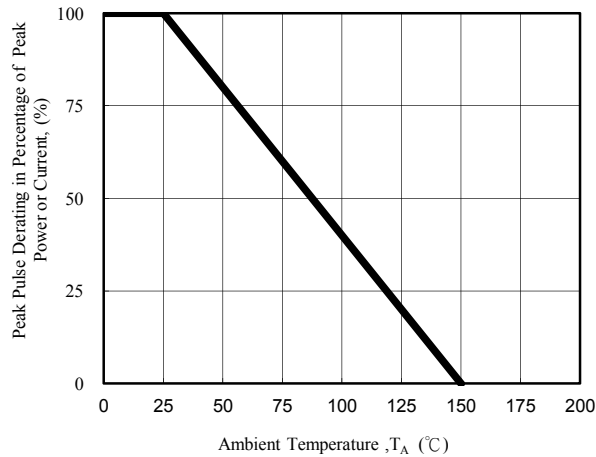


Fig. 1 - Pulse Derating Curve

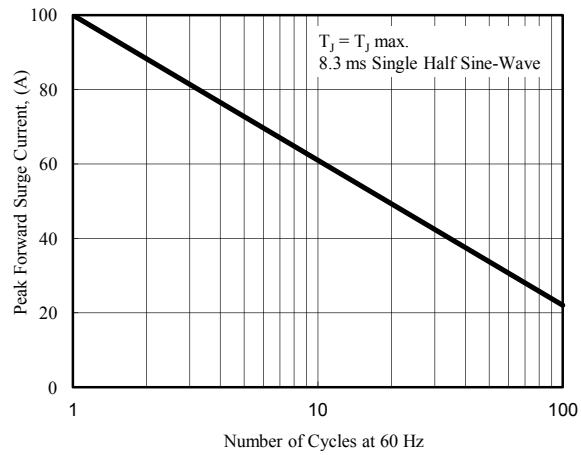


Fig. 2 - Maximum Non-Repetitive Surge Current

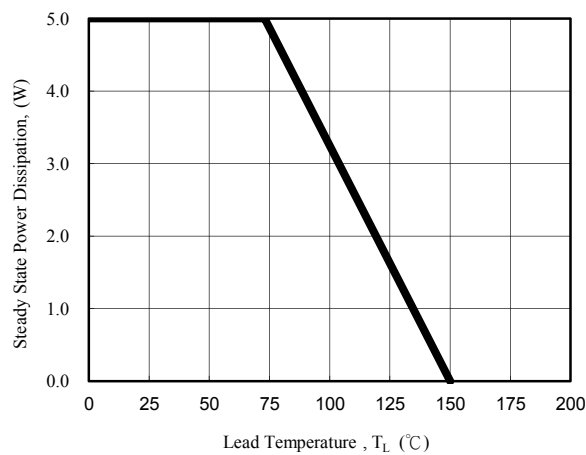


Fig. 3 - Steady State Power Derating Curve

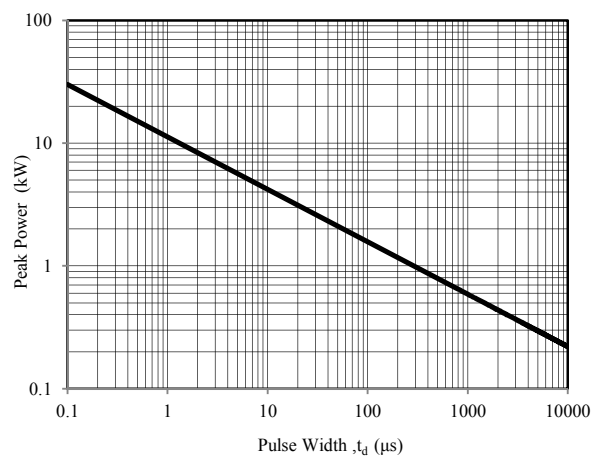


Fig. 4 - Peak Pulse Power Rating Curve

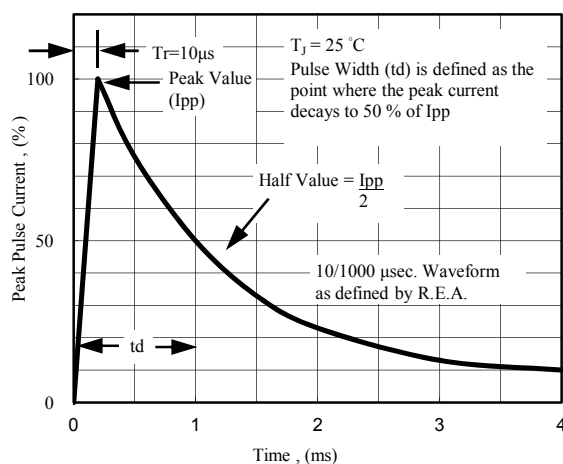


Fig. 5 - Pulse Waveform

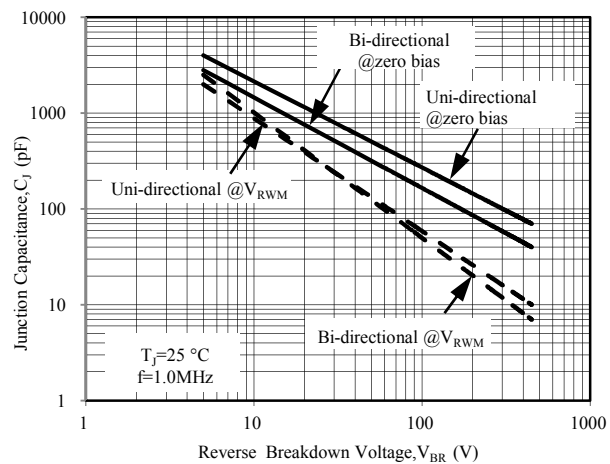


Fig. 6 - Typical Junction Capacitance

PACKAGE	SPQ/PCS	CARTON SPQ/PCS	CARTON SIZE/CM	CARTON GW/KG	CARTON NW/KG
SMB	3000/REEL	48000	36X35.8X36.5	12.00	11.00