

Features

- * For surface mounted application
- * Low profile package
- * Built-in strain relief
- * Glass passivated junction
- * Excellent clamping capability
- * Fast response time: typically less than 1.0ps from 0 volts to BV min
- * Typical IR less than 1μA above 10V
- * High temperature soldering:
260°C/10 seconds at terminals
- * Plastic material used carries underwriters laboratory flammability classifications 94V-0

Mechanical Data

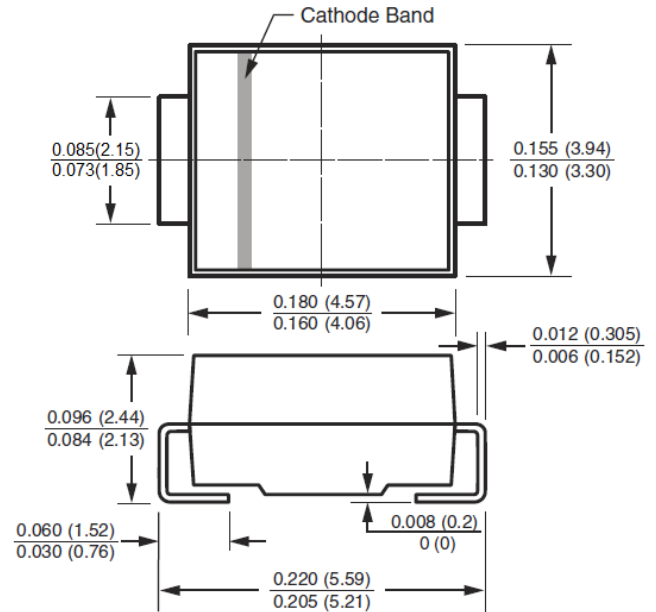
- * Case: Molded plastic
- * Terminals: Solder plated
- * Polarity: Indicated by cathode band
- * Standard Packaging: 12mm tape per EIA STD RS-481



RoHS
COMPLIANT

Package Outline Dimensions in inches (millimeters)

SMB:



Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Type Number	Symbol	Value	Unit
Peak Power Dissipation at $T_A=25^{\circ}\text{C}$, $T_P=1\text{ms}$ (Note1)	P_{PPM}	Minimum 600	Watt
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load(JEDEC method) (Note2/3) Unidirectional only.	I_{FSM}	100	Amp
Operating and Storage Temperature Range	T_J/T_{STG}	-55 to +150	°C

Note:1、 Non-repetitive current pulse per Fig.3 and debated above $T_A=25^{\circ}\text{C}$ per Fig.2.

2、 Mounted on 0.2×0.2 "(5.0×5.0mm) copper pads to each terminal.

3、 8.3ms single half sine-wave duty cycle=4 pulses per minutes maximum.

Devices for Bipolar Applications or Equivalent Square Wave

1、 For bidirectional use C or CA suffix for types SMBJ5.0 thru types SMBJ440.

2、 Electrical characteristics apply in both directions.

Ratings and Characteristic Curves

FIG. 1 – PULSE RATING CURVE

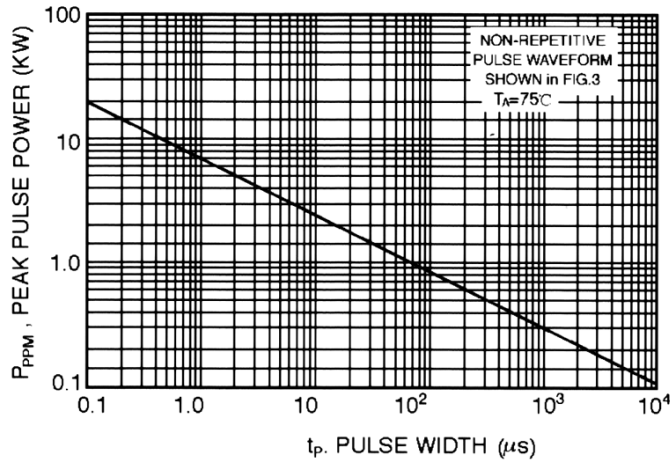


FIG. 2 – PULSE DERATING CURVE

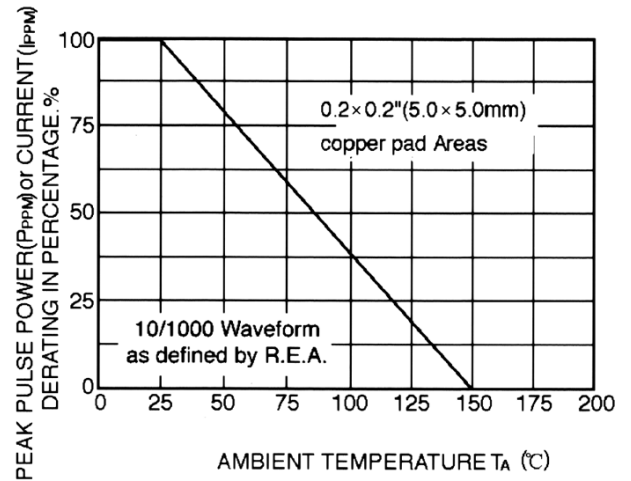


FIG. 3 – PULSE WAVEFORM

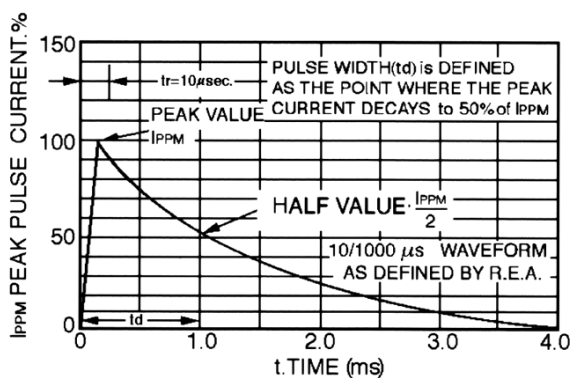


FIG. 4 – TYPICAL JUNCTION CAPACITANCE

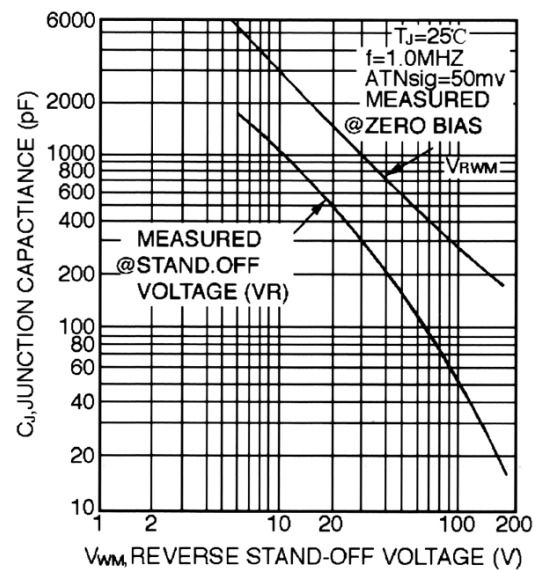
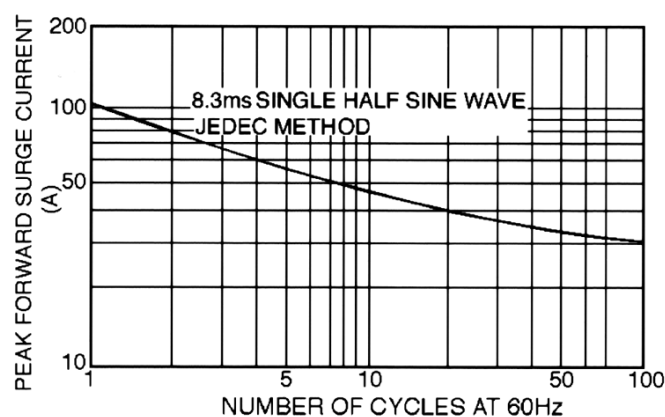


FIG. 5 – MAXIMUM NON-REPETITIVE SURGE CURRENT





SMBJ3.3A THRU SMBJ440A

Surface Mount Transient Voltage Suppressors Diode

Electrical Characteristics @T_A=25°C unless otherwise noted

Type Number		Reverse Stand Off Voltage V _R (Volts)	Breakdown Voltage V(BR)(Volts) @I _T (Note1)		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{PP} (Volts)	Maximum Peak Pulse Current I _{PP} (Note2) (Amps)	Maximum Reverse Leakage I _R (μA) @V _R (Note3)
(Uni)	(Bi)		Min	Max				
SMBJ3.3A	SMBJ3.3CA	3.3	4.10	4.60	1	7.3	50	200
SMBJ5.0	SMBJ5.0C	5.0	6.40	7.30	10	9.6	62.5	800
SMBJ5.0A	SMBJ5.0CA	5.0	6.40	7.00	10	9.2	65.2	800
SMBJ6.0	SMBJ6.0C	6.0	6.67	8.15	10	11.4	52.6	800
SMBJ6.0A	SMBJ6.0CA	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5	SMBJ6.5C	6.5	7.22	8.82	10	12.3	48.7	500
SMBJ6.5A	SMBJ6.5CA	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0	SMBJ7.0C	7.0	7.78	9.51	10	13.3	45.1	200
SMBJ7.0A	SMBJ7.0CA	7.0	7.78	8.60	10	12.0	50.0	200
SMBJ7.5	SMBJ7.5C	7.5	8.33	10.3	1.0	14.3	42.0	100
SMBJ7.5A	SMBJ7.5CA	7.5	8.33	9.21	1.0	12.9	46.5	100
SMBJ8.0	SMBJ8.0C	8.0	8.89	10.9	1.0	15.0	40.0	50.0
SMBJ8.0A	SMBJ8.0CA	8.0	8.89	9.83	1.0	13.6	44.1	50.0
SMBJ8.5	SMBJ8.5C	8.5	9.44	11.5	1.0	15.9	37.7	20.0
SMBJ8.5A	SMBJ8.5CA	8.5	9.44	10.4	1.0	14.4	41.7	20.0
SMBJ9.0	SMBJ9.0C	9.0	10.0	12.2	1.0	16.9	35.5	10.0
SMBJ9.0A	SMBJ9.0CA	9.0	10.0	11.1	1.0	15.4	39.0	10.0
SMBJ10	SMBJ10C	10	11.1	13.6	1.0	18.8	31.9	5.0
SMBJ10A	SMBJ10CA	10	11.1	12.3	1.0	17.0	35.3	5.0
SMBJ11	SMBJ11C	11	12.2	14.9	1.0	20.1	29.9	5.0
SMBJ11A	SMBJ11CA	11	12.2	13.5	1.0	18.2	33.0	5.0
SMBJ12	SMBJ12C	12	13.3	16.3	1.0	22.0	27.3	5.0
SMBJ12A	SMBJ12CA	12	13.3	14.7	1.0	19.9	30.2	5.0
SMBJ13	SMBJ13C	13	14.4	17.6	1.0	23.8	25.2	5.0
SMBJ13A	SMBJ13CA	13	14.4	15.9	1.0	21.5	27.9	5.0
SMBJ14	SMBJ14C	14	15.6	19.1	1.0	25.8	23.3	5.0
SMBJ14A	SMBJ14CA	14	15.6	17.2	1.0	23.2	25.8	5.0
SMBJ15	SMBJ15C	15	16.7	20.4	1.0	26.9	22.3	5.0
SMBJ15A	SMBJ15CA	15	16.7	18.5	1.0	24.4	24.0	5.0
SMBJ16	SMBJ16C	16	17.8	21.8	1.0	28.8	20.8	5.0
SMBJ16A	SMBJ16CA	16	17.8	19.7	1.0	26.0	23.1	5.0
SMBJ17	SMBJ17C	17	18.9	23.1	1.0	30.5	19.7	5.0
SMBJ17A	SMBJ17CA	17	18.9	20.9	1.0	27.6	21.7	5.0
SMBJ18	SMBJ18C	18	20.0	24.4	1.0	32.4	18.6	5.0
SMBJ18A	SMBJ18CA	18	20.0	22.1	1.0	29.2	20.5	5.0
SMBJ20	SMBJ20C	20	22.2	27.1	1.0	35.8	16.7	5.0
SMBJ20A	SMBJ20CA	20	22.2	24.5	1.0	32.4	18.5	5.0
SMBJ22	SMBJ22C	22	24.4	29.8	1.0	39.4	15.2	5.0
SMBJ22A	SMBJ22CA	22	24.4	26.9	1.0	35.5	16.9	5.0
SMBJ24	SMBJ24C	24	26.7	32.6	1.0	43.0	14.0	5.0
SMBJ24A	SMBJ24CA	24	26.7	29.5	1.0	38.5	15.4	5.0
SMBJ26	SMBJ26C	26	28.9	35.3	1.0	46.6	12.4	5.0
SMBJ26A	SMBJ26CA	26	28.9	31.9	1.0	42.1	14.2	5.0
SMBJ28	SMBJ28C	28	31.1	38.0	1.0	50.0	12.0	5.0
SMBJ28A	SMBJ28CA	28	31.1	34.4	1.0	45.4	13.2	5.0
SMBJ30	SMBJ30C	30	33.3	40.7	1.0	53.5	11.2	5.0
SMBJ30A	SMBJ30CA	30	33.3	36.8	1.0	46.6	12.4	5.0
SMBJ33	SMBJ33C	33	36.7	44.9	1.0	59.0	10.2	5.0
SMBJ33A	SMBJ33CA	33	36.7	40.6	1.0	53.3	11.3	5.0
SMBJ36	SMBJ36C	36	40.0	48.9	1.0	64.3	9.3	5.0
SMBJ36A	SMBJ36CA	36	40.0	44.2	1.0	58.1	10.3	5.0
SMBJ40	SMBJ40C	40	44.4	54.3	1.0	71.4	8.4	5.0
SMBJ40A	SMBJ40CA	40	44.4	49.1	1.0	64.5	9.3	5.0
SMBJ43	SMBJ43C	43	47.8	58.4	1.0	76.7	7.8	5.0
SMBJ43A	SMBJ43CA	43	47.8	52.8	1.0	69.4	8.6	5.0
SMBJ45	SMBJ45C	45	50.0	61.1	1.0	80.3	7.5	5.0
SMBJ45A	SMBJ45CA	45	50.0	55.3	1.0	72.7	8.3	5.0
SMBJ48	SMBJ48C	48	53.3	65.1	1.0	95.5	7.0	5.0
SMBJ48A	SMBJ48CA	48	53.3	58.9	1.0	77.4	7.7	5.0
SMBJ51	SMBJ51C	51	56.7	69.3	1.0	91.1	6.6	5.0
SMBJ51A	SMBJ51CA	51	56.7	62.7	1.0	82.4	7.3	5.0

Electrical Characteristics @T_A=25°C unless otherwise noted

Type Number		Reverse Stand Off Voltage V _R (Volts)	Breakdown Voltage V(BR)(Volts) @I _T (Note1)		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{PP} (Volts)	Maximum Peak Pulse Current I _{PP} (Note2) (Amps)	Maximum Reverse Leakage I _R (μA) @V _R (Note3)
(Uni)	(Bi)		Min	Max				
SMBJ54	SMBJ54C	54	60.0	73.3	1.0	96.3	6.2	5.0
SMBJ54A	SMBJ54CA	54	60.0	66.3	1.0	87.1	6.9	5.0
SMBJ58	SMBJ58C	58	64.4	78.7	1.0	103.0	5.8	5.0
SMBJ58A	SMBJ58CA	58	64.4	71.2	1.0	93.6	6.4	5.0
SMBJ60	SMBJ60C	60	66.7	81.5	1.0	107.0	5.6	5.0
SMBJ60A	SMBJ60CA	60	66.7	73.7	1.0	96.8	6.2	5.0
SMBJ64	SMBJ64C	64	71.1	86.4	1.0	114.0	5.3	5.0
SMBJ64A	SMBJ64CA	64	71.1	78.6	1.0	103.0	5.8	5.0
SMBJ70	SMBJ70C	70	77.8	95.1	1.0	125	4.8	5.0
SMBJ70A	SMBJ70CA	70	77.8	86.0	1.0	113	5.3	5.0
SMBJ75	SMBJ75C	75	83.3	102	1.0	134	4.5	5.0
SMBJ75A	SMBJ75CA	75	83.3	92.1	1.0	121	4.9	5.0
SMBJ78	SMBJ78C	78	86.7	106	1.0	139	4.3	5.0
SMBJ78A	SMBJ78CA	78	86.7	95.8	1.0	126	4.7	5.0
SMBJ85	SMBJ85C	85	94.4	115	1.0	151	3.9	5.0
SMBJ85A	SMBJ85CA	85	94.4	104	1.0	137	4.4	5.0
SMBJ90	SMBJ90C	90	100	122	1.0	160	3.5	5.0
SMBJ90A	SMBJ90CA	90	100	111	1.0	146	4.1	5.0
SMBJ100	SMBJ100C	100	111	136	1.0	179	3.4	5.0
SMBJ100A	SMBJ100CA	100	111	123	1.0	162	3.7	5.0
SMBJ110	SMBJ110C	110	122	149	1.0	196	3.0	5.0
SMBJ110A	SMBJ110CA	110	122	135	1.0	177	3.4	5.0
SMBJ120	SMBJ120C	120	133	163	1.0	214	2.8	5.0
SMBJ120A	SMBJ120CA	120	133	147	1.0	193	3.1	5.0
SMBJ130	SMBJ130C	130	144	176	1.0	231	2.6	5.0
SMBJ130A	SMBJ130CA	130	144	159	1.0	209	2.9	5.0
SMBJ150	SMBJ150C	150	167	204	1.0	268	2.2	5.0
SMBJ150A	SMBJ150CA	150	167	185	1.0	243	2.5	5.0
SMBJ160	SMBJ160C	160	178	218	1.0	287	2.1	5.0
SMBJ160A	SMBJ160CA	160	178	197	1.0	259	2.3	5.0
SMBJ170	SMBJ170C	170	189	231	1.0	304	2.0	5.0
SMBJ170A	SMBJ170CA	170	189	209	1.0	275	2.2	5.0
SMBJ180	SMBJ180C	180	201	244.8	1.0	321	1.9	5.0
SMBJ180A	SMBJ180CA	180	201	220	1.0	290	2.1	5.0
SMBJ190	SMBJ190C	190	211.2	258.4	1.0	339	1.8	5.0
SMBJ190A	SMBJ190CA	190	211.2	243.2	1.0	306	2.0	5.0
SMBJ200	SMBJ200C	200	222	282	1.0	356	1.7	5.0
SMBJ200A	SMBJ200CA	200	222	256	1.0	322	1.9	5.0
SMBJ210	SMBJ210C	210	233	296.1	1.0	375	1.6	5.0
SMBJ210A	SMBJ210CA	210	233	268.8	1.0	339	1.8	5.0
SMBJ220	SMBJ220C	220	244	310.2	1.0	392	1.5	5.0
SMBJ220A	SMBJ220CA	220	244	281.6	1.0	355	1.7	5.0
SMBJ250	SMBJ250C	250	278	342.5	1.0	447	1.3	5.0
SMBJ250A	SMBJ250CA	250	278	309	1.0	403	1.5	5.0
SMBJ300	SMBJ300C	300	333	411	1.0	535	1.1	5.0
SMBJ300A	SMBJ300CA	300	333	371	1.0	484	1.2	5.0
SMBJ350	SMBJ350C	350	389	479.5	1.0	624	1.0	5.0
SMBJ350A	SMBJ350CA	350	389	432	1.0	565	1.1	5.0
SMBJ400	SMBJ400C	400	444	548	1.0	687	0.9	5.0
SMBJ400A	SMBJ400CA	400	444	494	1.0	645	0.9	5.0
SMBJ440	SMBJ440C	440	489	602.8	1.0	786	0.8	5.0
SMBJ440A	SMBJ440CA	440	489	543	1.0	710	0.8	5.0

Note:1、Pulse test: t_p≤50ms.

- 2、Surge current waveform per Figure 3 and derate per Figure 2.
- 3、For bi-directional types having V_{WM} of 10 volts and less, the I_D limit is doubled.
- 4、Add suffix "C" or "CA" after type number to specify bi-directional devices.
- 5、. Suffix 'A' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device



SMBJ3.3A THRU SMBJ440A
Surface Mount Transient Voltage Suppressors Diode

Ordering Information

Part No.	Package	Packing
SMBJ Series	SMB	3K/Reel