



# SMBJ SERIES

## SURFACE MOUNT UNIDIRECTIONAL AND BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSORS

STAND-OFF VOLTAGE - **5.0** to **170** Volts  
POWER DISSIPATION - **600** WATTS

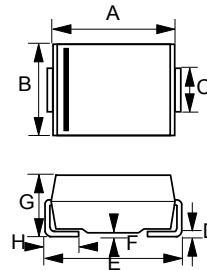
### FEATURES

- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL flammability classification 94V-O
- Typical IR less than 1uA above 10V
- Fast response time: typically less than 1.0ns for Uni-direction, less than 5.0ns for Bi-direction, from 0 Volts to BV min

### MECHANICAL DATA

- Case : Molded plastic
- Polarity : by cathode band denotes uni-directional device  
none cathode band denotes bi-directional device
- Weight : 0.003 ounces, 0.093 gram

### SMB



SMB		
DIM.	MIN.	MAX.
A	4.06	4.57
B	3.30	3.94
C	1.96	2.21
D	0.15	0.31
E	5.21	5.59
F	0.05	0.20
G	2.01	2.50
H	0.76	1.52

All Dimensions in millimeter

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

CHARACTERISTICS	SYMBOLS	VALUE	UNIT
PEAK POWER DISSIPATION AT TA = 25°C, TP = 1ms (Note 1)	PPK	600	WATTS
Peak Forward Surge Current 8.3ms single half sine-wave@Tj=25°C (Note 2)	IFSM	100	AMPS.
Steady State Power Dissipation at TL =120°C lead lengths 0.375" (9.5mm) , see fig.4 Without Heatshink	PM(AV)	1.5	WATTS
Maximum Instantaneous forward voltage at 50A for unidirectional devices only (Note 3)	VF	SEE NOTE 3	Volts
Typical Thermal Resistance (Note 4)	RθJA RθJL RθJC	90 21 25	°C/W
Operating Temperature Range	TJ	-55 to +175	°C
Storage Temperature Range	TSTG	-55 to +175	°C

NOTES : 1. Non-repetitive current pulse, per fig. 3 and derated above Tj= 25 °C per fig.1.

2. 8.3ms single half-sine wave duty cycle= 4 pulses maximum per minute (unidirectional units only).

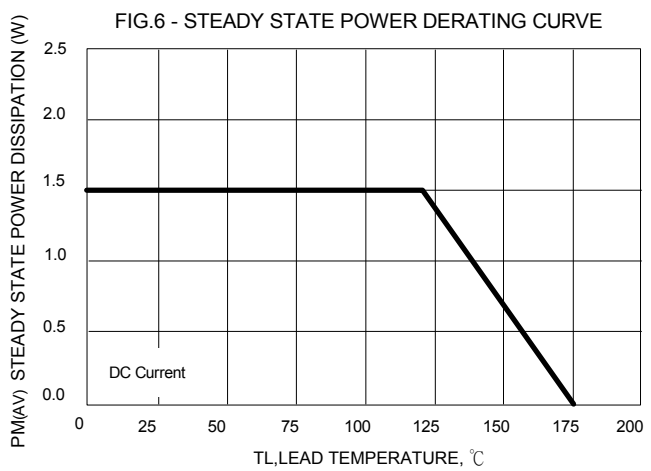
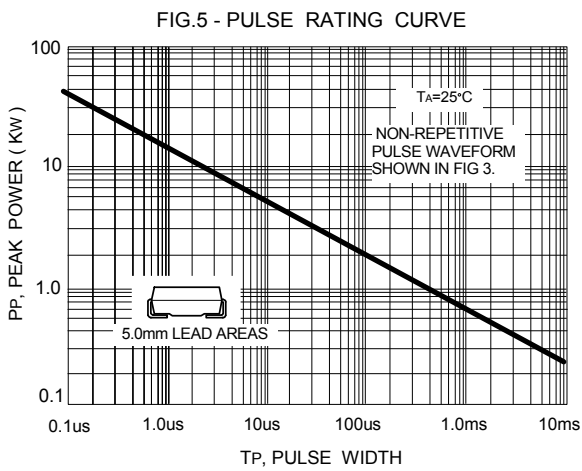
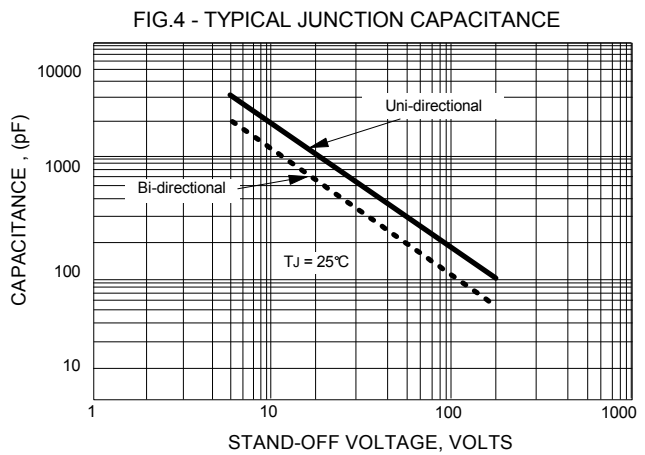
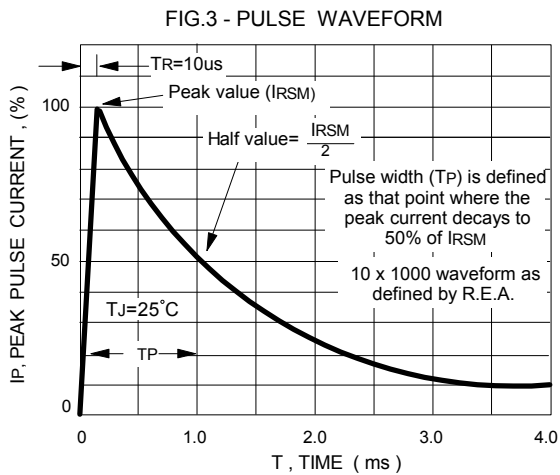
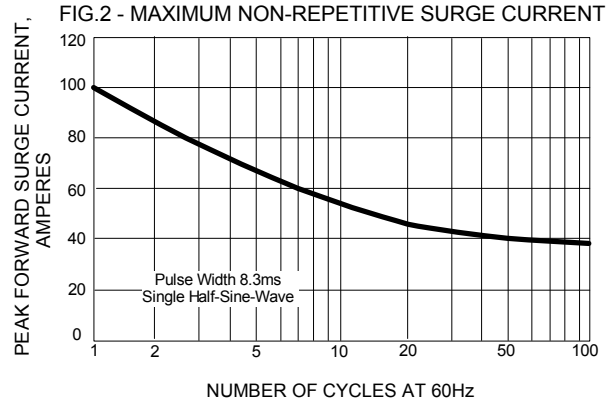
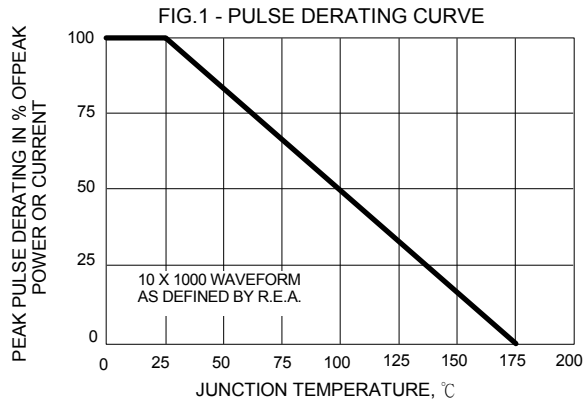
3. VF= 3.5V on SMBJ5.0 thru SMBJ90A devices and VF= 5.0V on SMBJ100 thru SMBJ170A devices.

4. Thermal resistance from junction to ambient, lead and case.

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Device Uni-directional	Device Bi-directional	Device Marking code		Working Peak Reverse Voltage V <sub>RWM</sub> (Volts)	Breakdown voltage VBR Volts			Maximum Reverse Voltage at I <sub>RSM</sub> (Clamping Voltage) V <sub>RSM</sub> (VOLTS)	Maximum Reverse Surge Current I <sub>RSM</sub> (Amps)	Maximum Reverse Leakage at V <sub>RWM</sub> IR (uA)
		(UNI)	(BI)		Min.	Max.	@IT( mA)			
SMBJ5.0A	SMBJ5.0CA	KE	AE	5.0	6.40	7.07	10	9.2	65.2	800
SMBJ6.0A	SMBJ6.0CA	KG	AG	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5A	SMBJ6.5CA	KK	AK	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0A	SMBJ7.0CA	KM	AM	7.0	7.78	8.60	10	12.0	50.0	200
SMBJ7.5A	SMBJ7.5CA	KP	AP	7.5	8.33	9.21	1.0	12.9	46.5	100
SMBJ8.0A	SMBJ8.0CA	KR	AR	8.0	8.89	9.83	1.0	13.6	44.1	50.0
SMBJ8.5A	SMBJ8.5CA	KT	AT	8.5	9.44	10.4	1.0	14.4	41.7	20.0
SMBJ9.0A	SMBJ9.0CA	KV	AV	9.0	10.0	11.1	1.0	15.4	39.0	10.0
SMBJ10A	SMBJ10CA	KX	AX	10.0	11.1	12.3	1.0	17.0	35.3	5.0
SMBJ11A	SMBJ11CA	KZ	AZ	11.0	12.2	13.5	1.0	18.2	33.0	5.0
SMBJ12A	SMBJ12CA	LE	BE	12.0	13.3	14.7	1.0	19.9	30.2	5.0
SMBJ13A	SMBJ13CA	LG	BG	13.0	14.4	15.9	1.0	21.5	27.9	5.0
SMBJ14A	SMBJ14CA	LK	BK	14.0	15.6	17.2	1.0	23.2	25.8	5.0
SMBJ15A	SMBJ15CA	LM	BM	15.0	16.7	18.5	1.0	24.4	24.0	5.0
SMBJ16A	SMBJ16CA	LP	BP	16.0	17.8	19.7	1.0	26.0	23.1	5.0
SMBJ17A	SMBJ17CA	LR	BR	17.0	18.9	20.9	1.0	27.6	21.7	5.0
SMBJ18A	SMBJ18CA	LT	BT	18.0	20.0	22.1	1.0	29.2	20.5	5.0
SMBJ20A	SMBJ20CA	LV	BV	20.0	22.2	24.5	1.0	32.4	18.5	5.0
SMBJ22A	SMBJ22CA	LX	BX	22.0	24.4	27.0	1.0	35.5	16.9	5.0
SMBJ24A	SMBJ24CA	LZ	BZ	24.0	26.7	29.5	1.0	38.9	15.4	5.0
SMBJ26A	SMBJ26CA	ME	CE	26.0	28.9	31.9	1.0	42.1	14.2	5.0
SMBJ28A	SMBJ28CA	MG	CG	28.0	31.1	34.4	1.0	45.4	13.2	5.0
SMBJ30A	SMBJ30CA	MK	CK	30.0	33.3	36.8	1.0	48.4	12.4	5.0
SMBJ33A	SMBJ33CA	MM	CM	33.0	36.7	40.6	1.0	53.3	11.3	5.0
SMBJ36A	SMBJ36CA	MP	CP	36.0	40.0	44.2	1.0	58.1	10.3	5.0
SMBJ40A	SMBJ40CA	MR	CR	40.0	44.4	49.1	1.0	64.5	9.3	5.0
SMBJ43A	SMBJ43CA	MT	CT	43.0	47.8	52.8	1.0	69.4	8.6	5.0
SMBJ45A	SMBJ45CA	MV	CV	45.0	50.0	55.3	1.0	72.7	8.3	5.0
SMBJ48A	SMBJ48CA	MX	CX	48.0	53.3	58.9	1.0	77.4	7.7	5.0
SMBJ51A	SMBJ51CA	MZ	CZ	51.0	56.7	62.7	1.0	82.4	7.3	5.0
SMBJ54A	SMBJ54CA	NE	DE	54.0	60.0	66.3	1.0	87.1	6.9	5.0
SMBJ58A	SMBJ58CA	NG	DG	58.0	64.4	71.2	1.0	93.6	6.4	5.0
SMBJ60A	SMBJ60CA	NK	DK	60.0	66.7	73.7	1.0	96.8	6.2	5.0
SMBJ64A	SMBJ64CA	NM	DM	64.0	71.1	78.6	1.0	103	5.8	5.0
SMBJ70A	SMBJ70CA	NP	DP	70.0	77.8	86.0	1.0	113	5.3	5.0
SMBJ75A	SMBJ75CA	NR	DR	75.0	83.3	92.1	1.0	121	4.9	5.0
SMBJ78A	SMBJ78CA	NT	DT	78.0	86.7	95.8	1.0	126	4.7	5.0
SMBJ85A	SMBJ85CA	NV	DV	85.0	94.4	104	1.0	137	4.4	5.0
SMBJ90A	SMBJ90CA	NX	DX	90.0	100	111	1.0	146	4.1	5.0
SMBJ100A	SMBJ100CA	NZ	DZ	100.0	111	123	1.0	162	3.7	5.0
SMBJ110A	SMBJ110CA	PE	EE	110.0	122	135	1.0	177	3.4	5.0
SMBJ120A	SMBJ120CA	PG	EG	120.0	133	147	1.0	193	3.1	5.0
SMBJ130A	SMBJ130CA	PK	EK	130.0	144	159	1.0	209	2.9	5.0
SMBJ150A	SMBJ150CA	PM	EM	150.0	167	185	1.0	243	2.5	5.0
SMBJ160A	SMBJ160CA	PP	EP	160.0	178	197	1.0	259	2.3	5.0
SMBJ170A	SMBJ170CA	PR	ER	170.0	189	209	1.0	275	2.2	5.0

## NOTE :

- 1) Suffix 'A' denotes 5% tolerance device, no suffix denotes 10% tolerance device.
- 2) Add suffix 'C' or 'CA' after part number to specify Bi-directional devices.
- 3) For Bi-Directional devices having VR of 10 volts and under, the IR limit is double.  
For Uni-directional devices V<sub>F</sub> max=3.5v at I<sub>F</sub>=50 A, 0.5 sine wave of 8.3 msec. pulse width.