

**SURFACE MOUNT  
UNIDIRECTIONAL AND BIDIRECTIONAL  
TRANSIENT VOLTAGE SUPPRESSORS**

**STAND-OFF VOLTAGE - 5.0 to 220 Volts  
POWER DISSIPATION - 600 Watts**

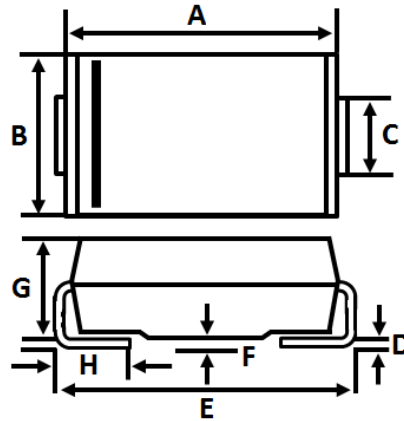
**FEATURES**

- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL flammability classification 94V-0
- 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
- RoHs compliant

**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 grams

**SMB**



SMB		
DIM.	MIN.	MAX
A	4.06	4.57
B	3.30	3.93
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.

**ABSOLUTE RATINGS**

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation at $T_J = 25^\circ\text{C}$ , $T_P = 1\text{ms}$ (Note 1)	$P_{PK}$	600	W
Peak forward surge current 8.3ms single half sine-wave at $T_J = 25^\circ\text{C}$ (Note 2)	$I_{FSM}$	100	A
Steady state power dissipation at $T_L = 120^\circ\text{C}$	$P_{M(AV)}$	1.5	W
Maximum instantaneous forward voltage at 16A unidirectional devices only. (Note 2,3)	$V_F$	2.5	V
Operating temperature range	$T_J$	-55 to +175	°C
Storage temperature range	$T_{STG}$	-55 to +175	°C

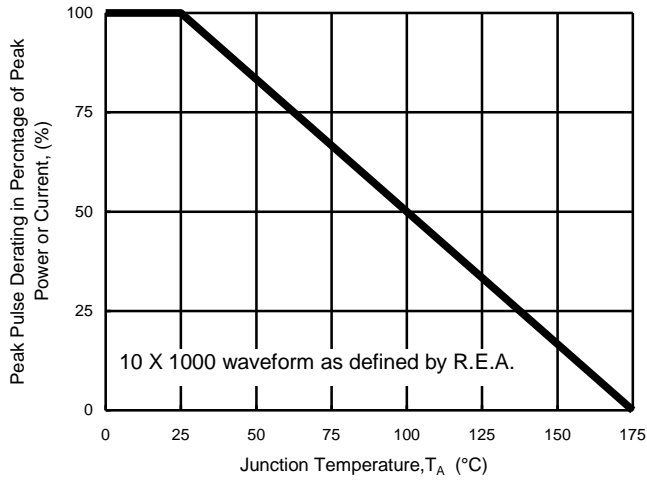
NOTES:

1. Non-repetitive current pulse, per fig. 3 and derated above  $T_J = 25^\circ\text{C}$  per fig.1
2. Only for unidirectional units.
3.  $V_F \text{ max} = 2.5\text{V}$  at  $I_F 16\text{A}$  300us square wave pulse.

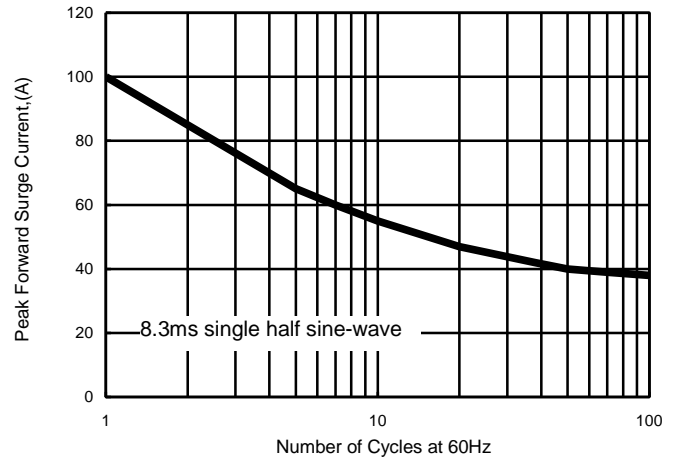
REV.1, APR.-2020, KSIB03

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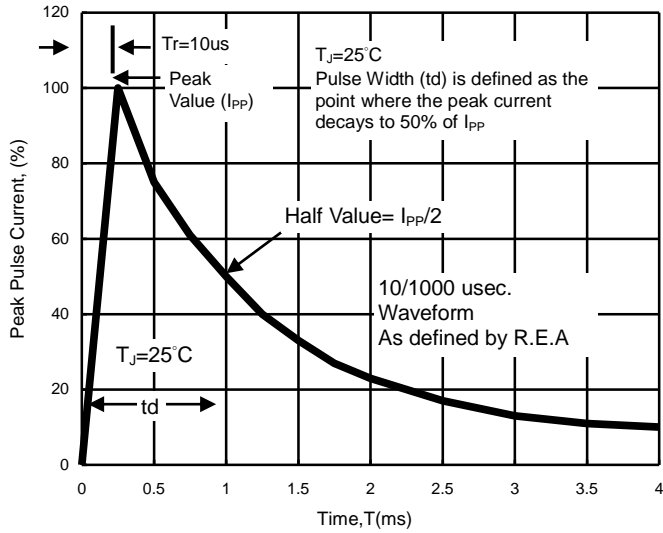
**FIG.1- Pulse Derating Curve**



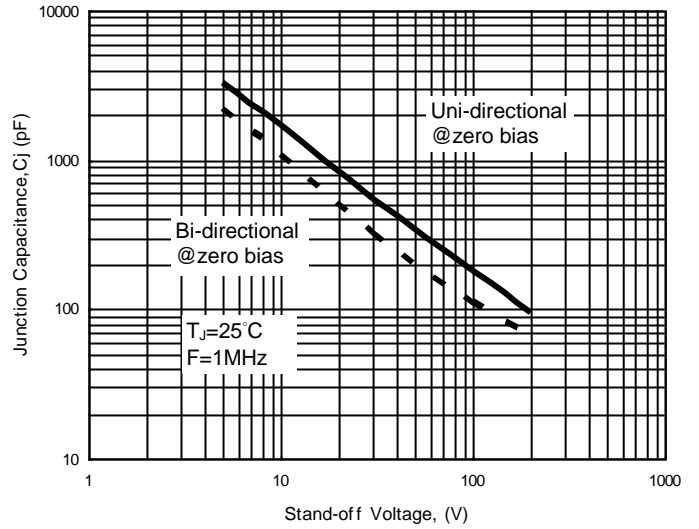
**FIG.2- Maximum Non-Repetitive Surge Current**



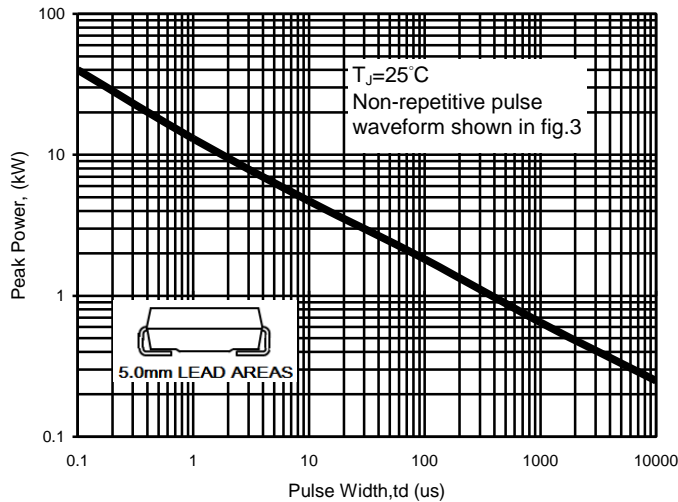
**FIG.3- Pulse Waveform**



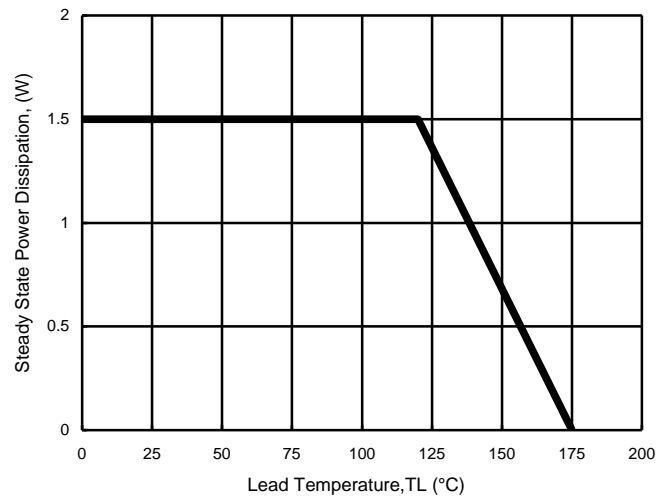
**FIG.4- Typical Junction Capacitance**



**FIG.5- Peak Pulse Power Rating Curve**



**FIG.6- Steady State Power Derating Curve**



## SMBJ-T SERIES

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



Device		Marking code		Reverse stand-off voltage	Breakdown voltage $V_{BR}$ volts			Maximum reverse voltage at $I_{RSM}$ (clamping voltage)	Maximum reverse surge current	Maximum reverse leakage at $V_{RWM}$
Uni	Bi	Uni	Bi	$V_R(V)$	Min	Max	@ $I_T(mA)$	$V_{RSM}(V)$	$I_{PP}(A)$	$I_R(\mu A)$
SMBJ5.0AT	SMBJ5.0CAT	KET	AET	5.0	6.40	7.07	10	9.2	65.2	800
SMBJ6.0AT	SMBJ6.0CAT	KGT	AGT	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5AT	SMBJ6.5CAT	KKT	AKT	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0AT	SMBJ7.0CAT	KMT	AMT	7.0	7.78	8.60	10	12.0	50.0	200
SMBJ7.5AT	SMBJ7.5CAT	KPT	APT	7.5	8.33	9.21	1.0	12.9	46.5	100
SMBJ8.0AT	SMBJ8.0CAT	KRT	ART	8.0	8.89	9.83	1.0	13.6	44.1	50.0
SMBJ8.5AT	SMBJ8.5CAT	KTT	ATT	8.5	9.44	10.40	1.0	14.4	41.7	20.0
SMBJ9.0AT	SMBJ9.0CAT	KVT	AVT	9.0	10.0	11.1	1.0	15.4	39.0	10.0
SMBJ10AT	SMBJ10CAT	KXT	AXT	10.0	11.1	12.3	1.0	17.0	35.3	5.0
SMBJ11AT	SMBJ11CAT	KZT	AZT	11.0	12.2	13.5	1.0	18.2	33.0	0.5
SMBJ12AT	SMBJ12CAT	LET	BET	12.0	13.3	14.7	1.0	19.9	30.2	0.5
SMBJ13AT	SMBJ13CAT	LGT	BGT	13.0	14.4	15.9	1.0	21.5	27.9	0.5
SMBJ14AT	SMBJ14CAT	LKT	BKT	14.0	15.6	17.2	1.0	23.2	25.8	0.5
SMBJ15AT	SMBJ15CAT	LMT	BMT	15.0	16.7	18.5	1.0	24.4	24.0	0.5
SMBJ16AT	SMBJ16CAT	LPT	BPT	16.0	17.8	19.7	1.0	26.0	23.1	0.5
SMBJ17AT	SMBJ17CAT	LRT	BRT	17.0	18.9	20.9	1.0	27.6	21.7	0.5
SMBJ18AT	SMBJ18CAT	LTT	BTT	18.0	20.0	22.1	1.0	29.2	20.5	0.5
SMBJ20AT	SMBJ20CAT	LVT	BVT	20.0	22.2	24.5	1.0	32.4	18.5	0.5
SMBJ22AT	SMBJ22CAT	LXT	BXT	22.0	24.4	27.0	1.0	35.5	16.9	0.5
SMBJ24AT	SMBJ24CAT	LZT	BZT	24.0	26.7	29.5	1.0	38.9	15.4	0.5
SMBJ26AT	SMBJ26CAT	MET	CET	26.0	28.9	31.9	1.0	42.1	14.2	0.5
SMBJ28AT	SMBJ28CAT	MGT	CGT	28.0	31.1	34.4	1.0	45.4	13.2	0.5
SMBJ30AT	SMBJ30CAT	MKT	CKT	30.0	33.3	36.8	1.0	48.4	12.4	0.5
SMBJ33AT	SMBJ33CAT	MMT	CMT	33.0	36.7	40.6	1.0	53.3	11.3	0.5
SMBJ36AT	SMBJ36CAT	MPT	CPT	36.0	40.0	44.2	1.0	58.1	10.3	0.5

## SMBJ-T SERIES

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

Device		Marking code		Reverse stand-off voltage	Breakdown voltage $V_{BR}$ volts			Maximum reverse voltage at $I_{RSM}$ (clamping voltage)	Maximum reverse surge current	Maximum reverse leakage at $V_{RWM}$
Uni	Bi	Uni	Bi	$V_R(V)$	Min	$I_R(\mu A)$	@ $I_T(mA)$	$V_{RSM}(V)$	$I_{PP}(A)$	$I_R(\mu A)$
SMBJ40AT	SMBJ40CAT	MRT	CRT	40.0	44.4	49.1	1.0	64.5	9.3	0.5
SMBJ43AT	SMBJ43CAT	MTT	CTT	43.0	47.8	52.8	1.0	69.4	8.6	0.5
SMBJ45AT	SMBJ45CAT	MVT	CVT	45.0	50.0	55.3	1.0	72.7	8.3	0.5
SMBJ48AT	SMBJ48CAT	MXT	CXT	48.0	53.3	58.9	1.0	77.4	7.7	0.5
SMBJ51AT	SMBJ51CAT	MZT	CZT	51.0	56.7	62.7	1.0	82.4	7.3	0.5
SMBJ54AT	SMBJ54CAT	NET	DET	54.0	60.0	66.3	1.0	87.1	6.9	0.5
SMBJ58AT	SMBJ58CAT	NGT	DGT	58.0	64.4	71.2	1.0	93.6	6.4	0.5
SMBJ60AT	SMBJ60CAT	NKT	DKT	60.0	66.7	73.7	1.0	96.8	6.2	0.5
SMBJ64AT	SMBJ64CAT	NMT	DMT	64.0	71.1	78.6	1.0	103	5.8	0.5
SMBJ70AT	SMBJ70CAT	NPT	DPT	70.0	77.8	86.0	1.0	113	5.3	0.5
SMBJ75AT	SMBJ75CAT	NRT	DRT	75.0	83.3	92.1	1.0	121	4.9	0.5
SMBJ78AT	SMBJ78CAT	NTT	DTT	78.0	86.7	95.8	1.0	126	4.7	0.5
SMBJ85AT	SMBJ85CAT	NVT	DVT	85.0	94.4	104.0	1.0	137	4.4	0.5
SMBJ90AT	SMBJ90CAT	NXT	DXT	90.0	100.0	111.0	1.0	146	4.1	0.5
SMBJ100AT	SMBJ100CAT	NZT	DZT	100.0	111.0	123.0	1.0	162	3.7	0.5
SMBJ110AT	SMBJ110CAT	PET	EET	110.0	122.0	135.0	1.0	177	3.4	0.5
SMBJ120AT	SMBJ120CAT	PGT	EGT	120.0	133.0	147.0	1.0	193	3.1	0.5
SMBJ130AT	SMBJ130CAT	PKT	EKT	130.0	144.0	159.0	1.0	209	2.9	0.5
SMBJ150AT	SMBJ150CAT	PMT	EMT	150.0	167.0	185.0	1.0	243	2.5	0.5
SMBJ160AT	SMBJ160CAT	PPT	EPT	160.0	178.0	197.0	1.0	259	2.3	0.5
SMBJ170AT	SMBJ170CAT	PRT	ERT	170.0	189.0	209.0	1.0	275	2.2	0.5
SMBJ188AT	SMBJ188CAT	PTT	ETT	188.0	209.0	231.0	1.0	328	1.8	0.5
SMBJ200AT	SMBJ200CAT	PVT	EVT	200.0	224.0	247.0	1.0	324	1.9	0.5
SMBJ220AT	SMBJ220CAT	PXT	EXT	220.0	246.0	272.0	1.0	356	1.7	0.5

Notes:

1. Suffix 'A' denotes 5% tolerance device, no suffix denotes 10% tolerance device.
2. Add suffix 'CAT' 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.

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