

Surface Mount Transient Voltage Suppressors

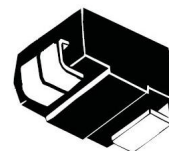
10SMBT Series 6.5 To 75V 1000W

Description

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

Working Voltage: 6.5 to 75 V

Peak Pulse Power: 1000 W



Features

- ◆ Glass passivated chip
- ◆ 1000 W peak pulse power capability with a 10/1000 us waveform
- ◆ Repetitive rate (duty cycle): 0.01 %
- ◆ Very Fast response time: typically less than 1.0ps from 0V to VBR min.
- ◆ Excellent clamping capability
- ◆ For surface mounted applications in order to optimize board space.
- ◆ High temperature soldering: 260°C/10s at terminals.
- ◆ RoHS compliant

Mechanical Data

- ◆ Package: SMB-3/DO-214AA
- ◆ Case Material: “Green” MoldingCompound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Standard Packaging: 12mm tape (EIA STD RS-481)
- ◆ Polarity: Color band denotes cathode except bi-directional models
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Weight: 0.10g
- ◆ Mounting position: Any

Applications

TVS devices are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

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

Parameter	Symbol	Value	Units
Peak power dissipation with a 10/1000us waveform	P_{PPM}	1000	W
Power Dissipation on Infinite Heat Sink at $T_L=75^{\circ}\text{C}$	P_D	5.0	W
Peak pulse current with a 10/1000us waveform	I_{PP}	See Next Table	A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to +150	$^{\circ}\text{C}$
Maximum Instantaneous Forward Voltage at 50A for Unidirectional	V_F	5.0	V

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Electrical Characteristics (@25°C Unless Otherwise Specified)

Part Number		Marking		Reverse Stand-Off Voltage V _{RWM} (V)	Breakdown Voltage V _{BR} (V) @I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @I _{PP} (V)	Maximum Peak Pulse Current I _{PP} (A)	Maximum Reverse Leakage I _R @V _{RWM} (μA)
Uni	Bi	Uni	Bi		MIN	MAX				
10SMBT6.5A	10SMBT6.5CA	3A6V	3C6V	6.5	7.22	7.98	10	11.2	89.3	50
10SMBT7.0A	10SMBT7.0CA	3A7	3C7	7.0	7.78	8.60	10	12.0	83.4	50
10SMBT7.5A	10SMBT7.5CA	3A7V	3C7V	7.5	8.33	9.21	1	12.9	77.6	50
10SMBT8.0A	10SMBT8.0CA	3A8	3C8	8.0	8.89	9.83	1	13.6	73.6	20
10SMBT8.5A	10SMBT8.5CA	3AV8	3CV8	8.5	9.44	10.40	1	14.4	69.5	10
10SMBT9.0A	10SMBT9.0CA	3A9	3C9	9.0	10.00	11.10	1	15.4	65.0	5
10SMBT10A	10SMBT10CA	3A10	3C10	10.0	11.10	12.30	1	17.0	58.9	2
10SMBT11A	10SMBT11CA	3A11	3C11	11.0	12.20	13.50	1	18.2	55.0	1
10SMBT12A	10SMBT12CA	3A12	3C12	12.0	13.30	14.70	1	19.9	50.3	1
10SMBT13A	10SMBT13CA	3A13	3C13	13.0	14.40	15.90	1	21.5	46.6	1
10SMBT14A	10SMBT14CA	3A14	3C14	14.0	15.60	17.20	1	23.2	43.1	1
10SMBT15A	10SMBT15CA	3A15	3C15	15.0	16.70	18.50	1	24.4	41.0	1
10SMBT16A	10SMBT16CA	3A16	3C16	16.0	17.80	19.70	1	26.0	38.5	1
10SMBT17A	10SMBT17CA	3A17	3C17	17.0	18.90	20.90	1	27.6	36.3	1
10SMBT18A	10SMBT18CA	3A18	3C18	18.0	20.00	22.10	1	29.2	34.3	1
10SMBT20A	10SMBT20CA	3A20	3C20	20.0	22.20	24.50	1	32.4	30.9	1
10SMBT22A	10SMBT22CA	3A22	3C22	22.0	24.40	26.90	1	35.5	28.2	1
10SMBT24A	10SMBT24CA	3A24	3C24	24.0	26.70	29.50	1	38.9	25.7	1
10SMBT26A	10SMBT26CA	3A26	3C26	26.0	28.90	31.90	1	42.1	23.8	1
10SMBT28A	10SMBT28CA	3A28	3C28	28.0	31.10	34.40	1	45.4	22.1	1
10SMBT30A	10SMBT30CA	3A30	3C30	30.0	33.30	36.80	1	48.4	20.7	1
10SMBT33A	10SMBT33CA	3A33	3C33	33.0	36.70	40.60	1	53.3	18.8	1
10SMBT36A	10SMBT36CA	3A36	3C36	36.0	40.00	44.20	1	58.1	17.3	1
10SMBT40A	10SMBT40CA	3A40	3C40	40.0	44.40	49.10	1	64.5	15.5	1
10SMBT43A	10SMBT43CA	3A43	3C43	43.0	47.80	52.80	1	69.4	14.4	1
10SMBT45A	10SMBT45CA	3A45	3C45	45.0	50.00	55.30	1	72.7	13.8	1
10SMBT48A	10SMBT48CA	3A48	3C48	48.0	53.30	58.90	1	77.4	13.0	1
10SMBT51A	10SMBT51CA	3A51	3C51	51.0	56.70	62.70	1	82.4	12.2	1
10SMBT54A	10SMBT54CA	3A54	3C54	54.0	60.00	66.30	1	87.1	11.5	1
10SMBT58A	10SMBT58CA	3A58	3C58	58.0	64.40	71.20	1	93.6	10.7	1
10SMBT60A	10SMBT60CA	3A60	3C60	60.0	66.70	73.70	1	96.8	10.4	1
10SMBT64A	10SMBT64CA	3A64	3C64	64.0	71.10	78.60	1	103.0	9.7	1
10SMBT70A	10SMBT70CA	3A70	3C70	70.0	77.80	86.00	1	113.0	8.9	1
10SMBT75A	10SMBT75CA	3A75	3C75	75.0	83.30	92.10	1	121.0	8.3	1

Note:

- (1) Add suffix ' CA ' after part number to specify Bi-directional devices
- (2) Suffix 'A ' denotes 5% tolerance device.
- (3) Surge waveform: 10/1000 μ s

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

Figure 1 - Pulse Waveform

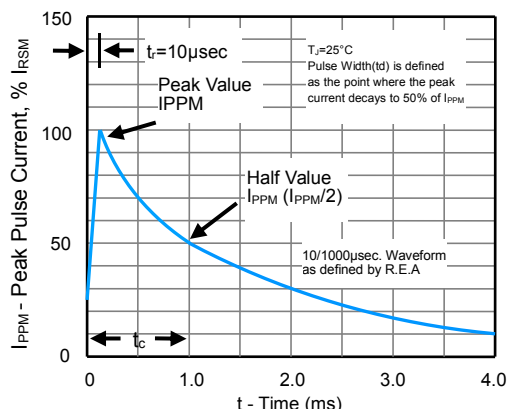
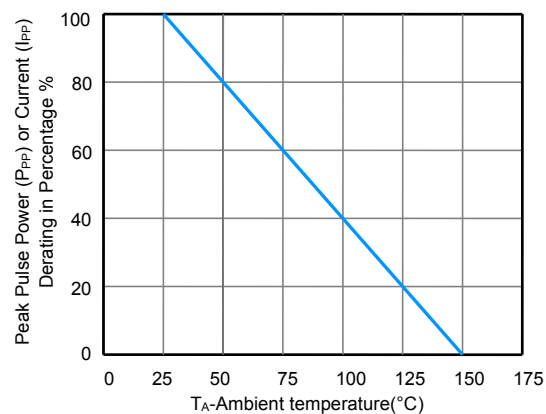
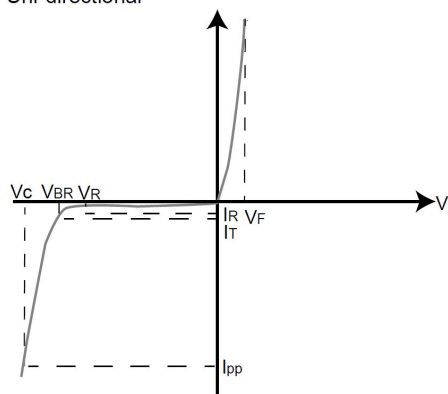


Figure 2 - Pulse Derating Curve

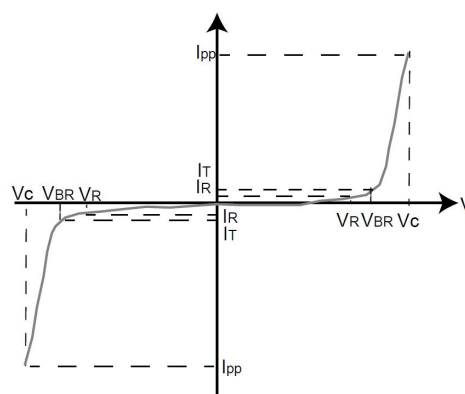


I-V Curve Characteristics

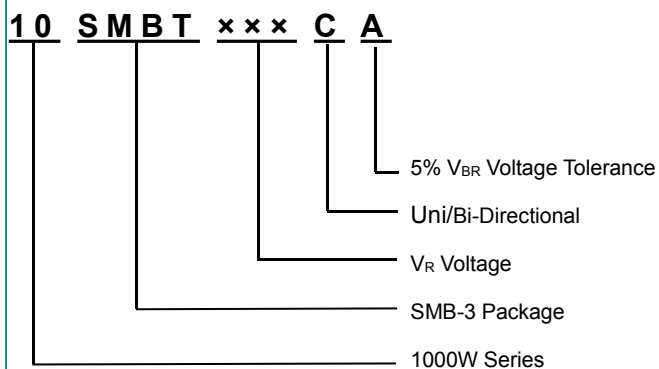
Uni-directional



Bi-directional



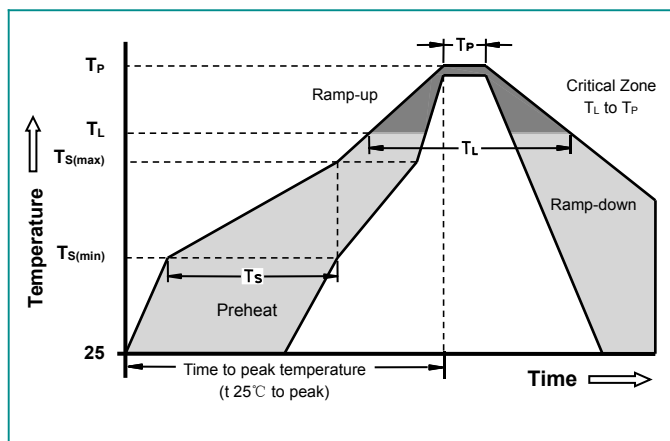
Part Numbering



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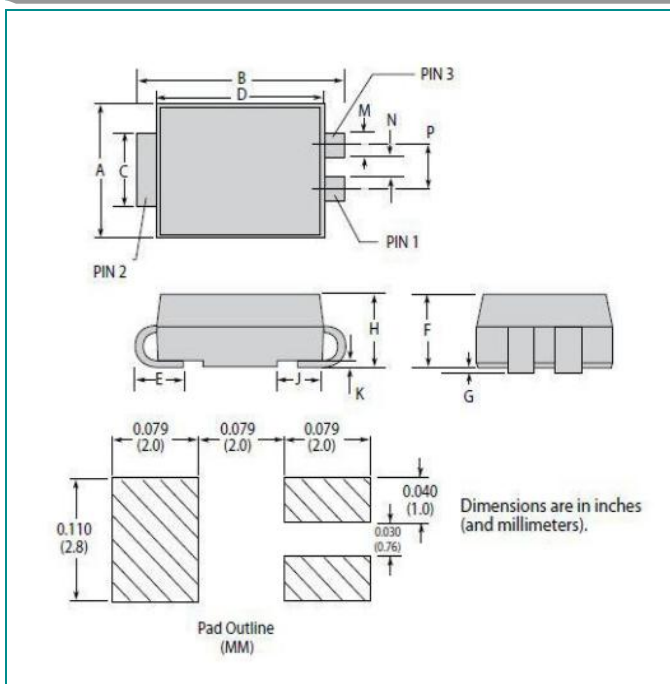
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Soldering Parametes



Reflow Condition		Lead-free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_s)	60 -150 Seconds
Peak Temperature (T_P)		260 +0/-5°C
Time within 5°C of actual peak Temperature (t_p)		20 -40 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		280°C

Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.130	0.155	3.30	3.94
B	0.201	0.220	5.10	5.60
C	0.077	0.083	1.95	2.11
D	0.166	0.185	4.22	4.70
E	0.030	0.063	0.750	1.60
F	0.075	0.103	1.90	2.55
G	0.002	0.008	0.05	0.20
H	0.077	0.104	1.95	2.65
M	0.006	0.016	0.15	0.41
K	0.008	0.014	0.20	0.35
N	0.027	0.033	0.69	0.084
P	0.052	0.058	1.32	1.47