

Surface Mount Transient Voltage Suppressors

SMDT Series 5.0 To 75V 3000W

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: 5.0 to 75 V

Peak Pulse Power: 3000 W

Features

- ◆ Glass passivated chip
- ◆ 3000 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

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}	3000	W
Power Dissipation on Infinite Heat Sink at $T_L=75^\circ\text{C}$	P_D	6.5	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	$^\circ\text{C}$



Mechanical Data

- ◆ Package: SMC-3/DO-214AB
- ◆ 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
- ◆ Weight: 0.30g
- ◆ Mounting position: Any
- ◆ Quantity Per Reel : 3,000pcs

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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				
SMDT5.0A	SMDT5.0CA	3RDE	3DDE	5.0	6.40	7.25	1	9.2	326.1	800
SMDT6.0A	SMDT6.0CA	3RDG	3DDG	6.0	6.67	7.67	1	10.3	291.3	800
SMDT6.5A	SMDT6.5CA	3RDK	3DDK	6.5	7.22	7.98	1	11.2	267.9	500
SMDT7.0A	SMDT7.0CA	3PDM	3DDM	7.0	7.78	8.60	1	12.0	250.0	200
SMDT7.5A	SMDT7.5CA	3PDP	3DDP	7.5	8.33	9.21	1	12.9	232.6	100
SMDT8.0A	SMDT8.0CA	3PDR	3DDR	8.0	8.89	9.83	1	13.6	220.6	50
SMDT8.5A	SMDT8.5CA	3PDT	3DDT	8.5	9.44	10.40	1	14.4	208.3	20
SMDT9.0A	SMDT9.0CA	3PDV	3DDV	9.0	10.00	11.10	1	15.4	194.8	5
SMDT10A	SMDT10CA	3PDX	3DDX	10.0	11.10	12.30	1	17.0	176.5	1
SMDT11A	SMDT11CA	3PDZ	3DDZ	11.0	12.20	13.50	1	18.2	164.8	1
SMDT12A	SMDT12CA	3PEE	3DEE	12.0	13.30	14.70	1	19.9	150.8	1
SMDT13A	SMDT13CA	3PEG	3DEG	13.0	14.40	15.90	1	21.5	139.5	1
SMDT14A	SMDT14CA	3PEK	3DEK	14.0	15.60	17.20	1	23.2	129.3	1
SMDT15A	SMDT15CA	3PEM	3DEM	15.0	16.70	18.50	1	24.4	123.0	1
SMDT16A	SMDT16CA	3PEP	3DEP	16.0	17.80	19.70	1	26.0	115.4	1
SMDT17A	SMDT17CA	3PER	3DER	17.0	18.90	20.90	1	27.6	108.7	1
SMDT18A	SMDT18CA	3PET	3DET	18.0	20.00	22.10	1	29.2	102.7	1
SMDT20A	SMDT20CA	3PEV	3DEV	20.0	22.20	24.50	1	32.4	92.63	1
SMDT22A	SMDT22CA	3PEX	3DEX	22.0	24.40	26.90	1	35.5	84.5	1
SMDT24A	SMDT24CA	3PEZ	3DEZ	24.0	26.70	29.50	1	38.9	77.1	1
SMDT26A	SMDT26CA	3PFE	3DFE	26.0	28.90	31.90	1	42.1	71.3	1
SMDT28A	SMDT28CA	3PFG	3DFG	28.0	31.10	34.40	1	45.4	66.1	1
SMDT30A	SMDT30CA	3PFK	3DFK	30.0	33.30	36.80	1	48.4	62.0	1
SMDT33A	SMDT33CA	3PFM	3DFM	33.0	36.70	40.60	1	53.3	56.3	1
SMDT36A	SMDT36CA	3PFP	3DFP	36.0	40.00	44.20	1	58.1	51.6	1
SMDT40A	SMDT40CA	3PFR	3DFR	40.0	44.40	49.10	1	64.5	46.5	1
SMDT43A	SMDT43CA	3PFT	3DFT	43.0	47.80	52.80	1	69.4	43.2	1
SMDT45A	SMDT45CA	3PFV	3DFV	45.0	50.00	55.30	1	72.7	41.3	1
SMDT48A	SMDT48CA	3PFX	3DFX	48.0	53.30	58.90	1	77.4	38.8	1
SMDT51A	SMDT51CA	3PFZ	3DFZ	51.0	56.70	62.70	1	82.4	36.4	1
SMDT54A	SMDT54CA	3RGE	3DGE	54.0	60.00	66.30	1	87.1	34.4	1
SMDT58A	SMDT58CA	3PGG	3DGG	58.0	64.40	71.20	1	93.6	32.1	1
SMDT60A	SMDT60CA	3PGK	3DGK	60.0	66.70	73.70	1	96.8	31.0	1
SMDT64A	SMDT64CA	3PGM	3DGM	64.0	71.10	78.60	1	103.0	29.1	1
SMDT70A	SMDT70CA	3PGP	3DGP	70.0	77.80	86.00	1	113.0	26.5	1
SMDT75A	SMDT75CA	3PGR	3DGR	75.0	83.30	92.10	1	121.0	24.8	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 μs

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

Figure 1 - Pulse Waveform

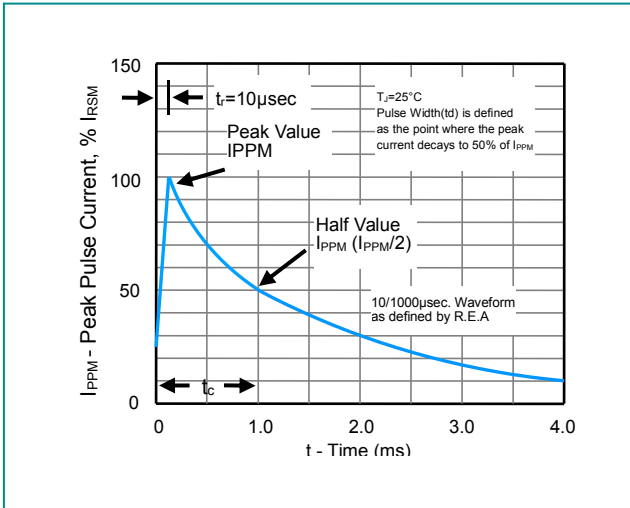
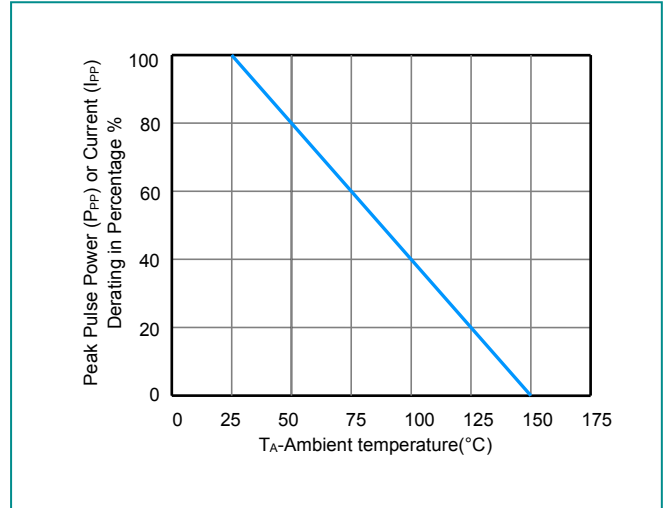
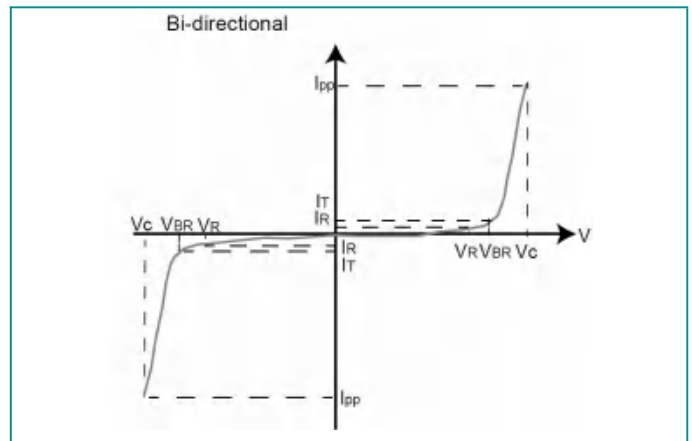
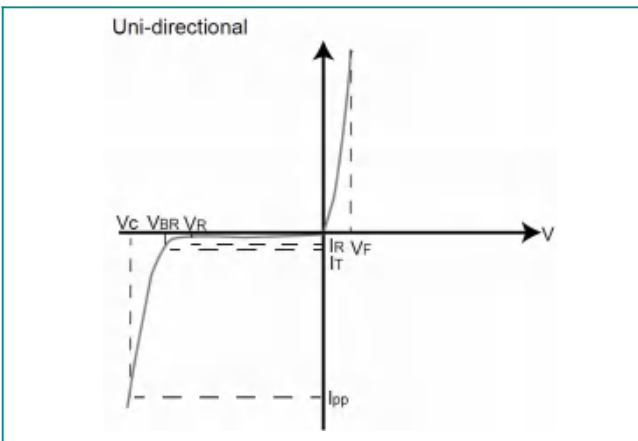


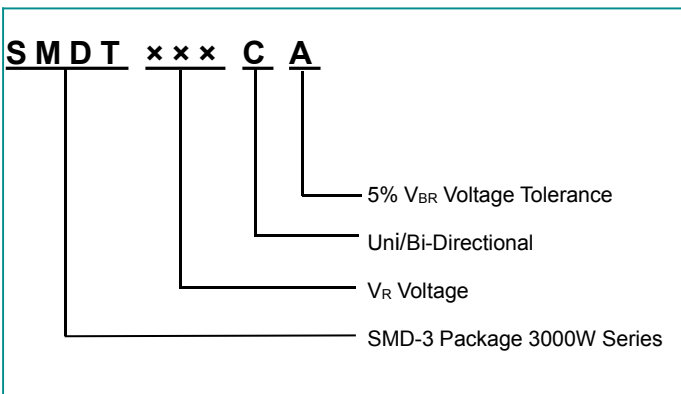
Figure 2 - Pulse Derating Curve



I-V Curve Characteristics



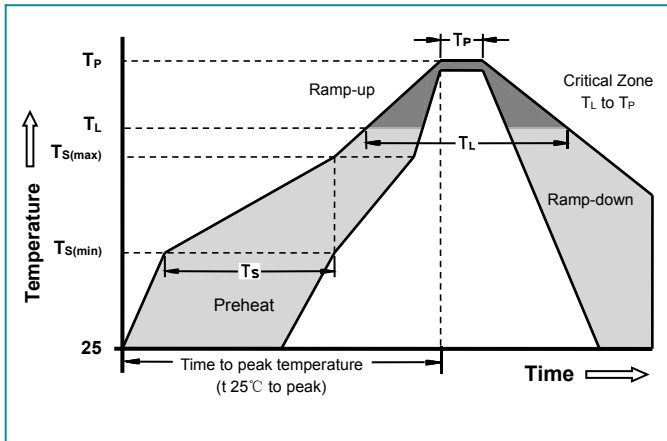
Part Numbering



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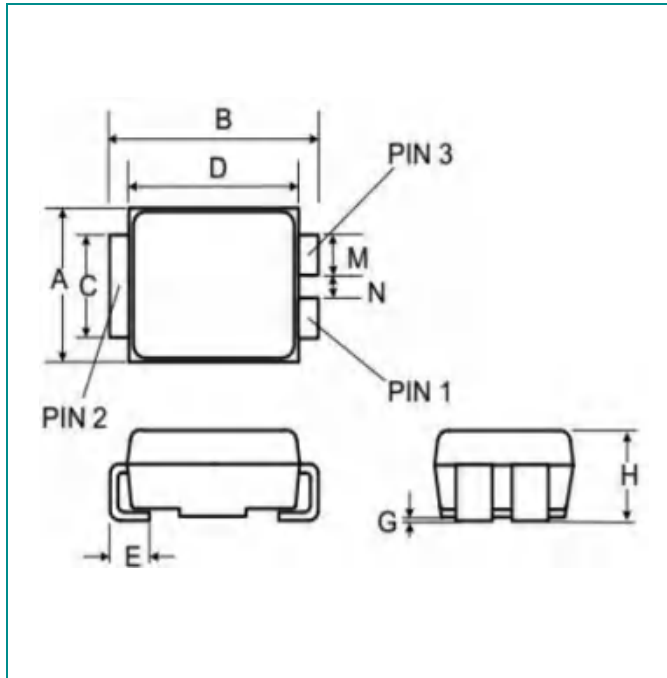
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Soldering Parameters



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	0.220	0.245	5.59	6.22
B	0.305	0.320	7.75	8.13
C	0.114	0.126	2.90	3.20
D	0.260	0.278	6.60	7.11
E	0.030	0.060	0.76	1.52
G	-	0.008	-	0.203
H	0.081	0.104	2.06	2.62
M	0.032	0.051	0.80	1.30
N	0.024	0.039	0.60	1.00