

TPSMC Series

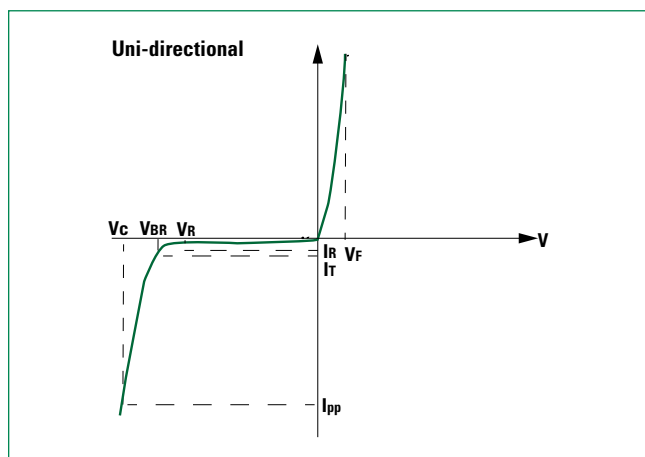
Surface Mount - 1500W

Electrical Characteristics

Part Number (Uni)	Part Number (Bi)	Marking		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ 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_R (μA)	Agency Approval
		UNI	BI		MIN	MAX					
TPSMC12A	TPSMC12CA	12AA	12CA	10.20	11.40	12.60	1	16.7	91.0	5	X
TPSMC13A	TPSMC13CA	13AA	13CA	11.10	12.40	13.70	1	18.2	83.5	1	X
TPSMC15A	TPSMC15CA	15AA	15CA	12.80	14.30	15.80	1	21.2	71.7	1	X
TPSMC16A	TPSMC16CA	16AA	16CA	13.60	15.20	16.80	1	22.5	67.6	1	X
TPSMC18A	TPSMC18CA	18AA	18CA	15.30	17.10	18.90	1	25.2	60.3	1	X
TPSMC20A	TPSMC20CA	20AA	20CA	17.10	19.00	21.00	1	27.7	54.9	1	X
TPSMC22A	TPSMC22CA	22AA	22CA	18.80	20.90	23.10	1	30.6	49.7	1	X
TPSMC24A	TPSMC24CA	24AA	24CA	20.50	22.80	25.20	1	33.2	45.8	1	X
TPSMC27A	TPSMC27CA	27AA	27CA	23.10	25.70	28.40	1	37.5	40.5	1	X
TPSMC30A	TPSMC30CA	30AA	30CA	25.60	28.50	31.50	1	41.4	36.7	1	X
TPSMC33A	TPSMC33CA	33AA	33CA	28.20	31.40	34.70	1	45.7	33.3	1	X
TPSMC36A	TPSMC36CA	36AA	36CA	30.80	34.20	37.80	1	49.9	30.5	1	X
TPSMC39A	TPSMC39CA	39AA	39CA	33.30	37.10	41.00	1	53.9	28.2	1	X
TPSMC43A	TPSMC43CA	43AA	43CA	36.80	40.90	45.20	1	59.3	25.6	1	X
TPSMC47A	TPSMC47CA	47AA	47CA	40.20	44.70	49.40	1	64.8	23.5	1	X
TPSMC51A	TPSMC51CA	51AA	51CA	43.60	48.50	53.60	1	70.1	21.7	1	X
TPSMC56A	TPSMC56CA	56AA	56CA	47.80	53.20	58.80	1	77.0	19.7	1	X
TPSMC62A	TPSMC62CA	62AA	62CA	53.00	58.90	65.10	1	85.0	17.9	1	X
TPSMC68A	TPSMC68CA	68AA	68CA	58.10	64.60	71.40	1	92.0	16.5	1	X
TPSMC75A	TPSMC75CA	75AA	75CA	64.10	71.30	78.80	1	103.0	14.8	1	X
TPSMC82A	TPSMC82CA	82AA	82CA	70.10	77.90	86.10	1	113.0	13.5	1	X
TPSMC91A	TPSMC91CA	91AA	91CA	77.80	86.50	95.50	1	125.0	12.2	1	X
TPSMC100A	TPSMC100CA	100AA	100CA	85.50	95.00	105.26	1	137.0	11.1	1	X
TPSMC110A	TPSMC110CA	110AA	110CA	94.50	104.50	115.79	1	152.0	10	1	X
TPSMC120A	TPSMC120CA	120AA	120CA	102.60	114.00	126.32	1	165.0	9.2	1	X
TPSMC130A	TPSMC130CA	130AA	130CA	111.15	123.50	136.84	1	179.0	8.5	1	X
TPSMC150A	TPSMC150CA	150AA	150CA	128.25	142.50	157.89	1	207.0	7.3	1	X
TPSMC160A	TPSMC160CA	160AA	160CA	136.80	152.00	168.42	1	219.0	6.9	1	X
TPSMC170A	TPSMC170CA	170AA	170CA	145.35	161.50	178.95	1	234.0	6.5	1	X
TPSMC180A	TPSMC180CA	180AA	180CA	153.90	171.00	189.47	1	246.0	6.2	1	X
TPSMC200A	TPSMC200CA	200AA	200CA	171.00	190.00	210.53	1	274.0	5.5	1	X
TPSMC220A	TPSMC220CA	220AA	220CA	188.10	209.00	231.58	1	328.0	4.6	1	X
TPSMC250A	TPSMC250CA	250AA	250CA	213.75	237.50	263.16	1	344.0	4.4	1	X

For bidirectional type having V_R of 10 volts and less, the I_R limit is double.

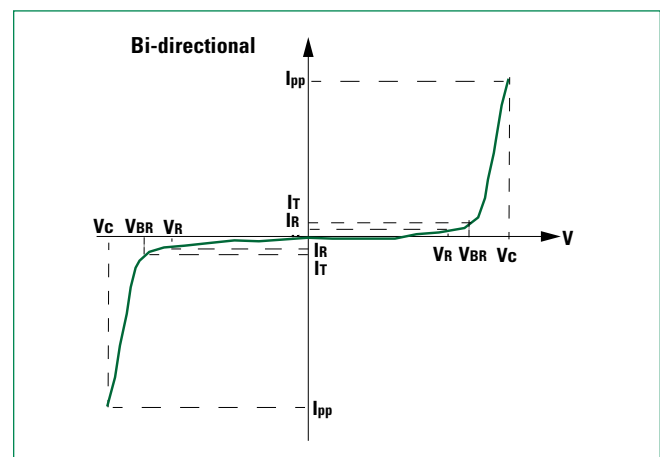
I-V Curve Characteristics



P_{PPM} Peak Pulse Power Dissipation -- Max power dissipation

V_R Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation

V_{BR} Breakdown Voltage -- Maximum voltage that flows though the TVS at a specified test current (I_T)



V_C Clamping Voltage -- Peak voltage measured across the TVS at a specified I_{PP} (peak impulse current)

I_R Reverse Leakage Current -- Current measured at V_R

V_F Forward Voltage Drop for Uni-directional

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

Figure 1 - TVS Transients Clamping Waveform

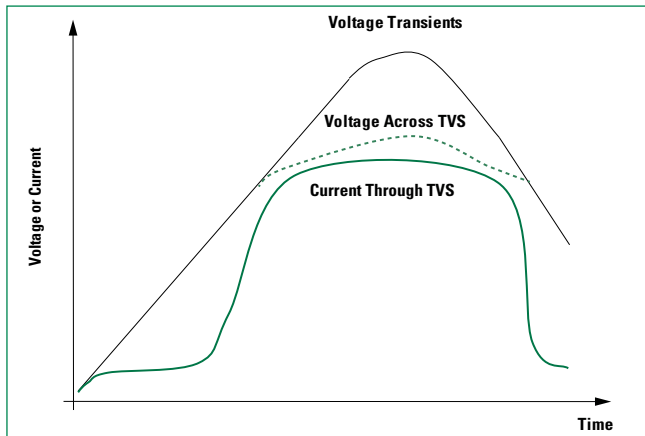


Figure 2 - Peak Pulse Power Rating

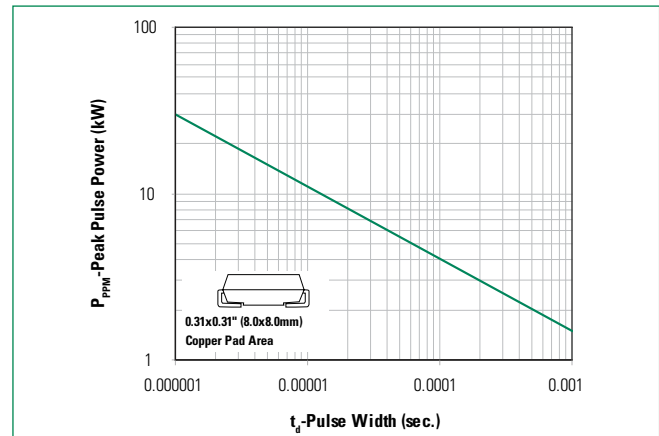


Figure 3 - Peak Pulse Power Derating Curve

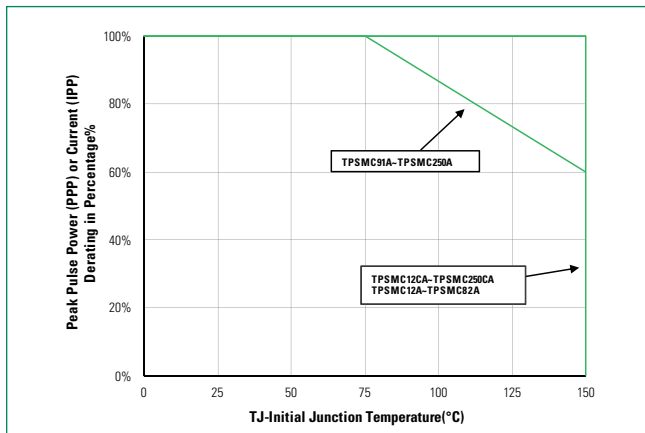


Figure 4 - Pulse Waveform

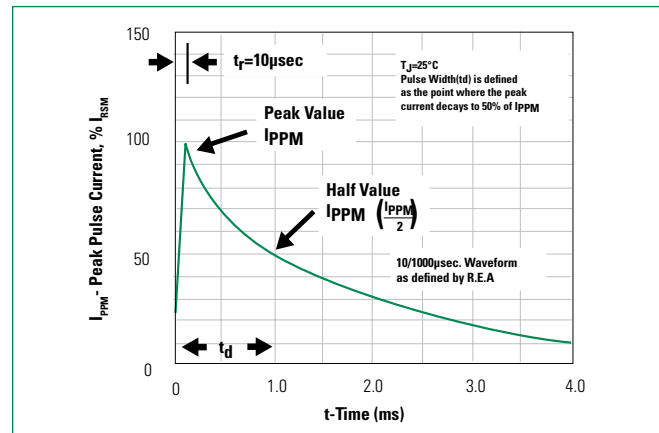


Figure 5 - Typical Junction Capacitance

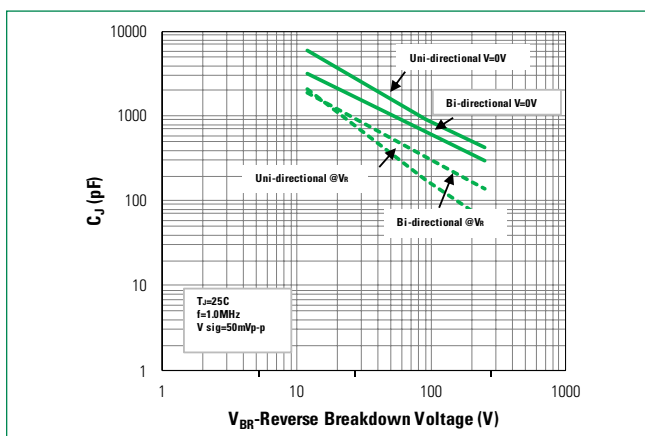
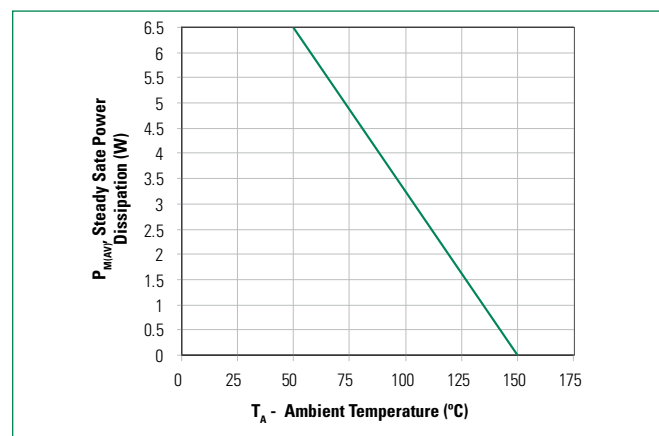


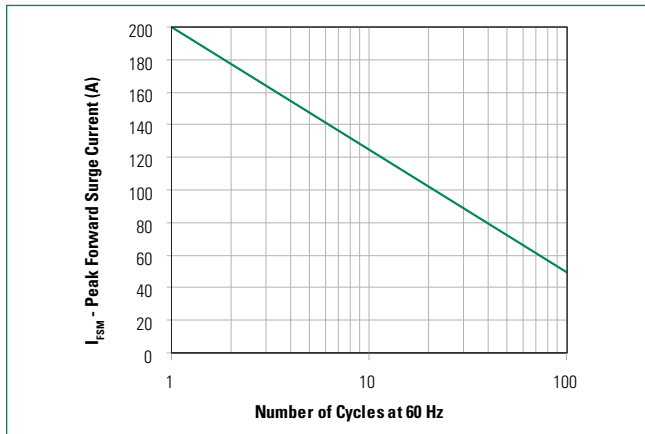
Figure 6 - Steady State Power Dissipation Derating Curve



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Figure 7 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only



Soldering Parameters

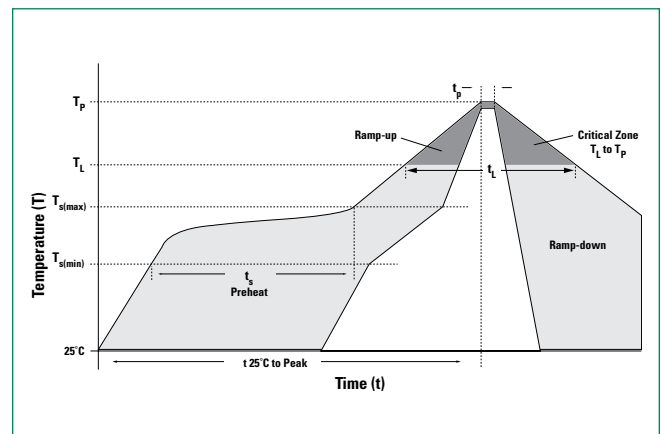
Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 120 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_r)	60 – 150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		30 seconds max
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

Physical Specifications

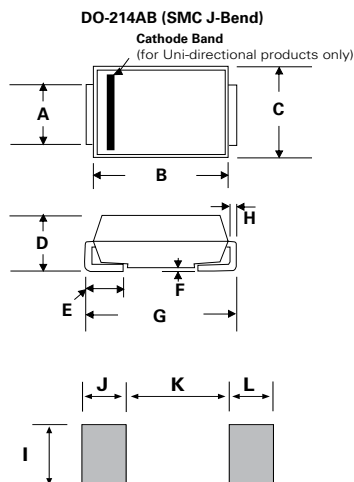
Weight	0.007 ounce, 0.21 grams
Case	JEDEC DO214AB. Molded plastic body over glass passivated junction
Polarity	Color band denotes positive end (cathode) except Bidirectional.
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102

Environmental Specifications

High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Temperature Cycling	JESD22-A104
MSL	JEDEC-J-STD-020, Level 1
H3TRB	JESD22-A101
RSH	JESD22-A111



Dimensions

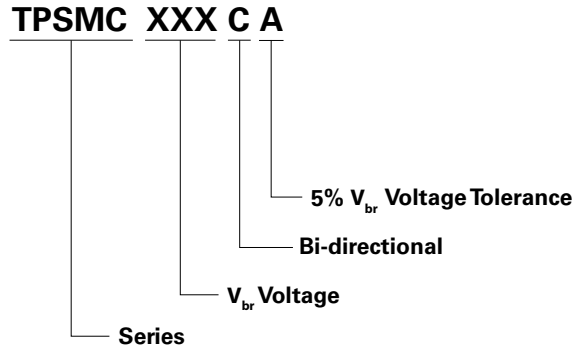


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.114	0.126	2.900	3.200
B	0.260	0.280	6.600	7.110
C	0.220	0.245	5.590	6.220
D	0.079	0.103	2.060	2.620
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.750	8.130
H	0.006	0.012	0.152	0.305
I	0.129	-	3.300	-
J	0.094	-	2.400	-
K	-	0.165	-	4.200
L	0.094	-	2.400	-

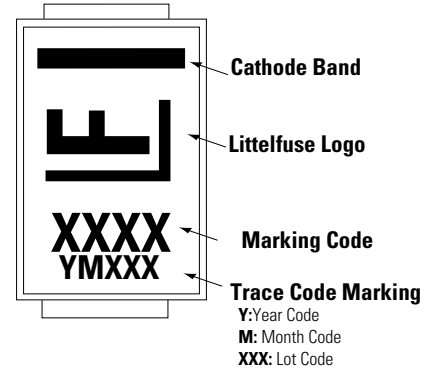
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Part Numbering System



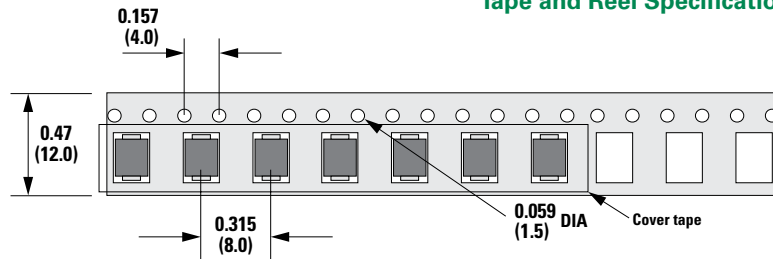
Part Marking System



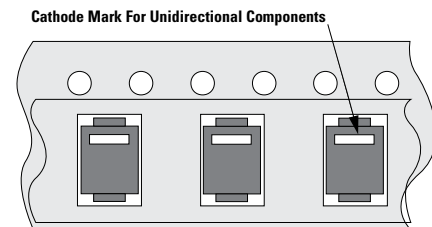
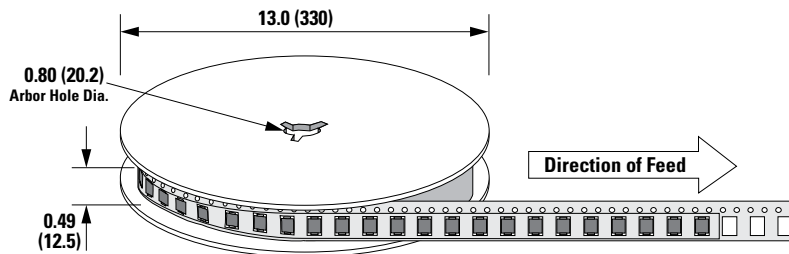
Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
TPSMCxxxXX	DO-214AB	3000	Tape & Reel - 16mm tape/13" reel	EIA STD RS-481

Tape and Reel Specification



Note: Dimensions are in inches (and millimeters).



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