

Surface Mount Transient Voltage Suppressors(TVS)

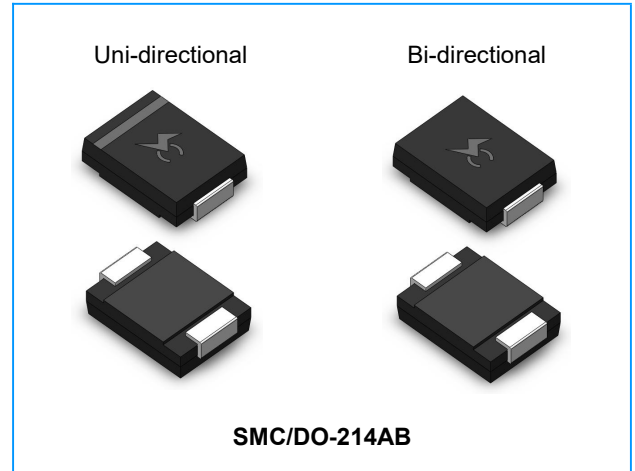
TPSMCJ Series
5.0 to 78 V
1500W
SMC/DO-214AB

Features

- ◆ Glass passivated chip.
- ◆ 1500W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle): 0.01 %.
- ◆ High reliability application and automotive grade AEC Q101 qualified.
- ◆ Low leakage.
- ◆ Uni and Bidirectional unit.
- ◆ Excellent clamping capability.
- ◆ Very fast response time.
- ◆ RoHS compliant.

Mechanical Data

- ◆ Case: Molded plastic.
- ◆ Epoxy: UL 94V-0 rate flame retardant.
- ◆ Lead: Solderable per MIL-STD-750, method 2026.
- ◆ Polarity: Color band denotes cathode end except Bipolar.
- ◆ Mounting position: Any.



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

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PP}	1500	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	6.5	W
Peak forward surge current, 8.3 ms single half sinewave unidirectional only ⁽²⁾	I_{FSM}	200	A
Maximum instantaneous forward voltage at 100 A for unidirectional only ⁽³⁾	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Notes:

(1) Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.1.

(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

(3) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$.

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

Part Number		Marking		Working Peak Reverse 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				
TPSMCJ5.0A	TPSMCJ5.0CA	GDEA	BDEA	5.0	6.40	7.00	10	9.2	163.04	1000
TPSMCJ6.0A	TPSMCJ6.0CA	GDGA	BDGA	6.0	6.67	7.37	10	10.3	145.63	1000
TPSMCJ6.5A	TPSMCJ6.5CA	GDKA	BDKA	6.5	7.22	7.98	10	11.2	133.93	500
TPSMCJ7.0A	TPSMCJ7.0CA	GDMA	BDMA	7.0	7.78	8.60	10	12.0	125.00	200
TPSMCJ7.5A	TPSMCJ7.5CA	GDPA	BDPA	7.5	8.33	9.21	1	12.9	116.28	100
TPSMCJ8.0A	TPSMCJ8.0CA	GDRA	BDRA	8.0	8.89	9.83	1	13.6	110.29	50
TPSMCJ8.5A	TPSMCJ8.5CA	GDTA	BDTA	8.5	9.44	10.40	1	14.4	104.17	20
TPSMCJ9.0A	TPSMCJ9.0CA	GDVA	BDVA	9.0	10.00	11.10	1	15.4	97.40	10
TPSMCJ10A	TPSMCJ10CA	GDXA	BDXA	10.0	11.10	12.30	1	17.0	88.24	5
TPSMCJ11A	TPSMCJ11CA	GDZA	BDZA	11.0	12.20	13.50	1	18.2	82.42	1
TPSMCJ12A	TPSMCJ12CA	GEEA	BEEA	12.0	13.30	14.70	1	19.9	75.38	1
TPSMCJ13A	TPSMCJ13CA	GEGA	BEGA	13.0	14.40	15.90	1	21.5	67.99	1
TPSMCJ14A	TPSMCJ14CA	GEKA	BEKA	14.0	15.60	17.20	1	23.2	64.66	1
TPSMCJ15A	TPSMCJ15CA	GEMA	BEMA	15.0	16.70	18.50	1	24.4	61.48	1
TPSMCJ16A	TPSMCJ16CA	GEPA	BEPA	16.0	17.80	19.70	1	26.0	57.69	1
TPSMCJ17A	TPSMCJ17CA	GERA	BERA	17.0	18.90	20.90	1	27.6	54.35	1
TPSMCJ18A	TPSMCJ18CA	GETA	BETA	18.0	20.00	22.10	1	29.2	51.37	1
TPSMCJ19A	TPSMCJ19CA	GEBA	BEBA	19.0	21.10	23.30	1	30.8	48.73	1
TPSMCJ20A	TPSMCJ20CA	GEVA	BEVA	20.0	22.20	24.50	1	32.4	46.30	1
TPSMCJ22A	TPSMCJ22CA	GEXA	BEXA	22.0	24.40	26.90	1	35.5	42.25	1
TPSMCJ24A	TPSMCJ24CA	GEZA	BEZA	24.0	26.70	29.50	1	38.9	38.56	1
TPSMCJ26A	TPSMCJ26CA	GFEA	BFEA	26.0	28.90	31.90	1	42.1	35.63	1
TPSMCJ28A	TPSMCJ28CA	GFGA	BFGA	28.0	31.10	34.40	1	45.4	33.04	1
TPSMCJ30A	TPSMCJ30CA	GFKA	BFKA	30.0	33.30	36.80	1	48.4	30.99	1
TPSMCJ33A	TPSMCJ33CA	GFMA	BFMA	33.0	36.70	40.60	1	53.3	28.14	1
TPSMCJ36A	TPSMCJ36CA	GFPA	BFPA	36.0	40.00	44.20	1	58.1	25.82	1
TPSMCJ40A	TPSMCJ40CA	GFRA	BFRA	40.0	44.40	49.10	1	64.5	23.26	1
TPSMCJ43A	TPSMCJ43CA	GFTA	BFTA	43.0	47.80	52.80	1	69.4	21.61	1
TPSMCJ45A	TPSMCJ45CA	GFVA	BFVA	45.0	50.00	55.30	1	72.7	20.63	1
TPSMCJ48A	TPSMCJ48CA	GFXA	BFXA	48.0	53.30	58.90	1	77.4	19.38	1
TPSMCJ51A	TPSMCJ51CA	GFZA	BFZA	51.0	56.70	62.70	1	82.4	18.20	1
TPSMCJ54A	TPSMCJ54CA	GGEA	BGEA	54.0	60.00	66.30	1	87.1	17.22	1
TPSMCJ58A	TPSMCJ58CA	GGGA	BGGA	58.0	64.40	71.20	1	93.6	16.03	1

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Part Number		Marking		Working Peak Reverse 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				
TPSMCJ60A	TPSMCJ60CA	GGKA	BGKA	60.0	66.70	73.70	1	96.8	15.50	1
TPSMCJ64A	TPSMCJ64CA	GGMA	BGMA	64.0	71.10	78.60	1	103.0	14.56	1
TPSMCJ70A	TPSMCJ70CA	GGPA	BGPA	70.0	77.80	86.00	1	113.0	13.27	1
TPSMCJ75A	TPSMCJ75CA	GGRA	BGRA	75.0	83.30	92.10	1	121.0	12.40	1
TPSMCJ78A	TPSMCJ78CA	GGTA	BGTA	78.0	86.70	95.80	1	126.0	11.90	1

Note:
 1. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices.
 2. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double.

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

Figure 1 - Pulse Derating Curve

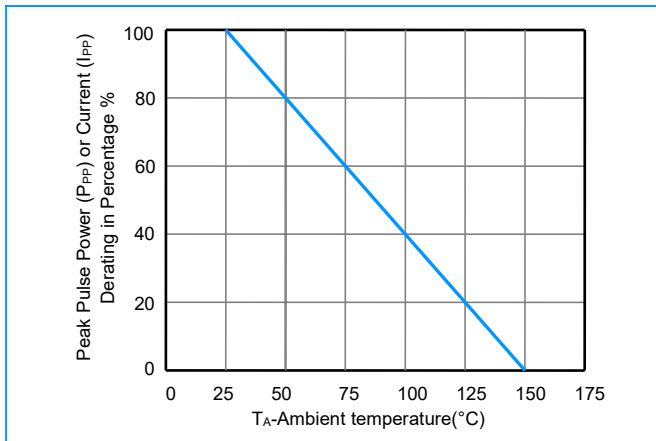


Figure 2 - Maximum Non-Repetitive Surge Current

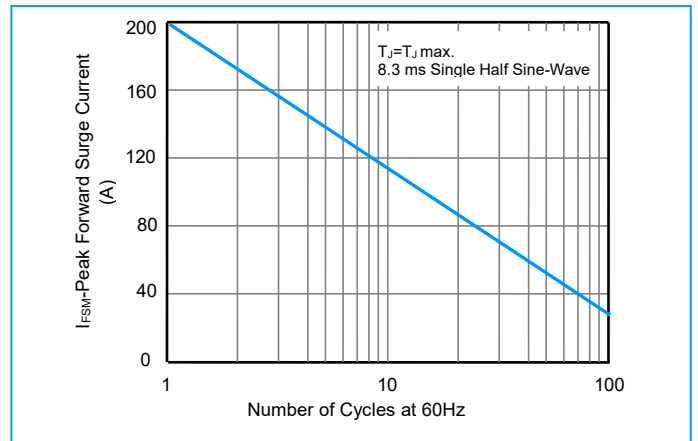


Figure 3 - Steady State Power Derating Curve

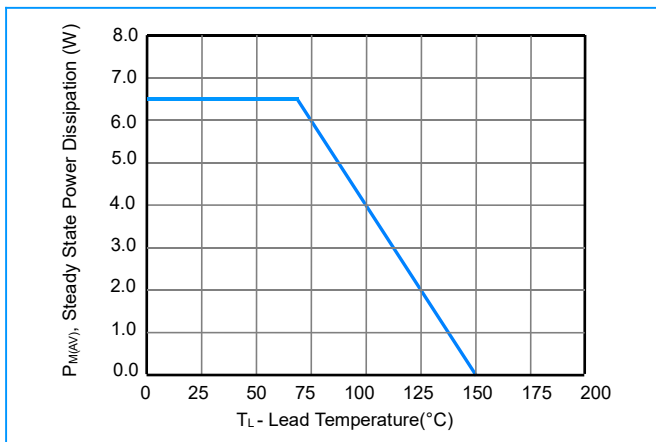
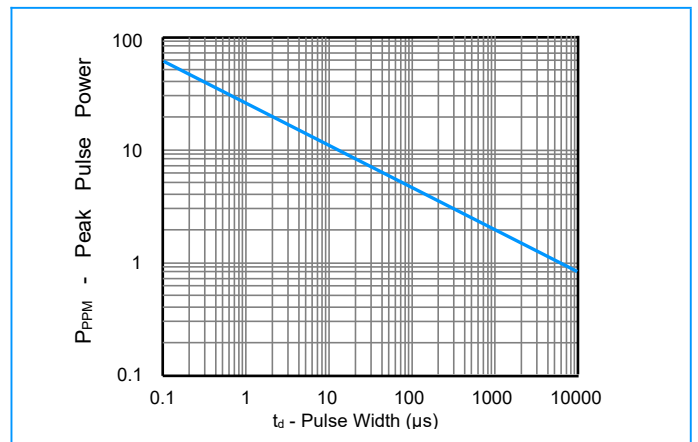
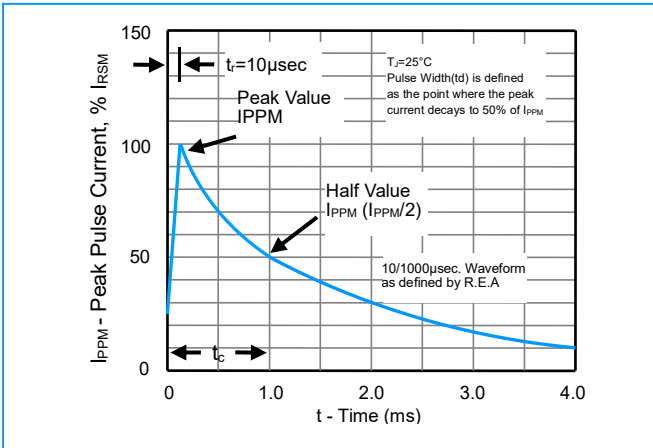
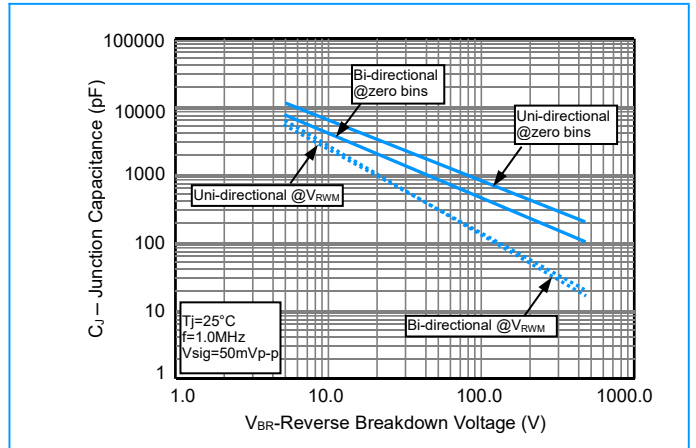
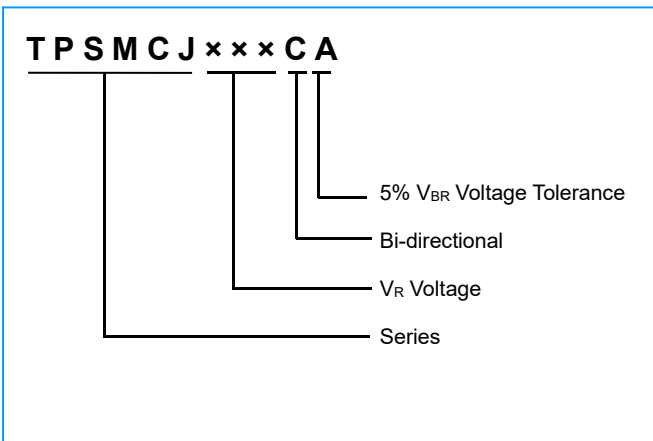
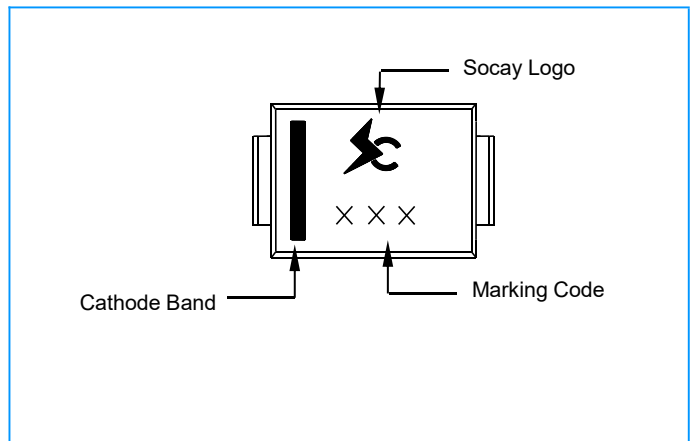


Figure 4 - Peak Pulse Power Rating Curve



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Figure 5 - Pulse Waveform

Figure 6 - Typical Junction Capacitance

Part Numbering

Part Marking


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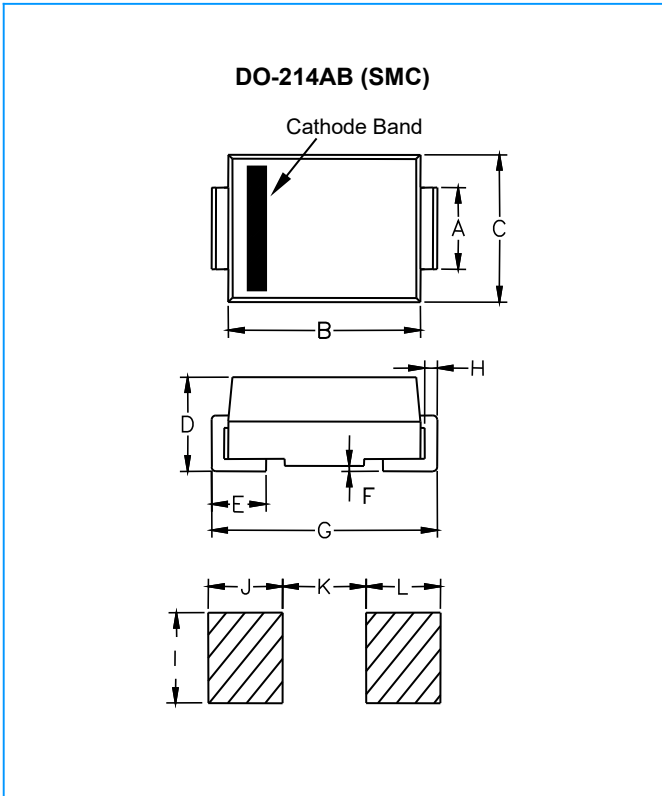
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Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.108	0.126	2.750	3.200
B	0.260	0.280	6.520	7.110
C	0.217	0.244	5.520	6.220
D	0.080	0.112	2.050	2.850
E	0.030	0.060	0.750	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.640	8.130
H	0.006	0.012	0.150	0.310
I	0.121	-	3.070	-
J	0.068	-	1.715	-
K	-	0.185	-	4.690
L	0.068	-	1.715	-

Packaging

Part Number	Component Package	Quantity
TPSCMJ Series	SMC/DO-214AB	3000 pcs