

## Surface Mount Transient Voltage Suppressors(TVS)

**TPSMCJ Series      10 to 78 V      1500W**

### Features

- ◆ Glass passivated chip.
- ◆ 1500W peak pulse power capability with a 10/1000  $\mu$ 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 $\mu$ s waveform <sup>(1)</sup>	$P_{PP}$	1500	W
Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$I_{PP}$	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 <sup>(2)</sup>	$I_{FSM}$	200	A
Maximum instantaneous forward voltage at 100 A for unidirectional only <sup>(3)</sup>	$V_F$	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 $I_R$ @ $V_{RWM}$ ( $\mu\text{A}$ )
Uni	Bi	Uni	Bi		MIN	MAX				
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
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:**

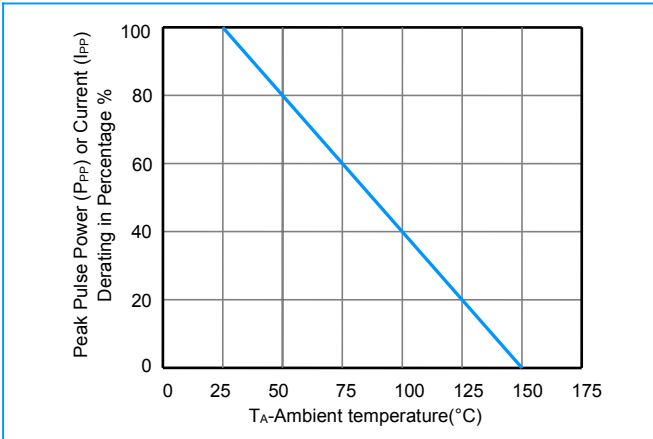
1. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices.
2. For Bi-Directional devices having  $V_R$  of 10 volts and under, the  $I_R$  limit is double.

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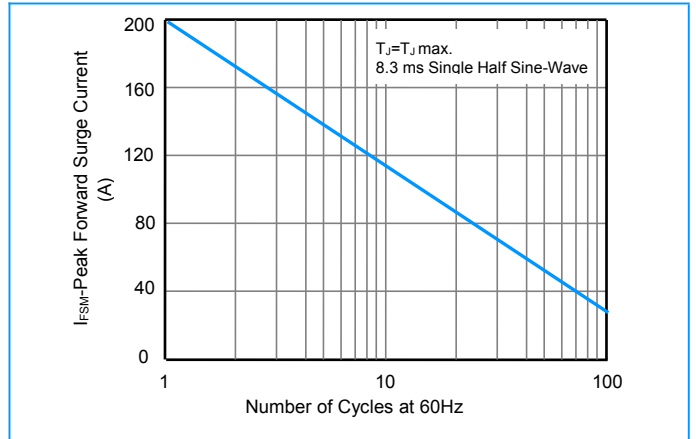
**TPSMCJ Series      10 to 78 V      1500W**

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

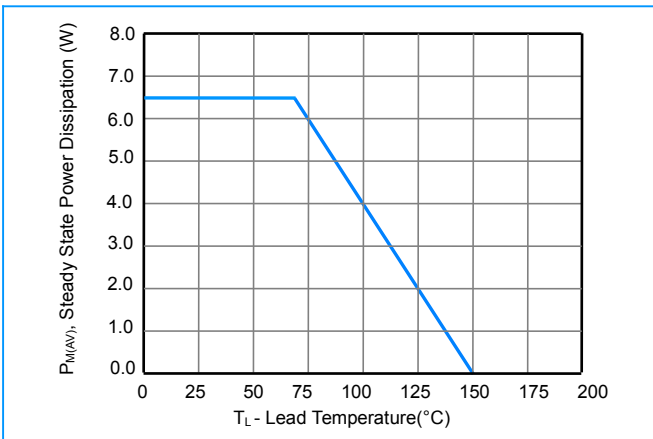
**Figure 1 - Pulse Derating Curve**



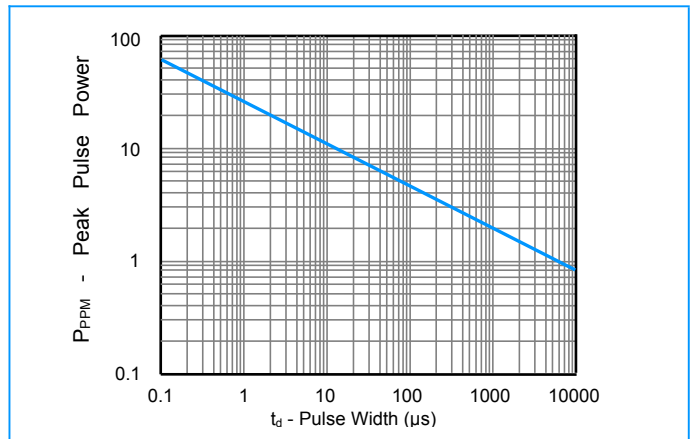
**Figure 2 - Maximum Non-Repetitive Surge Current**



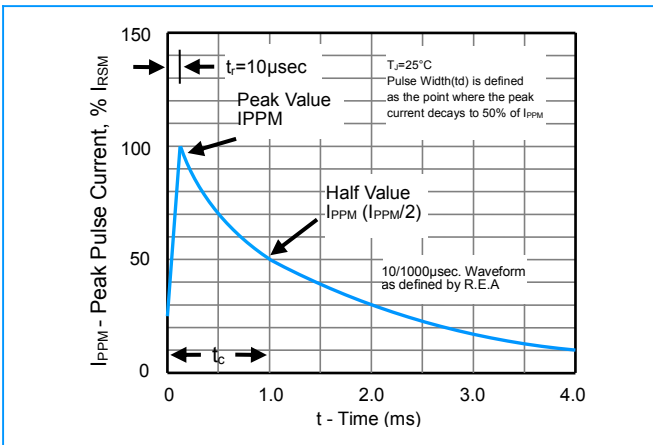
**Figure 3 - Steady State Power Derating Curve**



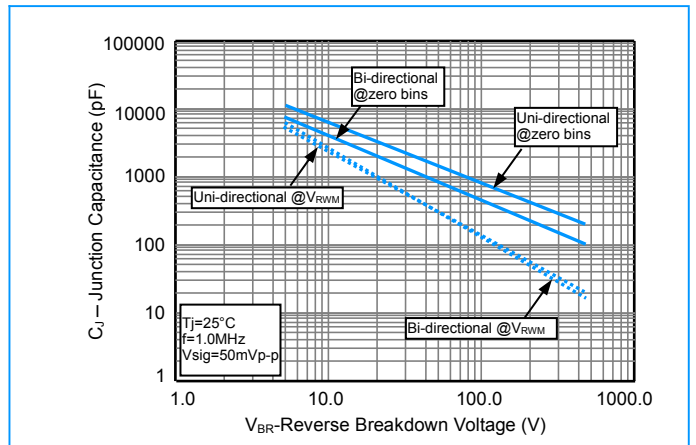
**Figure 4 - Peak Pulse Power Rating Curve**



**Figure 5 - Pulse Waveform**



**Figure 6 - Typical Junction Capacitance**



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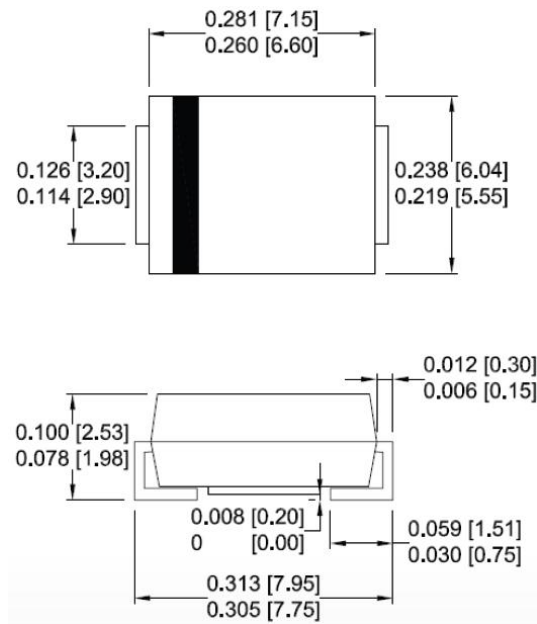
TPSMCJ Series

10 to 78 V

1500W

### Dimensions

SMC/DO-214AB



Dimensions : inch [ mm ]

### Packaging

Part Number	Component Package	Quantity
TPSMCJ Series	SMC/DO-214AB	500 pcs