

## Surface Mount Transient Voltage Suppressors(TVS)

**TPSMDJ Series**
**5.0 to 58V**
**3000W**
**SMC/DO-214AB**

### Features

- ◆ Glass passivated chip.
- ◆ 3000W 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>	$P_{PP}$	3000	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>	$I_{FSM}$	300	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  $V_{BR} > 201\text{V}$ .

## Surface Mount Transient Voltage Suppressors(TVS)

**TPSMDJ Series**
**5.0 to 58V**
**3000W**
**SMC/DO-214AB**
**Electrical Characteristics(T<sub>A</sub>=25°C unless otherwise noted)**

Part Number		Marking		Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Breakdown Voltage V <sub>BR</sub> (V) @I <sub>r</sub>		Test Current I <sub>r</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @I <sub>PP</sub> (V)	Maximum Peak Pulse Current I <sub>PP</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @V <sub>RWM</sub> (μA)
Uni	Bi	Uni	Bi		MIN	MAX				
TPSMDJ5.0A	TPSMDJ5.0CA	RDEA	DDEA	5.0	6.40	7.00	10	9.2	326.09	1000
TPSMDJ6.0A	TPSMDJ6.0CA	RDGA	DDGA	6.0	6.67	7.37	10	10.3	291.26	1000
TPSMDJ6.5A	TPSMDJ6.5CA	RDKA	DDKA	6.5	7.22	7.98	10	11.2	267.86	500
TPSMDJ7.0A	TPSMDJ7.0CA	PDMA	DDMA	7.0	7.78	8.60	10	12.0	250.00	200
TPSMDJ7.5A	TPSMDJ7.5CA	PDPA	DDPA	7.5	8.33	9.21	1	12.9	232.56	100
TPSMDJ8.0A	TPSMDJ8.0CA	PDRA	DDRA	8.0	8.89	9.83	1	13.6	220.59	50
TPSMDJ8.5A	TPSMDJ8.5CA	PDTA	DDTA	8.5	9.44	10.40	1	14.4	208.33	25
TPSMDJ9.0A	TPSMDJ9.0CA	PDVA	DDVA	9.0	10.00	11.10	1	15.4	194.81	10
TPSMDJ10A	TPSMDJ10CA	PDXA	DDXA	10.0	11.10	12.30	5	17.0	176.47	15
TPSMDJ11A	TPSMDJ11CA	PDZA	DDZA	11.0	12.20	13.50	5	18.2	164.84	2
TPSMDJ12A	TPSMDJ12CA	PEEA	DEEA	12.0	13.30	14.70	5	19.9	150.75	2
TPSMDJ13A	TPSMDJ13CA	PEGA	DEGA	13.0	14.40	15.90	5	21.5	139.53	2
TPSMDJ14A	TPSMDJ14CA	PEKA	DEKA	14.0	15.60	17.20	5	23.2	129.31	2
TPSMDJ15A	TPSMDJ15CA	PEMA	DEMA	15.0	16.70	18.50	5	24.4	122.95	2
TPSMDJ16A	TPSMDJ16CA	PEPA	DEPA	16.0	17.80	19.70	5	26.0	115.38	2
TPSMDJ17A	TPSMDJ17CA	PERA	DERA	17.0	18.90	20.90	5	27.6	108.70	2
TPSMDJ18A	TPSMDJ18CA	PETA	DETA	18.0	20.00	22.10	5	29.2	102.74	2
TPSMDJ19A	TPSMDJ19CA	PEBA	DEBA	19.0	21.10	23.30	5	30.8	97.47	2
TPSMDJ20A	TPSMDJ20CA	PEVA	DEVA	20.0	22.20	24.50	5	32.4	92.59	2
TPSMDJ22A	TPSMDJ22CA	PEXA	DEXA	22.0	24.40	26.90	5	35.5	84.51	2
TPSMDJ24A	TPSMDJ24CA	PEZA	DEZA	24.0	26.70	29.50	5	38.9	77.12	2
TPSMDJ26A	TPSMDJ26CA	PFEA	DFEA	26.0	28.90	31.90	5	42.1	71.26	2
TPSMDJ28A	TPSMDJ28CA	PFGA	DFGA	28.0	31.10	34.40	5	45.4	66.08	2
TPSMDJ30A	TPSMDJ30CA	PFKA	DFKA	30.0	33.30	36.80	5	48.4	61.98	2
TPSMDJ33A	TPSMDJ33CA	PFMA	DFMA	33.0	36.70	40.60	5	53.3	56.29	2
TPSMDJ36A	TPSMDJ36CA	PFFA	DFPA	36.0	40.00	44.20	5	58.1	51.64	2
TPSMDJ40A	TPSMDJ40CA	PFRA	DFRA	40.0	44.40	49.10	5	64.5	46.51	2
TPSMDJ43A	TPSMDJ43CA	PFTA	DFTA	43.0	47.80	52.80	5	69.4	43.23	2
TPSMDJ45A	TPSMDJ45CA	PFVA	DFVA	45.0	50.00	55.30	5	72.7	41.3	5
TPSMDJ48A	TPSMDJ48CA	PFXA	DFXA	48.0	53.30	58.90	5	77.4	38.8	5
TPSMDJ51A	TPSMDJ51CA	PFZA	DFZA	51.0	56.70	62.70	5	82.4	36.4	5
TPSMDJ54A	TPSMDJ54CA	RGEA	DGEA	54.0	60.00	66.30	1	87.1	34.4	5
TPSMDJ58A	TPSMDJ58CA	PGGA	DGGA	58.0	64.40	71.20	1	93.6	32.1	5

**Note:**

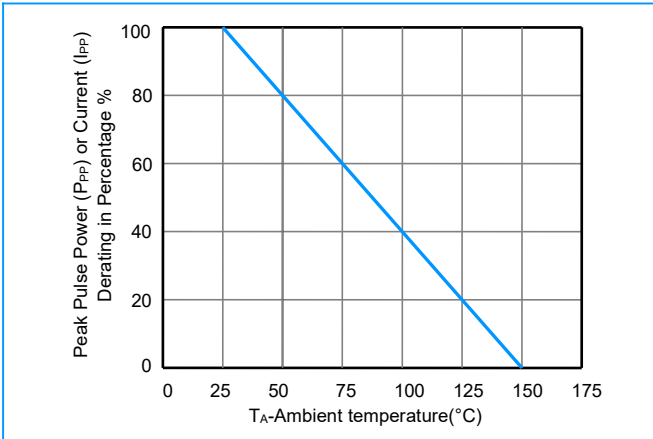
1. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices.
2. For Bi-Directional devices having V<sub>R</sub> of 10 volts and under, the I<sub>R</sub> limit is double.

# Surface Mount Transient Voltage Suppressors(TVS)

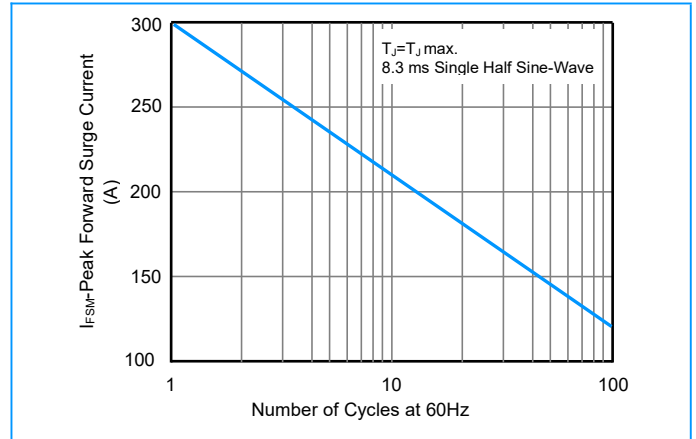
**TPSMDJ Series      5.0 to 58V      3000W      SMC/DO-214AB**

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

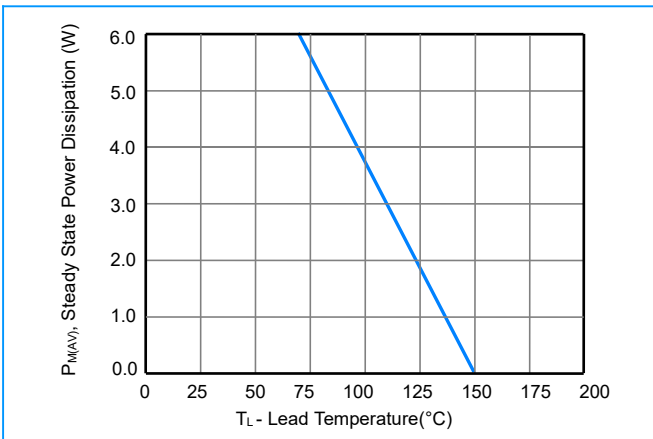
**Figure 1 - Pulse Derating Curve**



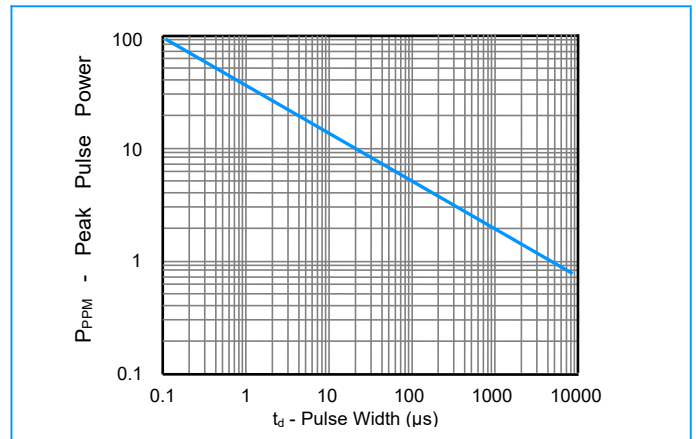
**Figure 2 - Maximum Non-Repetitive Surge Current**



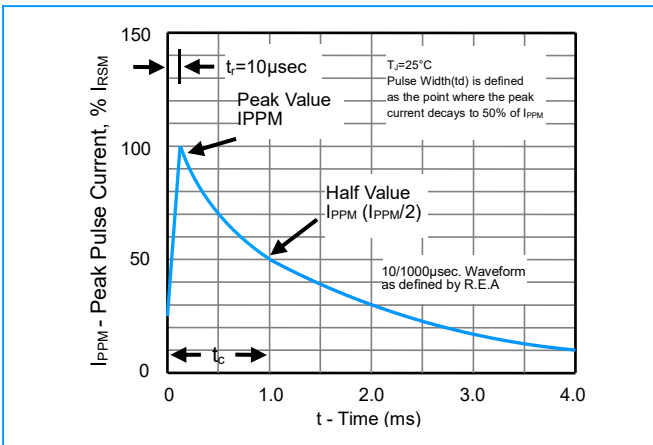
**Figure 3 - Steady State Power Derating Curve**



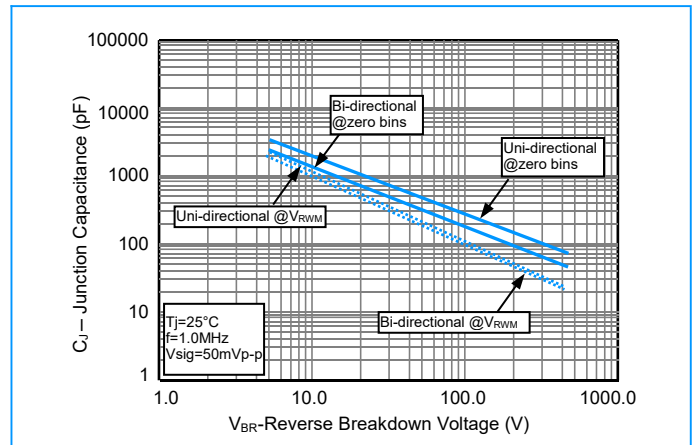
**Figure 4 - Peak Pulse Power Rating Curve**



**Figure 5 - Pulse Waveform**



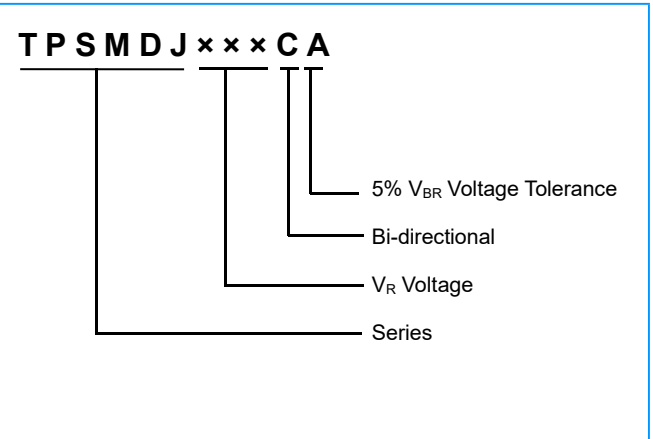
**Figure 6 - Typical Junction Capacitance**



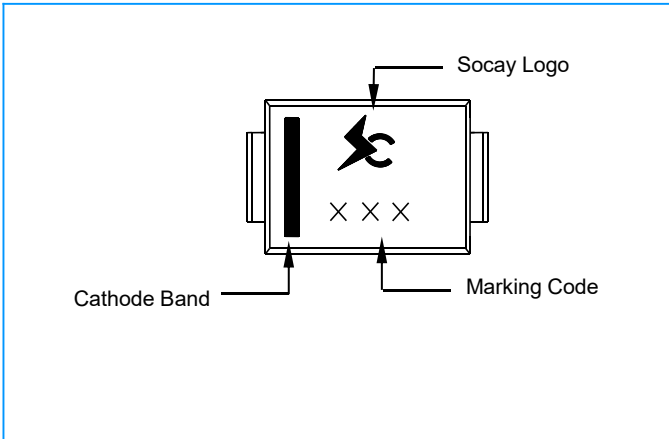
# Surface Mount Transient Voltage Suppressors(TVS)

**TPSMDJ Series      5.0 to 58V      3000W      SMC/DO-214AB**

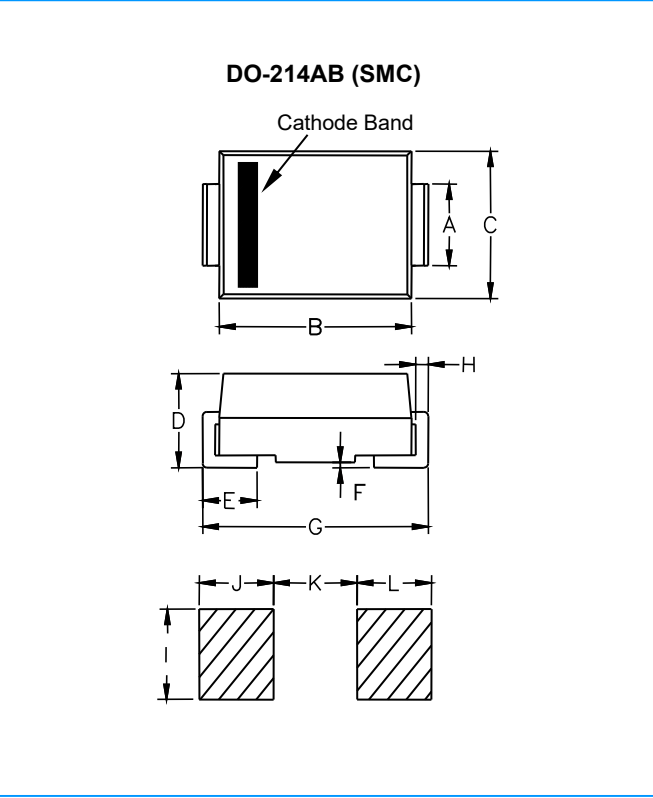
## Part Numbering



## Part Marking



## 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
TPSMDJ Series	SMC/DO-214AB	3000 pcs