

**Breakdown Voltage: 12 to 91 V**  
**Peak Pulse Power: 1500 W**

## Surface Mount Transient Voltage Suppressors

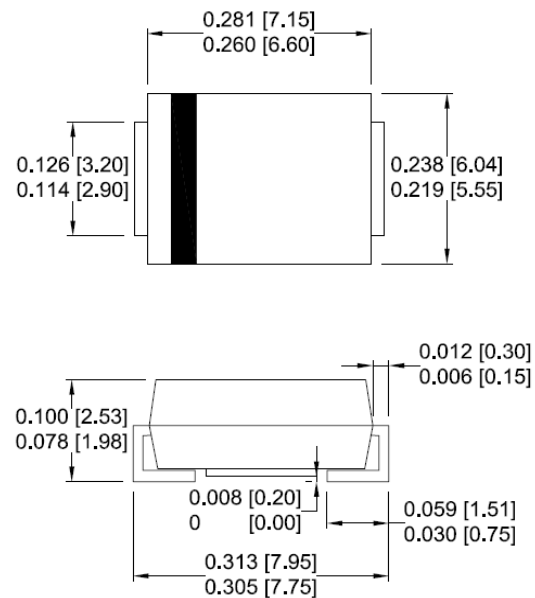
### Features

- Glass passivated chip
- 1500 W 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

SMC/ DO-214AB



Dimensions: inch [mm]

### 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 sine-wave 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	$^\circ\text{C}$

**Note:**

(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  $V_{BR} > 201\text{V}$



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

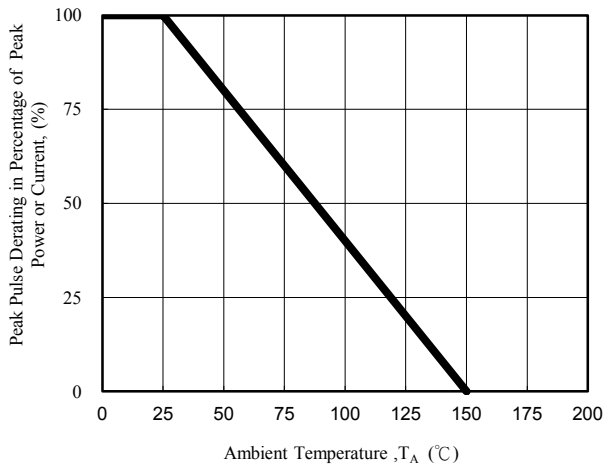


Fig. 1 - Pulse Derating Curve

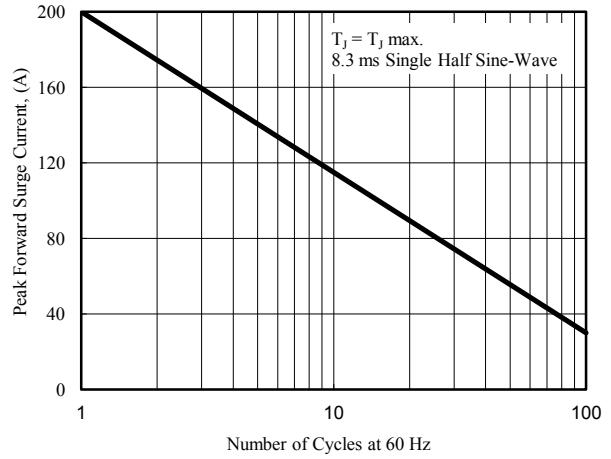


Fig. 2 - Maximum Non-Repetitive Surge Current

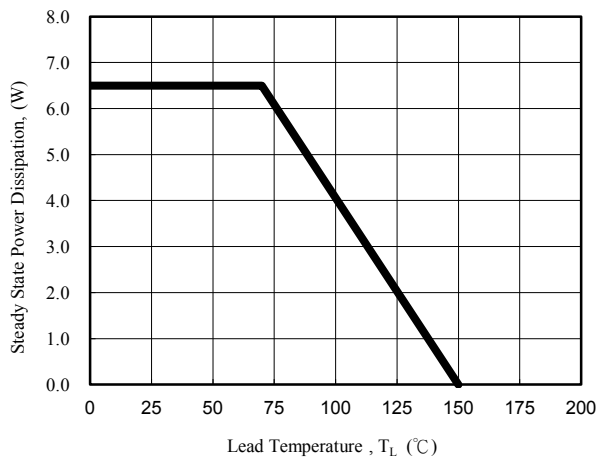


Fig. 3 - Steady State Power Derating Curve

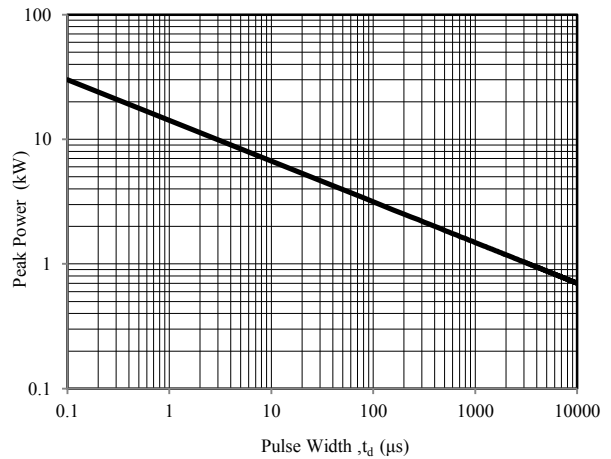


Fig. 4 - Peak Pulse Power Rating Curve

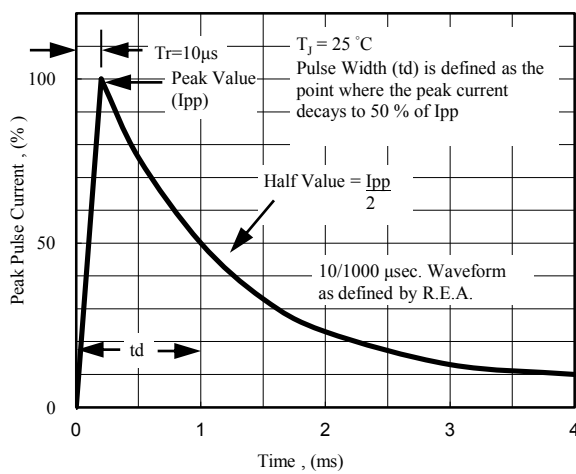


Fig. 5 - Pulse Waveform

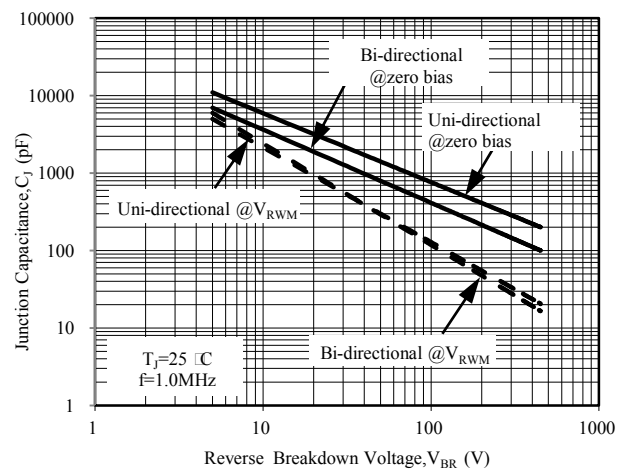


Fig. 6 - Typical Junction Capacitance

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

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage $V_{BR}$ @ $I_T$			Maximum Reverse Leakage $I_R$ @ $V_{RWM}$ ( $\mu\text{A}$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}$ (A)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)
		Uni	Bi	Min (V)	Max (V)	$I_T$ (mA)				
TPSMC12A	TPSMC12CA	12AA	12CA	11.40	12.60	1	5	10.2	89.82	16.7
TPSMC13A	TPSMC13CA	13AA	13CA	12.35	13.65	1	1	11.1	82.42	18.2
TPSMC15A	TPSMC15CA	15AA	15CA	14.25	15.75	1	1	12.8	70.75	21.2
TPSMC16A	TPSMC16CA	16AA	16CA	15.20	16.80	1	1	13.6	66.67	22.5
TPSMC18A	TPSMC18CA	18AA	18CA	17.10	18.90	1	1	15.3	59.52	25.2
TPSMC20A	TPSMC20CA	20AA	20CA	19.00	21.00	1	1	17.1	54.15	27.7
TPSMC22A	TPSMC22CA	22AA	22CA	20.90	23.10	1	1	18.8	49.02	30.6
TPSMC24A	TPSMC24CA	24AA	24CA	22.80	25.20	1	1	20.5	45.18	33.2
TPSMC27A	TPSMC27CA	27AA	27CA	25.65	28.35	1	1	23.1	40.00	37.5
TPSMC30A	TPSMC30CA	30AA	30CA	28.50	31.50	1	1	25.6	36.23	41.4
TPSMC33A	TPSMC33CA	33AA	33CA	31.35	34.65	1	1	28.2	32.82	45.7
TPSMC36A	TPSMC36CA	36AA	36CA	34.20	37.80	1	1	30.8	30.06	49.9
TPSMC39A	TPSMC39CA	39AA	39CA	37.05	40.95	1	1	33.3	27.83	53.9
TPSMC43A	TPSMC43CA	43AA	43CA	40.85	45.15	1	1	36.8	25.30	59.3
TPSMC47A	TPSMC47CA	47AA	47CA	44.65	49.35	1	1	40.2	23.15	64.8
TPSMC51A	TPSMC51CA	51AA	51CA	48.45	53.55	1	1	43.6	21.40	70.1
TPSMC56A	TPSMC56CA	56AA	56CA	53.20	58.80	1	1	47.8	19.48	77.0
TPSMC62A	TPSMC62CA	62AA	62CA	58.90	65.10	1	1	53.0	17.65	85.0
TPSMC68A	TPSMC68CA	68AA	68CA	64.60	71.40	1	1	58.1	16.30	92.0
TPSMC75A	TPSMC75CA	75AA	75CA	71.25	78.75	1	1	64.1	14.56	103.0
TPSMC82A	TPSMC82CA	82AA	82CA	77.90	86.10	1	1	70.1	13.27	113.0
TPSMC91A	TPSMC91CA	91AA	91CA	86.45	95.55	1	1	77.8	12.00	125.0

**Note:**

1. The available parts are "A" type only, the parts without A ( $V_{BR}$  is  $\pm 10\%$ ) is not available
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
3. For Bi-Directional devices having  $V_R$  of 10 volts and under, the  $I_R$  limit is double