

## Transient Voltage Suppressor Diodes

### Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 400 W peak pulse power capability with a 10/1000  $\mu$ s waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Meets MSL level 1
- Component in accordance to RoHS
- AEC-Q101 qualified available
- Automotive product No.: base P/N-H

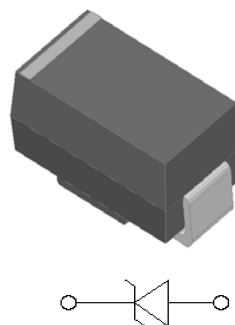
### Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.

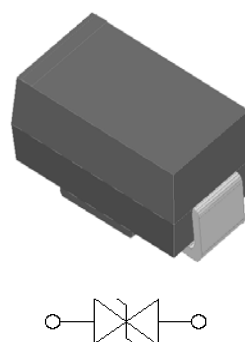
### Mechanical Data

- **Package:** DO-214AC (SMA)  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D
- **Polarity:** For uni-directional types the band denotes cathode end, no marking on bi-directional types

#### Uni-directional



#### Bi-directional



### ■Maximum Ratings ( $T_A=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform <sup>(1)</sup> <sup>(2)</sup> (Fig.1)	$P_{PPM}$	W	400
Peak pulse current, with a 10/1000us waveform <sup>(1)</sup>	$I_{PPM}$	A	See Next Table
Power dissipation, on infinite heat sink at $T_L=75^\circ\text{C}$	$P_D$	W	1.0
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(2)</sup>	$I_{FSM}$	A	40
Operating junction and storage temperature range	$T_J, T_{STG}$	$^\circ\text{C}$	-55 to +150

### ■Electrical Characteristics ( $T_A=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage @ at 25A for unidirectional only <sup>(3)</sup>	$V_F$	V	3.5/5.0
Maximum instantaneous forward voltage @ at 1A for unidirectional only	$V_F$	V	1.5

### ■Thermal Characteristics ( $T_A=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	$R_{\theta JL}$	$^\circ\text{C}/\text{W}$	junction to lead	30
	$R_{\theta JA}$	$^\circ\text{C}/\text{W}$	junction to ambient	120

Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25^\circ\text{C}$  per Fig.2.
- (2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal
- (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  $V_{BR} > 201\text{V}$



## Characteristics(Typical)

FIG1: Peak Pulse Power Rating Curve

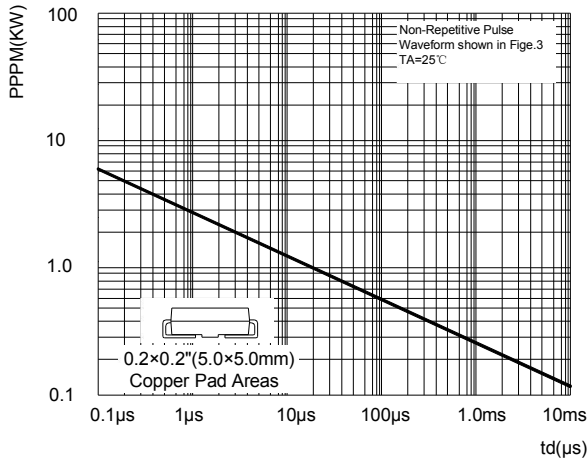


FIG2: Pulse Power or Current vs. Initial Junction Temperature

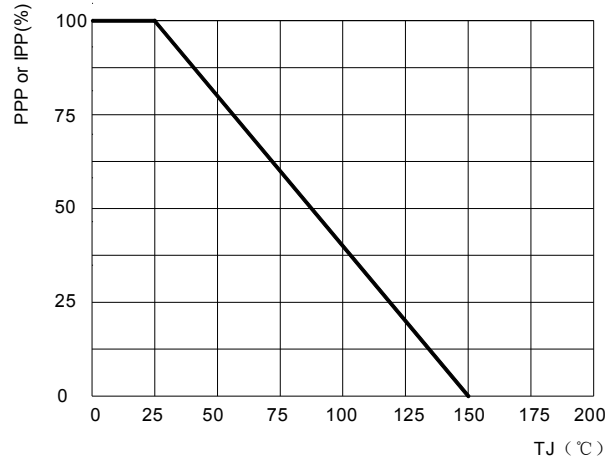


FIG3: Pulse Waveform

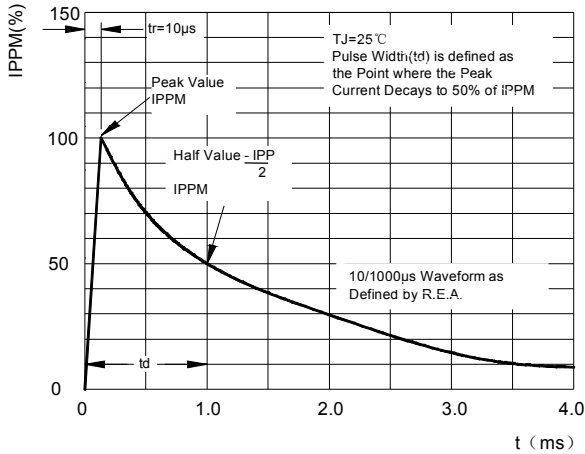


FIG4: Typical Transient Thermal Impedance

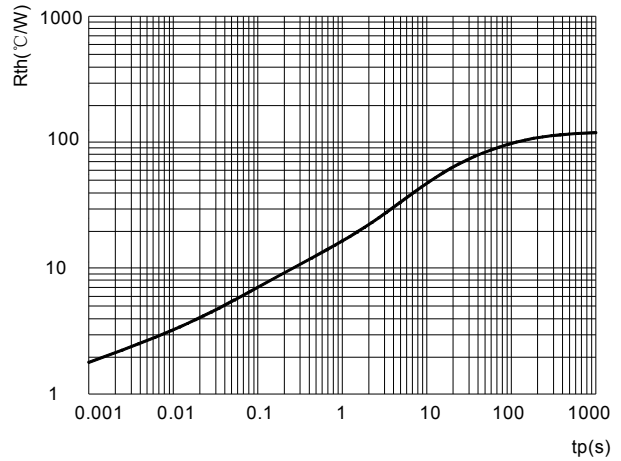


FIG5: Maximum Non-Repetitive Surge Current

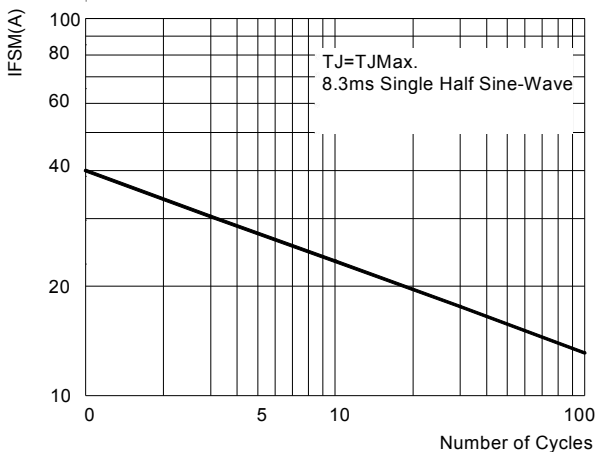
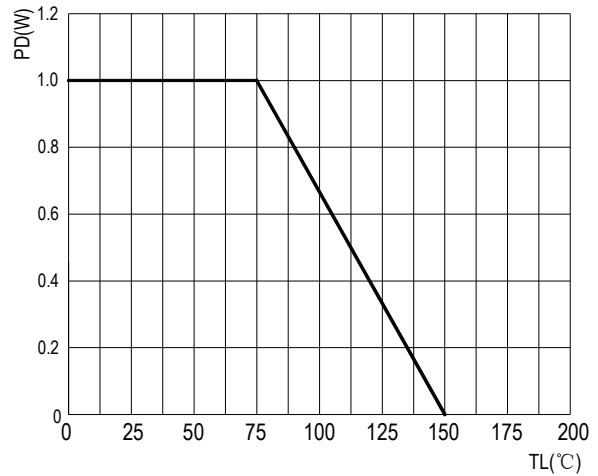


FIG6: Steady State Power Dissipation

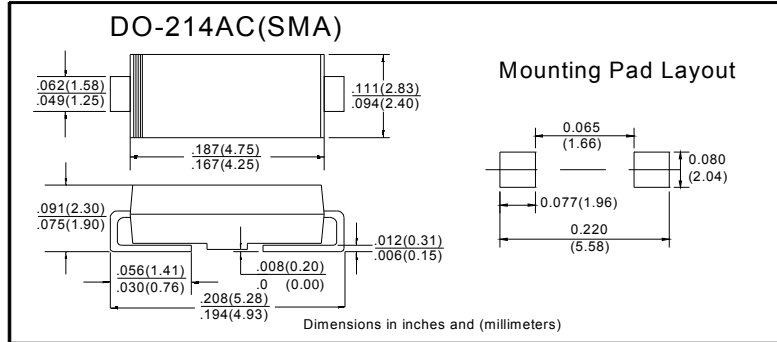


# SMAJ SERIES

## Ordering Information (Example)

PREFERRED	PACKAGE CODE	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMAJ Series	SMA	5000	10000	80000	13" reel

## Outline Dimensions



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