

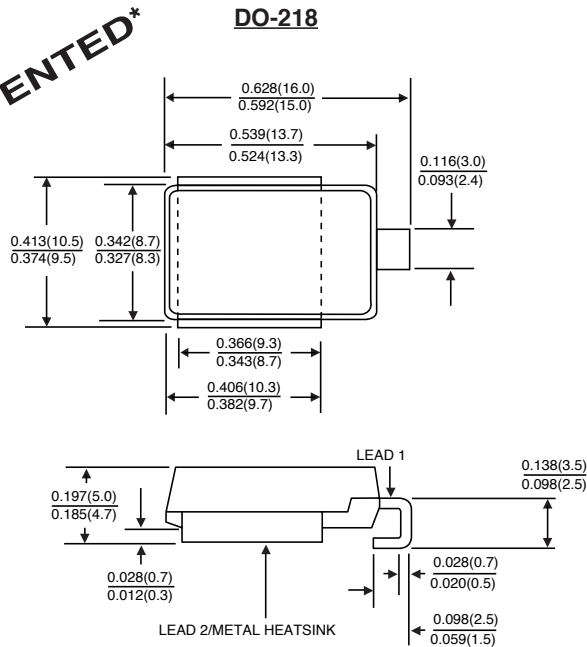
# SM5A27 TRANSIENT SUPPRESSOR

## SURFACE MOUNT AUTOMOTIVE TRANSIENT VOLTAGE SUPPRESSOR

Zener Voltage - 27.0 Volts

Peak Pulse Current - 70.0 Amps

**PATENTED\***



\* Patent #'s, 4,980,315,  
5,166,769,  
5,278,095

Dimensions in inches  
and  
(millimeters)

### FEATURES

- ◆ Ideally suited for load dump protection
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ High temperature stability due to unique oxide passivation
- ◆ Exclusive patented PAR™ oxide passivated chip construction
- ◆ Integrally molded heatsink provides a very low thermal resistance for maximum heat dissipation
- ◆ Low leakage current at  $T_J=175^\circ\text{C}$
- ◆ Low forward voltage drop
- ◆ High temperature soldering guaranteed:  $260^\circ\text{C}$  for 10 seconds at terminals



### MECHANICAL DATA

**Case:** Molded plastic body, surface mount with heatsink integrally mounted in the encapsulation

**Terminals:** Plated, solderable per MIL-STD-750, Method 2026

**Polarity:** Heatsink is anode

**Mounting Position:** Any

**Weight:** 0.091 ounce, 2.58 grams

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at  $25^\circ\text{C}$  ambient temperature unless otherwise specified.

	SYMBOLS	SM5A27	UNITS
Steady state power dissipation	$P_D$	5.0	Watts
Non-repetitive peak reverse surge current for 10 $\mu\text{s}$ /10ms exponentially decaying waveform	$I_{RSM}$	70.0	Amps
Maximum working peak stand-off voltage	$V_{WM}$	22.0	Volts
Minimum reverse zener voltage at 10mA	$V_Z$	24.0	Volts
Maximum reverse zener voltage at 10mA	$V_Z$	30.0	Volts
Maximum zener voltage temperature coefficient at $I_Z=10\text{mA}$	$V_{ZTC}$	36.0	mV/ $^\circ\text{C}$
Peak forward surge current, 8.3ms single half sine-wave	$I_{FSM}$	500.0	Amps
Maximum clamping voltage for 10 $\mu\text{s}$ /10ms exponentially decaying waveform at $I_{PP}=55\text{A}$	$V_C$	40.0	Volts
Maximum instantaneous forward voltage at 6.0A (NOTE 1)	$V_F$	1.0	Volts
Maximum reverse leakage current at rated $V_{WM}$	$I_R$	0.2 10.0	$\mu\text{A}$
		$T_J=25^\circ\text{C}$ $T_J=175^\circ\text{C}$	
Maximum thermal resistance junction to case	$R_{\theta JC}$	1.0	$^\circ\text{C}/\text{W}$
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +175	$^\circ\text{C}$

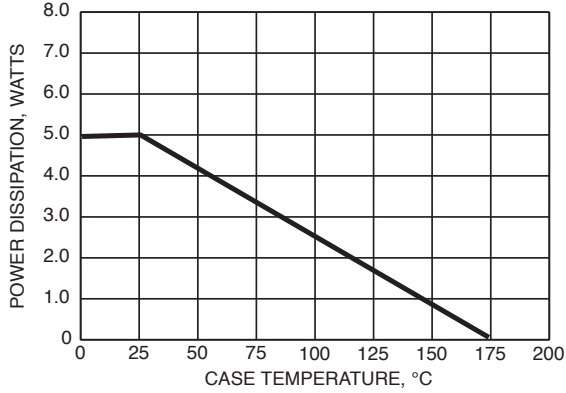
**NOTE:**

(1) Measured on a 300 $\mu\text{s}$  square pulse width

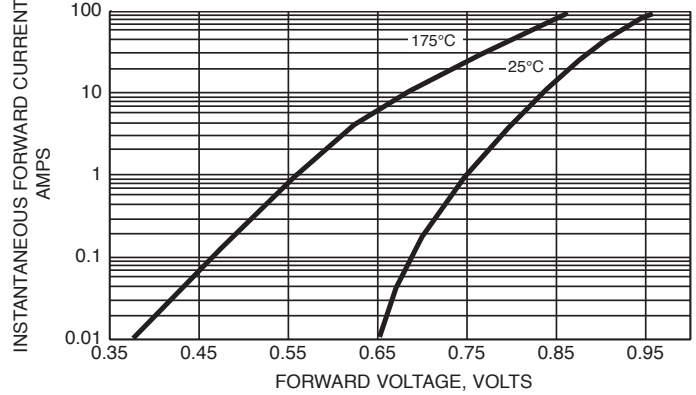
**NOTICE:** Advanced product information is subject to change without notice

# RATINGS AND CHARACTERISTIC CURVES SM5A27

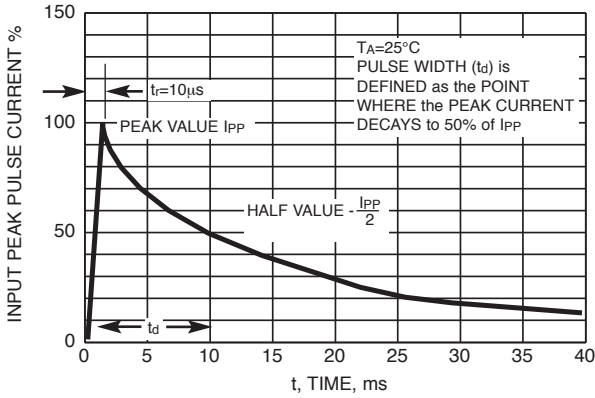
**FIG. 1 - POWER DERATING CURVE**



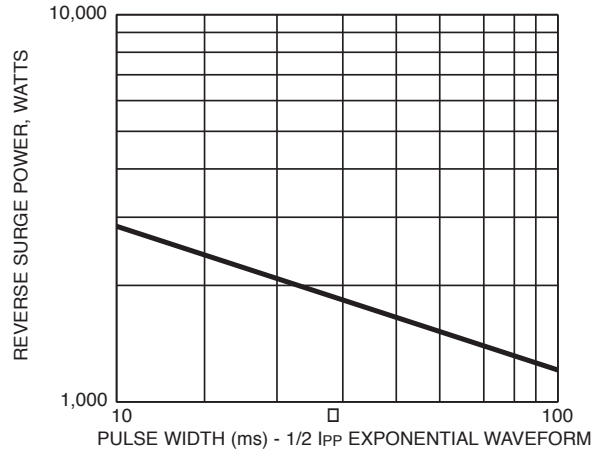
**FIG. 2 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**



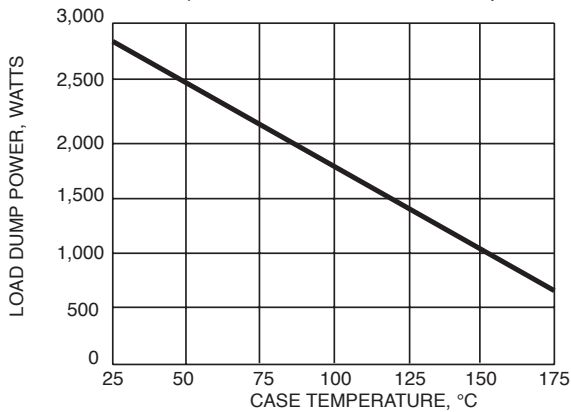
**FIG. 3 - PULSE WAVEFORM**



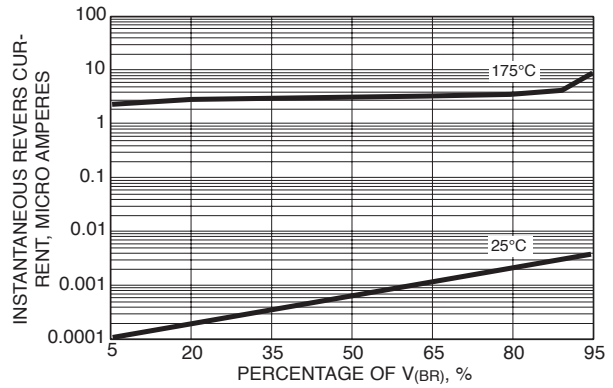
**FIG. 4 - REVERSE POWER CAPABILITY**



**FIG. 5 - LOAD DUMP POWER CHARACTERISTICS (10ms EXPONENTIAL WAVEFORM)**



**FIG. 6 - TYPICAL REVERSE CHARACTERISTICS**



**FIG. 7 - TYPICAL TRANSIENT THERMAL IMPEDANCE**

