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[SM8A27-E3/2D](#)

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**SM8A27**

Vishay General Semiconductor

## Surface Mount PAR<sup>®</sup> Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions



DO-218AB

PRIMARY CHARACTERISTICS	
$V_{BR}$	27 V
$P_{PPM}$ (10 x 1000 $\mu$ s)	6600 W
$P_D$	8 W
$I_{RSM}$	130 A
$I_{FSM}$	700 A
$T_J$ max.	175 °C

### FEATURES

- Junction passivation optimized design passivated anisotropic rectifier technology
- $T_J = 175$  °C capability suitable for high reliability and automotive requirement
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO7637-2 surge specification
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS  
COMPLIANT

### TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

### MECHANICAL DATA

**Case:** DO-218AB

Molding compound meets UL 94 V-0 flammability rating  
 Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Heatsink is anode

MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with 10/1000 $\mu$ s waveform	$P_{PPM}$	6600	W
Power dissipation on infinite heatsink at $T_C = 25$ °C (fig. 1)	$P_D$	8.0	W
Non-repetitive peak reverse surge current for 10 $\mu$ s/10 ms exponentially decaying waveform	$I_{RSM}$	130	A
Maximum working stand-off voltage	$V_{WM}$	22.0	V
Peak forward surge current 8.3 ms single half sine-wave	$I_{FSM}$	700	A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 175	°C



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ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse Zener voltage	I <sub>Z</sub> = 10 mA	V <sub>Z</sub>	24.0	-	30.0	V
Zener voltage temperature coefficient	I <sub>Z</sub> = 10 mA	V <sub>ZTC</sub>	-	-	36	mV/°C
Clamping voltage for 10 μs/10 ms exponentially decaying waveform	I <sub>PP</sub> = 75 A	V <sub>C</sub>	-	-	40.0	V
Instantaneous forward voltage	I <sub>F</sub> = 6.0 A	V <sub>F</sub> (1)	-	-	0.98	V
	I <sub>F</sub> = 100 A		-	0.93	-	
Reverse leakage current	Rated V <sub>WM</sub>	I <sub>R</sub>	T <sub>J</sub> = 25 °C	-	1.0	μA
			T <sub>J</sub> = 175 °C	-	-	

**Note**

(1) Measured on a 300 μs square pulse width

THERMAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to case	R <sub>θJC</sub>	0.90	°C/W

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SM8A27HE3/2D (1)	2.605	2D	750	13" diameter plastic tape and reel, anode towards the sprocket hole

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

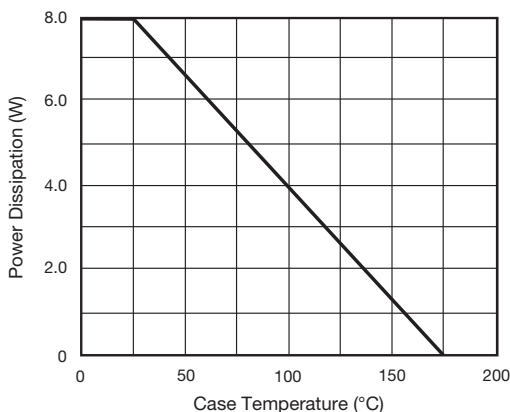


Fig. 1 - Power Derating Curve

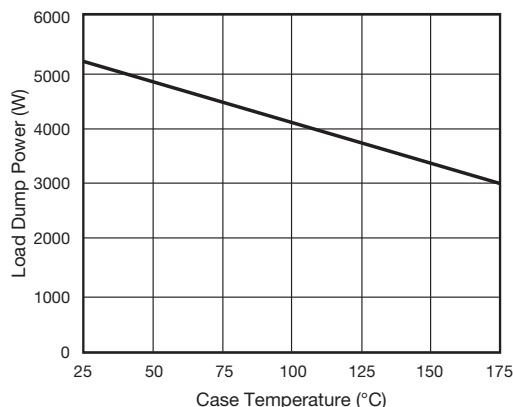


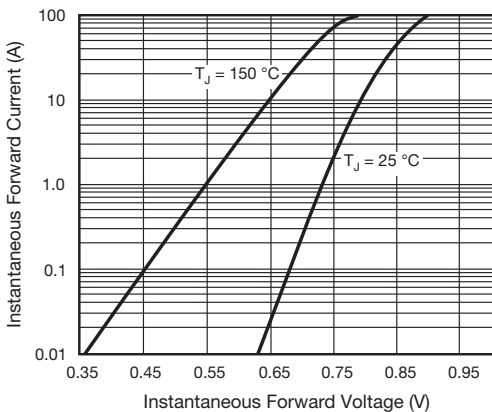
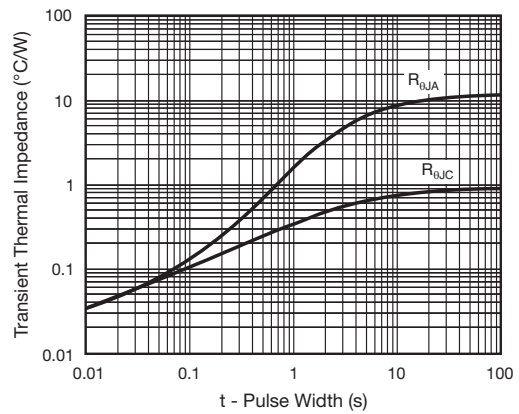
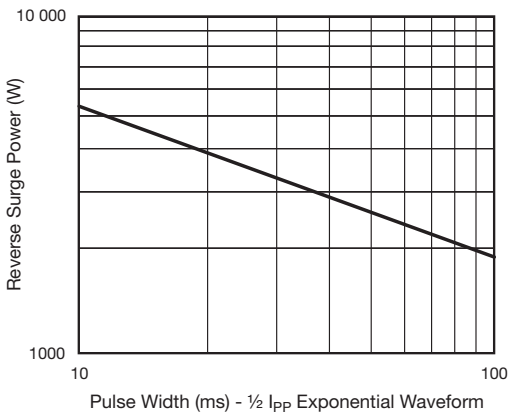
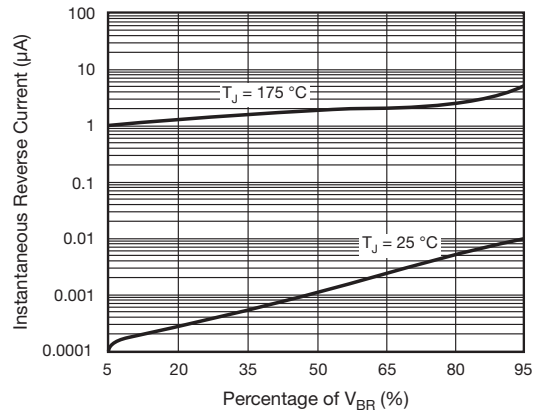
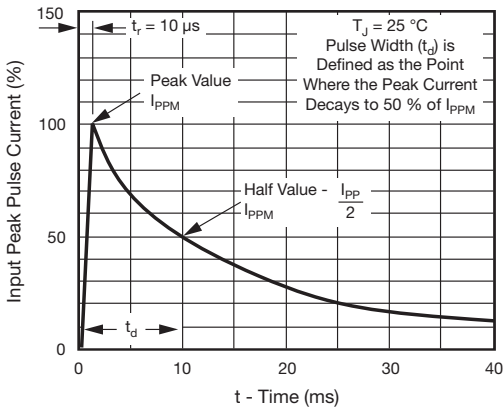
Fig. 2 - Load Dump Power Characteristics (10 ms Exponential Waveform)



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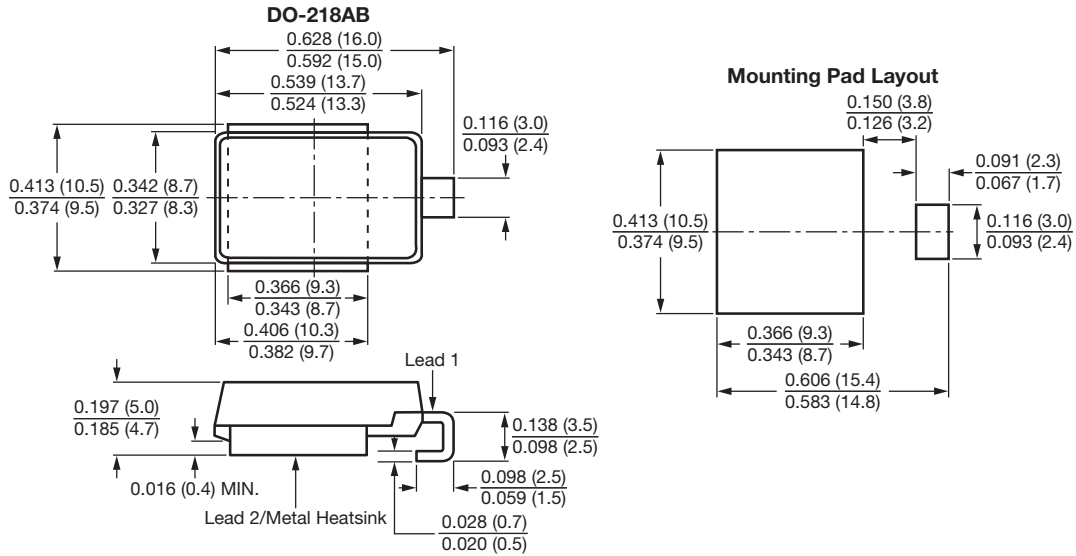


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**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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