

Vishay General Semiconductor

Surface Mount PAR® Transient Voltage Suppressors

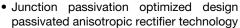
High Temperature Stability and High Reliability Conditions

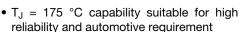


DO-218 Compatible

PRIMARY CHARACTERISTICS					
V_{BR}	27 V				
P _{PPM} (10 x 1000 μs)	6600 W				
P_{D}	8 W				
V_{WM}	22 V				
I _{RSM}	130 A				
I _{FSM}	700 A				
T _J max.	175 °C				
Polarity	Uni-directional				
Package	DO-218AC				

FEATURES







- 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
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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-218AC

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 μs 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 $\mu\text{s}/10$ ms exponentially decaying waveform	I _{RSM}	130	А		
Maximum working stand-off voltage	V _{WM}	22.0	V		
Peak forward surge current 8.3 ms single half sine-wave	I _{FSM}	700	А		
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175	°C		

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
DEVICE TYPE	BREAKDOWN VOLTAGE V _{BR} AT I _T (V)		TEST CURRENT	STAND-OFF VOLTAGE V _{WM}	
	MIN.	MAX.	(mA)	(V)	
SM8A27T	24	30	10	22	



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ADDITIONAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	MIN.	TYP.	MAX.	UNIT
Zener voltage temperature coefficient	$I_Z = 10 \text{ mA}$		V _{ZTC}	-	-	36	mV/°C
Clamping voltage for 10 µs/10 ms exponentially decaying waveform	I _{PP} = 75 A		V _C	-	-	40.0	V
Instantaneous forward voltage	I _F = 6.0 A		V _F ⁽¹⁾	-	-	0.98	W
instantaneous forward voltage	I _F = 100 A			-	0.93	-	v
Reverse leakage current	Rated V _{WM}	T _J = 25 °C	I _R	-	-	1.0	μΑ
		T _J = 175 °C		-	-	50.0	

Note

⁽¹⁾ Measured on a 300 µs square pulse width

THERMAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	VALUE	UNIT		
Typical thermal resistance, junction to case	$R_{\theta JC}$	0.90	°C/W		

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SM8A27THE3/I ⁽¹⁾	2.605	I	750	13" diameter plastic tape and reel, anode towards the sprocket hole		

Note

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

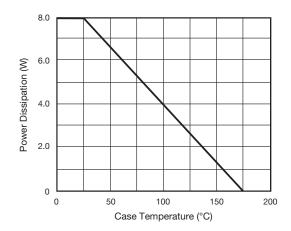


Fig. 1 - Power Derating Curve

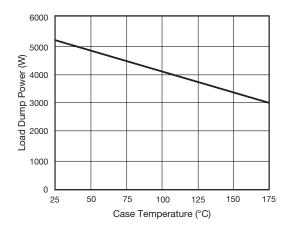


Fig. 2 - Load Dump Power Characteristics (10 ms Exponential Waveform)

⁽¹⁾ AEC-Q101 qualified



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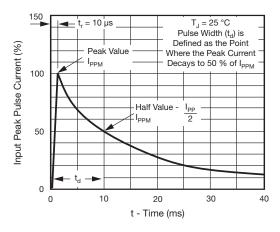


Fig. 3 - Pulse Waveform

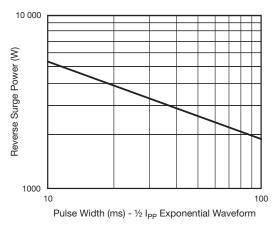


Fig. 4 - Reverse Power Capability

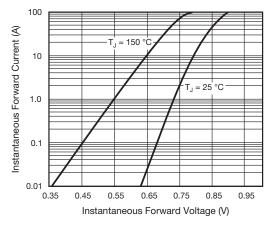


Fig. 5 - Typical Instantaneous Forward Characteristics

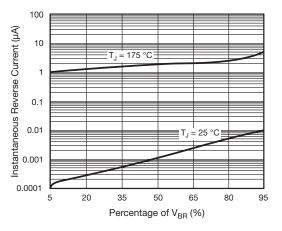


Fig. 6 - Typical Reverse Characteristics

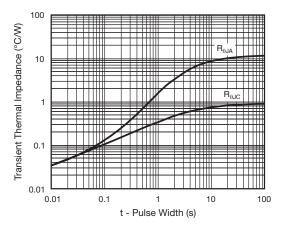
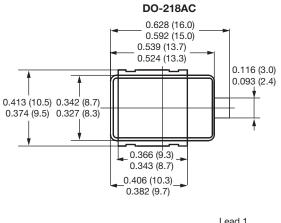


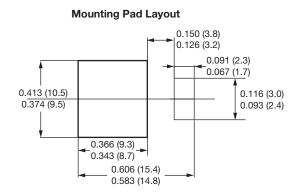
Fig. 7 - Typical Transient Thermal Impedance

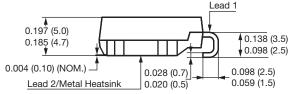


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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)









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