SM6A27T

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Vishay General Semiconductor

Surface Mount PAR[®] Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions



DO-218 Compatible

PRIMARY CHARACTERISTICS				
V _{WM}	22 V			
V _{BR}	27 V			
P _{PPM} (10 x 1000 μs)	4600 W			
PD	6 W			
I _{RSM}	90 A			
I _{FSM}	600 A			
T _J max.	175 °C			
Polarity	Uni-directional			
Package	DO-218AC			

FEATURES

- Junction passivation optimized design passivated anisotropic rectifier technology
- T₁ = 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 gualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

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 gualified

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 μ s waveform	P _{PPM}	4600	W		
Power dissipation on infinite heatsink at $T_C = 25 \text{ °C}$ (fig. 1)	PD	6.0	W		
Non-repetitive peak reverse surge current for 10 µs/10 ms exponentially decaying waveform	I _{RSM}	90	А		
Maximum working stand-off voltage	V _{WM}	22.0	V		
Peak forward surge current 8.3 ms single half sine-wave	I _{FSM}	600	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)			STAND-OFF VOLTAGE	
	MIN.	MAX.	(mA)	(V)	
SM6A27T	24	30	10	22	

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RoHS COMPLIANT

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ADDITIONAL CHARACTERISTICS ($T_C = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	MIN.	TYP.	MAX.	UNIT
Zener voltage temperature coefficient	I _Z = 10 mA		V _{ZTC}	-	-	36	mV/°C
Clamping voltage for 10 µs/10 ms exponentially decaying waveform	I _{PP} = 65 A		V _C	-	-	40.0	V
Instantaneous forward voltage	I _F = 6.0 A I _F = 100 A		V _F ⁽¹⁾	-	-	0.99	V
				-	0.94	-	v
Reverse leakage current	Rated V _{WM}	T _J = 25 °C	I _R	-	-	0.5	μA
		T _J = 175 °C		-	-	20.0	

Note

 $^{(1)}\,$ Measured on a 300 μs square pulse width

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	YMBOL VALUE			
Typical thermal resistance, junction to case	$R_{ ext{ heta}JC}$	0.95	°C/W		

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
SM6A27THE3/I (1)	2.550	Ι	750	13" diameter plastic tape and reel, anode towards the sprocket hole	

Note

(1) AEC-Q101 qualified

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

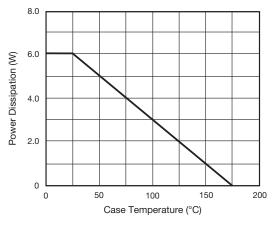
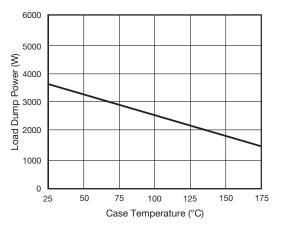
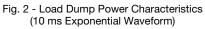
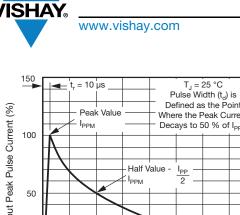


Fig. 1 - Power Derating Curve









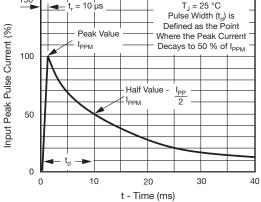


Fig. 3 - Pulse Waveform

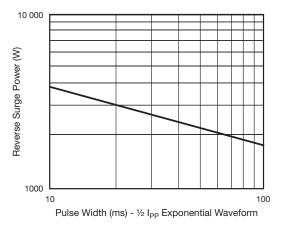


Fig. 4 - Reverse Power Capability

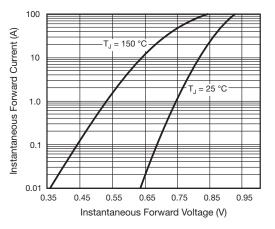


Fig. 5 - Typical Instantaneous Forward Characteristics

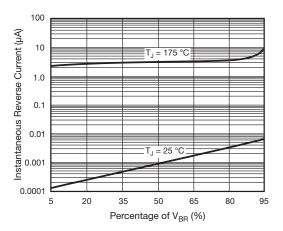


Fig. 6 - Typical Reverse Characteristics

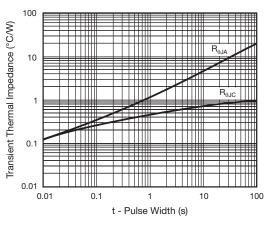


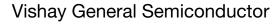
Fig. 7 - Typical Transient Thermal Impedance

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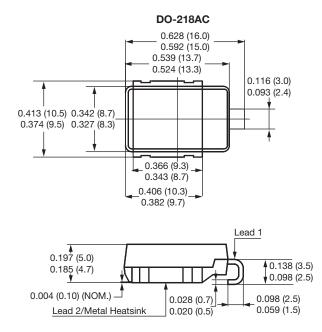
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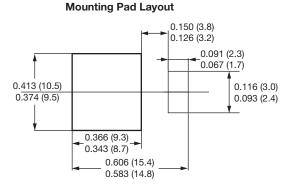
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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