Vishay General Semiconductor

High Current Density Surface Mount Schottky Barrier Rectifiers



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Cathode O Anode

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Models Available	

PRIMARY CHARACTERISTICS				
I _{F(AV)}	3.0 A			
V _{RRM}	30 V			
I _{FSM}	50 A			
E _{AS}	11.25 mJ			
V _F	0.43 V			
T _J max.	150 °C			
Package	SMP (DO-220AA)			
Circuit configuration	Single			

FEATURES

- Very low profile typical height of 1.0 mm
- · Ideal for automated placement
- · Low forward voltage drop, low power losses
- High efficiency
- · Low thermal resistance
- Meets MSL level 1, per J-STD-020. LF maximum peak of 260 °C
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

MECHANICAL DATA

Case: SMP (DO-220AA)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3 - halogen-free, RoHS-compliant, and automotive grade

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

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	SS3P3	UNIT	
Device marking code		33		
Maximum repetitive peak reverse voltage	V _{RRM}	30	V	
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	3.0	А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	50	А	
Non-repetitive avalanche energy at T_J = 25 °C, I_{AS} = 1.5 A, L = 10 mH	E _{AS}	11.25	mJ	
Voltage rate of change (rated V _R)	dV/dt	10 000	V/µs	
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150	°C	

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	$I_F = 3 \text{ A}$ $T_J = 25 \text{ °C}$	0.52	0.58	V		
Maximum instantaneous forward voltage	I _F = 3 A	T _J = 125 °C	V _F ⁽¹⁾	0.43	0.48	v
Maximum reverse current at rated V_{R}		T _J = 25 °C	I _R ⁽²⁾	-	200	μA
		T _J = 125 °C		9.0	20	mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	130		pF

Notes

⁽¹⁾ Pulse test: 300 µs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width \leq 40 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise specified)				
PARAMETER	SYMBOL SS3P3		UNIT	
Typical thermal resistance ⁽¹⁾	R _{0JA} ⁽¹⁾	95	°C/W	
	R _{θJL} ⁽¹⁾	15		
	$R_{ heta JC}$ ⁽¹⁾	20		

Note

 $^{(1)}$ Thermal resistance from junction to ambient and junction to lead mounted on PCB with 5.0 mm x 5.0 mm copper pad areas. $R_{\theta JL}$ is measured at the terminal of cathode band. $R_{\theta JC}$ is measured at the top center of the body

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
SS3P3-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel	
SS3P3-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel	
SS3P3HM3/84A ⁽¹⁾	0.024	84A	3000	7" diameter plastic tape and reel	
SS3P3HM3/85A ⁽¹⁾	0.024	85A	10 000	13" diameter plastic tape and reel	

Note

(1) Automotive grade

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

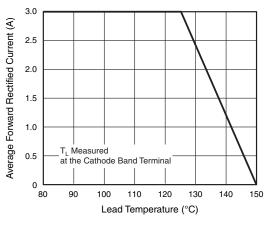


Fig. 1 - Forward Current Derating Curve

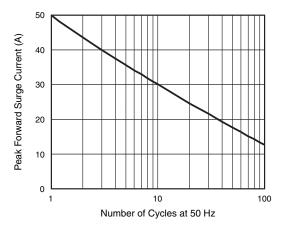
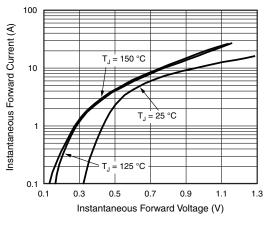


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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Fig. 3 - Typical Instantaneous Forward Characteristics

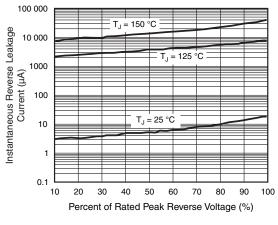
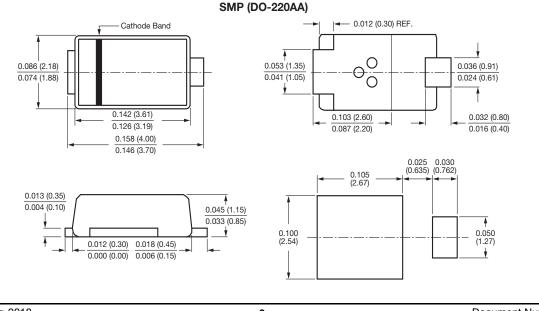


Fig. 4 - Typical Reverse Leakage Characteristics





Reverse Voltage (V) Fig. 5 - Typical Junction Capacitance

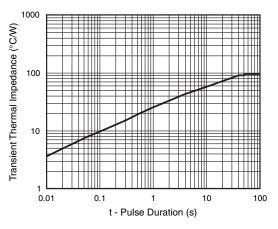


Fig. 6 - Typical Transient Thermal Impedance

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