AUTOMOTIV

COMPLIANT

HALOGEN FREE



Vishay General Semiconductor

High Voltage Surface-Mount Schottky Barrier Rectifier

High Barrier Technology for Improved High Temperature Performance



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I _{F(AV)}	2.0 A				
V _{RRM}	90 V, 100 V				
I _{FSM}	50 A				
E _{AS}	11.25 mJ				
V_F at $I_F = 2.0$ A, $T_J = 125$ °C	0.62 V				
I _R max. at rated V _R , T _J = 25 °C	1.0 μA				
T _J max.	175 °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 available
 - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in 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_X - halogen-free, RoHS-compliant, and

AEC-Q101 qualified

("_X" denotes revision code e.g. A, B,....)

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	SS2PH9	SS2PH10	UNIT		
Device marking code		29	210			
Maximum repetitive peak reverse voltage	V_{RRM}	90	100	V		
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	2.0		Α		
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 +175		°C		



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous famuard valtage	I _E = 2.0 A	T _J = 25 °C	V _F ⁽¹⁾	0.77	0.80	V
Maximum instantaneous forward voltage	I _F = 2.0 A	T _J = 125 °C		0.62	0.66	
Maximum reverse aurement at rated //		T _J = 25 °C	I _R ⁽²⁾	0.1	1.0	- μΑ
Maximum reverse current at rated V _R		T _J = 125 °C	IR (=/	60	500	
Typical junction capacitance	4.0 V, 1 MHz		CJ	65	-	pF

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SS2PH9	SS2PH10	UNIT	
	R _{0JA} (1)	110		°C/W	
Typical thermal resistance	R _{0JL} (1)	15			
	R ₀ JC (1)	25			

Note

(1) Thermal resistance from junction to ambient and junction to lead mounted on PCB with 15 mm x 15 mm copper pad areas. R_{BJC} 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		
SS2PH9-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel		
SS2PH9-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel		
SS2PH9HM3_A/H (1)	0.024	Н	3000	7" diameter plastic tape and reel		
SS2PH9HM3_A/I (1)	0.024	I	10 000	13" diameter plastic tape and reel		

Note

(1) AEC-Q101 qualified

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

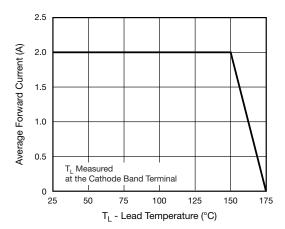


Fig. 1 - Forward Current Derating Curve

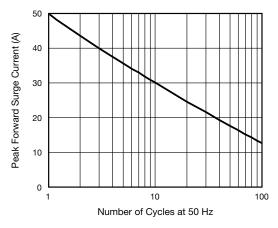


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

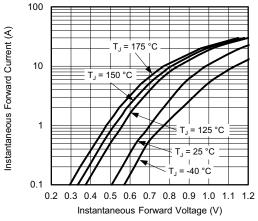


Fig. 3 - Typical Instantaneous Forward Characteristics

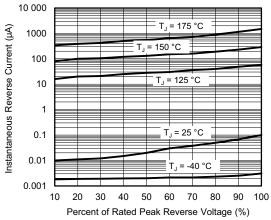


Fig. 4 - Typical Reverse Leakage Characteristics

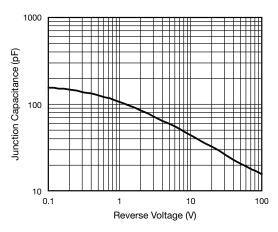


Fig. 5 - Typical Junction Capacitance

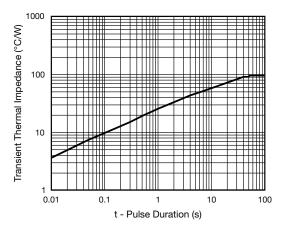


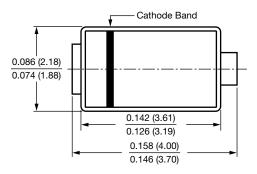
Fig. 6 - Typical Transient Thermal Impedance

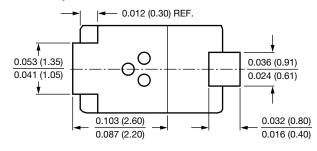


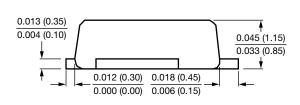
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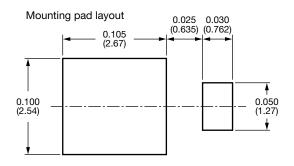
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMP (DO-220AA)











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