AUTOMOTIVE GRADE

COMPLIANT

HALOGEN



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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 μΑ				
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 www.vishay.com/doc?99912

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,....)

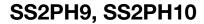
Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

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		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 +175		°C		

Revision: 08-Mar-2022 **1** Document Number: 84682 For technical questions within your region: <u>DiodesAmericas@vishay.com</u>, <u>DiodesAsia@vishay.com</u>, <u>DiodesEurope@vishay.com</u>





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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	I _E = 2.0 A	T _J = 25 °C	V _F ⁽¹⁾	0.77	0.80	V
	IF = 2.0 A	T _J = 125 °C		0.62	0.66	
Maximum reverse current at rated V _R		T _J = 25 °C	I _R ⁽²⁾	0.1	1.0	
		T _J = 125 °C		60	500	μΑ
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_{6JC} 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)

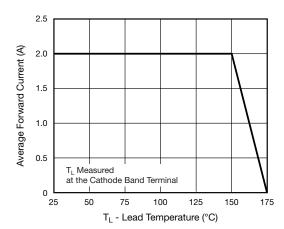


Fig. 1 - Forward Current Derating Curve

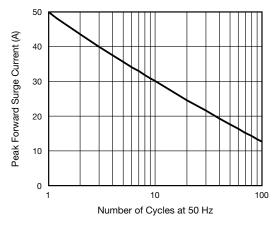


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

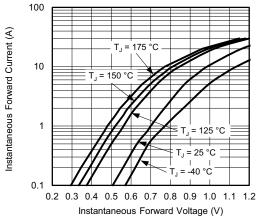


Fig. 3 - Typical Instantaneous Forward Characteristics

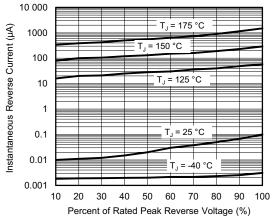


Fig. 4 - Typical Reverse Leakage Characteristics

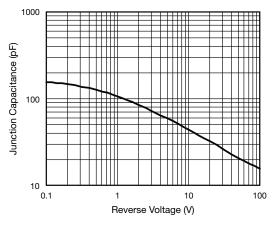


Fig. 5 - Typical Junction Capacitance

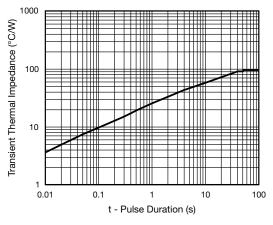


Fig. 6 - Typical Transient Thermal Impedance



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMP (DO-220AA) - 0.012 (0.30) REF. Cathode Band 0.086 (2.18) 0.036 (0.91) 0.053 (1.35) 0.041 (1.05) 0.074 (1.88) 0.024 (0.61) 0.142 (3.61) 0.103 (2.60) 0.032 (0.80) 0.126 (3.19) 0.087 (2.20) 0.016 (0.40) 0.158 (4.00) 0.146 (3.70) Mounting pad layout 0.025 0.030 (0.635) (0.762) 0.105 (2.67) 0.013 (0.35) 0.045 (1.15) 0.004 (0.10) 0.033 (0.85) 0.100 (2.54) 0.012 (0.30) 0.018 (0.45) 0.000 (0.00) 0.006 (0.15)

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