Vishay General Semiconductor

High Voltage Surface Mount Schottky Barrier Rectifier

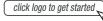
High Barrier Technology for Improved High Temperature Performance



www.vishay.com

Cathode O Anode







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 = 1.0 A	0.62 V				
I _R max.	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 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 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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 ($T_A = 25 \text{ °C}$ 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		A	
Non-repetitive avalanche energy at $T_{J=}25 \text{ °C}$, $I_{AS} = 1.5 \text{ A}$, 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: 13-Aug-2018

Document Number: 84682

1



HALOGEN FREE



Vishay General Semiconductor

ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	l⊧ = 2.0 A	T _J = 25 °C	V _F ⁽¹⁾	0.77	0.80	v
	$I_{\rm F} = 2.0 \rm A$	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	μA
		T _J = 125 °C		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 \leq 40 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	TER SYMBOL SS2PH9 SS2PH10		SS2PH10	UNIT	
	R _{0JA} ⁽¹⁾	110		°C/W	
Typical thermal resistance	R _{0JL} ⁽¹⁾	15			
	R _{0JC} ⁽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_{0JC} 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		
SS2PH9HM3/84A (1)	0.024	84A	3000	7" diameter plastic tape and reel		
SS2PH9HM3/85A (1)	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

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

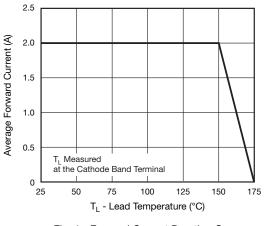


Fig. 1 - Forward Current Derating Curve

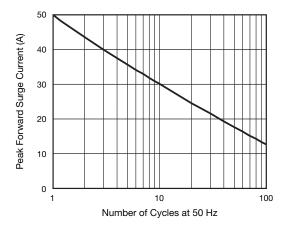


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

Revision: 13-Aug-2018 2 Document Number: 84682 For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000



Vishay General Semiconductor

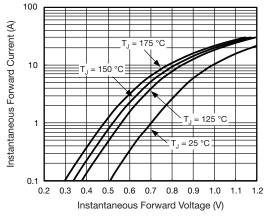


Fig. 3 - Typical Instantaneous Forward Characteristics

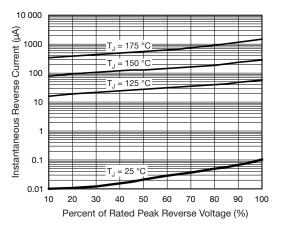


Fig. 4 - Typical Reverse Leakage Characteristics

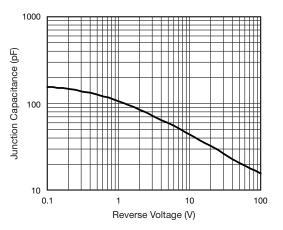


Fig. 5 - Typical Junction Capacitance

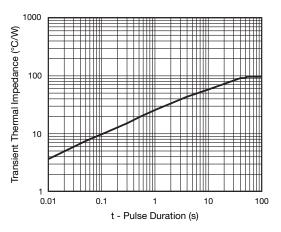
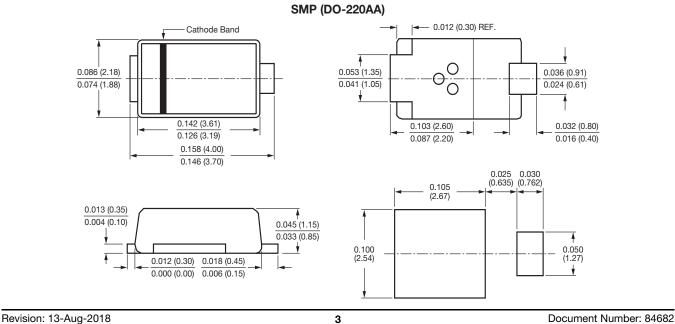


Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

For technical questions within your region: <u>DiodesAmericas@vishay.com</u>, <u>DiodesAsia@vishay.com</u>, <u>DiodesEurope@vishay.com</u> THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT <u>www.vishay.com/doc?91000</u>



Vishay

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.