

High-Voltage Surface-Mount Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



www.vishay.com

SMA (DO-214AC)

Cathode O Anode

LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I _{F(AV)}	1.0 A				
V _{RRM}	90 V, 100 V				
I _{FSM}	50 A				
V _F	0.62 V				
I _R	1.0 µA				
T _J max.	175 °C				
Package	SMA (DO-214AC)				
Circuit configuration	Single				

FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
 Automotive ordering code: base P/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMA (DO-214AC)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

Base P/NHE3_X - 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

E3, M3, HE3, and 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	SS1H9	SS1H10	UNIT		
Device marking code		S9 S10				
Maximum repetitive peak reverse voltage	V _{RRM}	90	100	V		
Working peak reverse voltage	V _{RWM}	90	100	V		
Maximum DC blocking voltage	V _{DC}	90	100	V		
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	1.0		A		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	50		А		
Peak repetitive reverse surge current at t_p = 2.0 µs, 1 kHz	I _{RRM}	1.0		A		
Storage temperature range	T _{STG}	-65 to +175		°C		
Maximum operating temperature	TJ	175		°C		

Revision: 13-May-2020

1

Document Number: 88747

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>



RoHS

COMPLIANT



Vishay General Semiconductor

ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	SS1H9	SS1H10	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	I _F = 1.0 A	T _J = 25 °C		0.77		V
		T _J = 125 °C	V _F	0.62		
	I _F = 2.0 A	T _J = 25 °C T _J = 125 °C		0.	86	v
		T _J = 125 °C		0.	70	
Maximum reverse current at rated $V_R^{(2)}$		T _J = 25 °C	I _R	1	.0	μA
		T _J = 125 °C		0	.5	mA

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	SYMBOL	SS1H9	SS1H10	UNIT		
Maximum thermal resistance (1)	R _{0JA}	88		°C/W		
	$R_{ extsf{ heta}JL}$	30				

Note

 $^{(1)}\,$ PCB mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

ORDERING INFORMATION (Example)							
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE			
SS1H10-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel			
SS1H10-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel			
SS1H10HE3_B/H ⁽¹⁾	0.064	Н	1800	7" diameter plastic tape and reel			
SS1H10HE3_B/I (1)	0.064	I	7500	13" diameter plastic tape and reel			
SS1H10-M3/61T	0.064	61T	1800	7" diameter plastic tape and reel			
SS1H10-M3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel			
SS1H10HM3_B/H ⁽¹⁾	0.064	Н	1800	7" diameter plastic tape and reel			
SS1H10HM3_B/I (1)	0.064	I	7500	13" diameter plastic tape and reel			

Note

(1) AEC-Q101 qualified



Vishay General Semiconductor

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

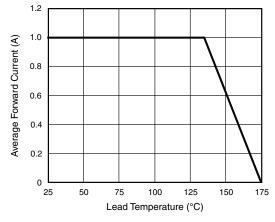


Fig. 1 - Forward Current Derating Curve

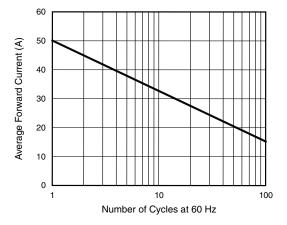


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

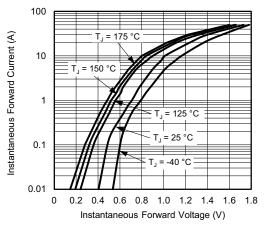


Fig. 3 - Typical Instantaneous Forward Characteristics

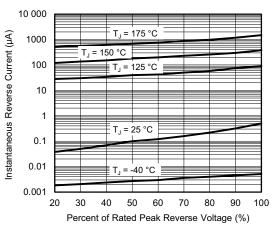


Fig. 4 - Typical Reverse Characteristics

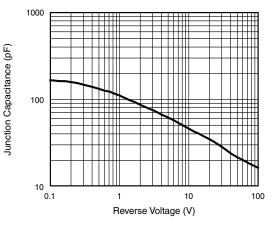


Fig. 5 - Typical Junction Capacitance

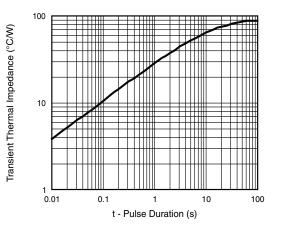


Fig. 6 - Typical Transient Thermal Impedance

Revision: 13-May-2020

3

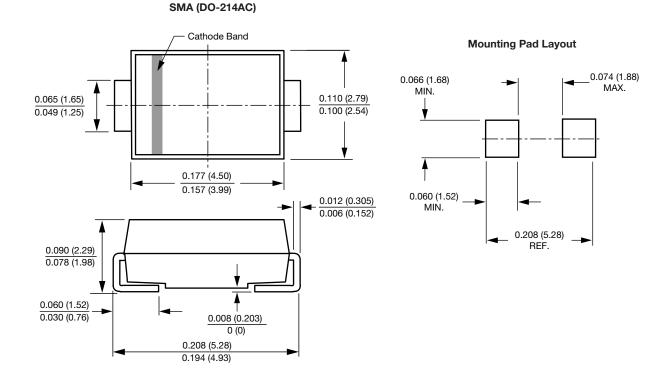
Document Number: 88747

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>



www.vishay.com

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. 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.

© 2025 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED

Revision: 01-Jan-2025

1