Small Signal Schottky Diodes

FEATURES

- The low forward voltage drop and fast switching make it ideal for protection of MOS devices, steering, biasing, and coupling diodes for fast switching and low logic level applications
- Other applications are click suppression, efficient full wave bridges in telephone subsets, and blocking diodes in rechargeable low voltage battery systems
- The SD103 series is a metal-on-silicon Schottky barrier device which is protected by a PN junction guardring
- For general purpose applications
- AEC-Q101 qualified
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

MECHANICAL DATA

Case: SOD-123

Weight: approx. 10.3 mg

Cathode band color: black

Packaging codes/options:

18/10K per 13" reel (8 mm tape), 10K/box

08/3K per 7" reel (8 mm tape), 15K/box

PARTS TABLE

PART	ORDERING CODE	INTERNAL CONSTRUCTION	TYPE MARKING	REMARKS
SD103AW	SD103AW-E3-08 or SD103AW-E3-18	Single diode	S6	Tape and reel
	SD103AW-HE3-08 or SD103AW-HE3-18			
SD103BW	SD103BW-E3-08 or SD103BW-E3-18	Single diode	S7	
	SD103BW-HE3-08 or SD103BW-HE3-18			
SD103CW	SD103CW-E3-08 or SD103CW-E3-18	Single diode	S8	
	SD103CW-HE3-08 or SD103CW-HE3-18			

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage		SD103AW	V_{RRM}	40	V
		SD103BW	V_{RRM}	30	V
		SD103CW	V_{RRM}	20	V
Forward continuous current (1)			I_F	350	mA
Power dissipation (infinite heat sink) (1)			P_{tot}	400	mW
Single cycle surge	10 µs square wave		I_{FSM}	2	A

Note

(1) Valid provided that electrodes are kept at ambient temperature

THERMAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air (1)		R_{thJA}	300	K/W
Junction temperature		T_j	125	°C
Operating temperature range		T_{op}	- 55 to + 125	°C
Storage temperature range		T_{stg}	- 55 to + 150	°C

Note

(1) Valid provided that electrodes are kept at ambient temperature

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Leakage current	V_R = 30 V	SD103AW	I_R			5	µA
	V_R = 20 V	SD103BW	I_R			5	µA
	V_R = 10 V	SD103CW	I_R			5	µA
Forward voltage drop	I_F = 20 mA		V_F			370	mV
	I_F = 200 mA		V_F			600	mV
Diode capacitance	V_R = 0 V, f = 1 MHz		C_D		50		pF
Reverse recovery time	I_F = I_R = 50 mA to 200 mA, recover to 0.1 I_R		t_{rr}		10		ns

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

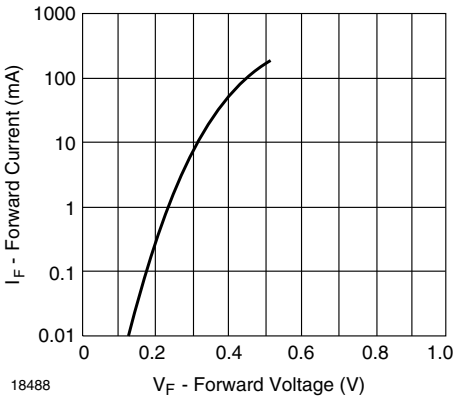


Fig. 1 - Typical Variation of Forward Current vs. Forward Voltage

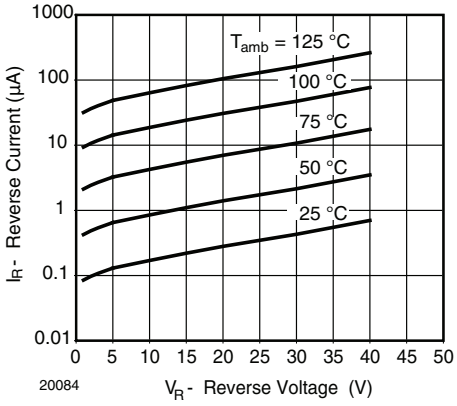


Fig. 3 - Typical Variation of Reverse Current at Various Temperatures

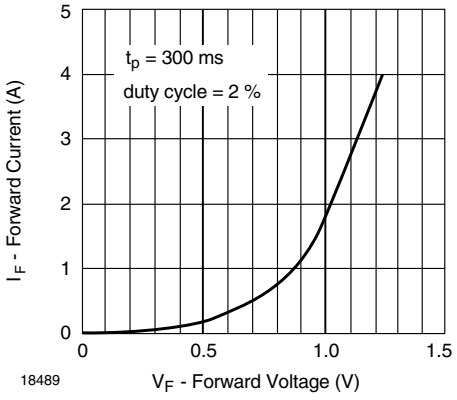


Fig. 2 - Typical High Current Forward Conduction Curve

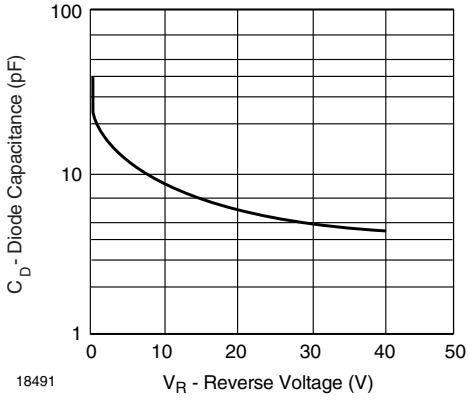


Fig. 4 - Typical Capacitance vs. Reverse Voltage

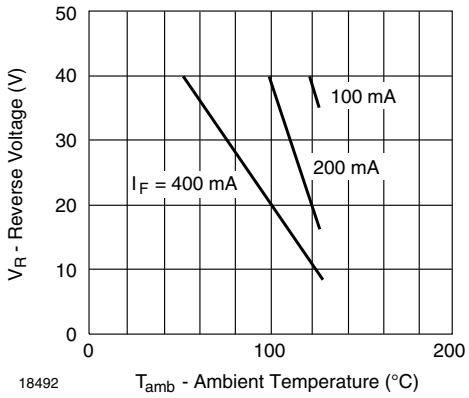
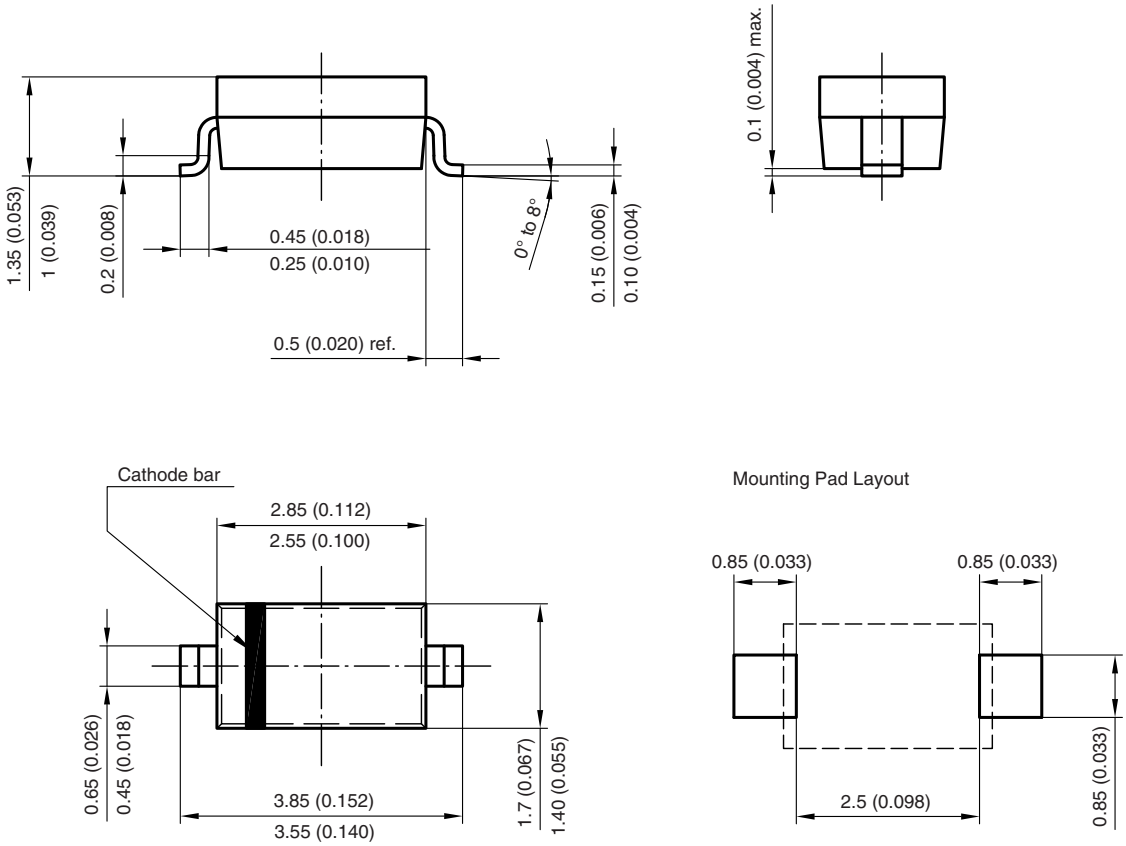


Fig. 5 - Blocking Voltage Deration vs. Temperature at Various Average Forward Currents

PACKAGE DIMENSIONS in millimeters (inches): **SOD-123**



Rev. 4 - Date: 24. Sep. 2009
Document no.: S8-V-3910.01-001 (4)
17432

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.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.