Small Signal Switching Diodes, High Voltage

FEATURES

- Silicon epitaxial planar diodes
- For general purpose
- 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

Packaging codes/options:

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

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

PARTS TABLE

PART	TYPE DIFFERENTIATION	ORDERING CODE	TYPE MARKING	INTERNAL CONSTRUCTION	REMARKS
BAV19W	V_R = 100 V	BAV19W-E3-08 or BAV19W-E3-18	A8	Single diode	Tape and reel
		BAV19W-HE3-08 or BAV19W-HE3-18			
BAV20W	V_R = 150 V	BAV20W-E3-08 or BAV20W-E3-18	A9	Single diode	Tape and reel
		BAV20W-HE3-08 or BAV20W-HE3-18			
BAV21W	V_R = 200 V	BAV21W-E3-08 or BAV21W-E3-18	AA	Single diode	Tape and reel
		BAV21W-HE3-08 or BAV21W-HE3-18			

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

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Continuous reverse voltage		BAV19W	V_R	100	V
		BAV20W	V_R	150	V
		BAV21W	V_R	200	V
Repetitive peak reverse voltage		BAV19W	V_{RRM}	120	V
		BAV20W	V_{RRM}	200	V
		BAV21W	V_{RRM}	250	V
DC Forward current (1)			I_F	250	mA
Rectified current (average) half wave rectification with resist. load (1)			$I_{F(AV)}$	200	mA
Repetitive peak forward current (1)	f ≥ 50 Hz, θ = 180°		I_{FRM}	625	mA
Surge forward current	t < 1 s, T_j = 25 °C		I_{FSM}	1	A
Power dissipation (1)			P_{tot}	410	mW

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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air (1)		R_{thJA}	375	°C/W
Junction temperature (1)		T_j	150	°C
Storage temperature range (1)		T_{stg}	- 65 to + 150	°C
Operating temperature range		T_{op}	- 55 to + 150	°C

Note

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

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 100 mA		V_F			1	V
	I_F = 200 mA		V_F			1.25	V
Leakage current	V_R = 100 V	BAV19W	I_R			100	nA
	V_R = 100 V, T_j = 100 °C	BAV19W	I_R			15	µA
	V_R = 150 V	BAV20W	I_R			100	nA
	V_R = 150 V, T_j = 100 °C	BAV20W	I_R			15	µA
	V_R = 200 V	BAV21W	I_R			100	nA
	V_R = 200 V, T_j = 100 °C	BAV21W	I_R			15	µA
Dynamic forward resistance	I_F = 10 mA		r_f		5		Ω
Diode capacitace	V_R = 0, f = 1 MHz		C_D		1.5		pF
Reverse recovery time	I_F = 30 mA, I_R = 30 mA, i_R = 3 mA, R_L = 100 Ω		t_{rr}			50	ns

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

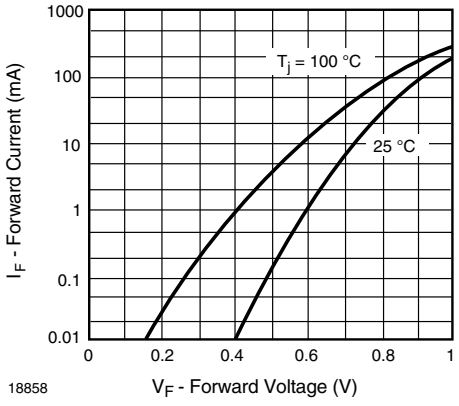


Fig. 1 - Forward Current vs. Forward Voltage

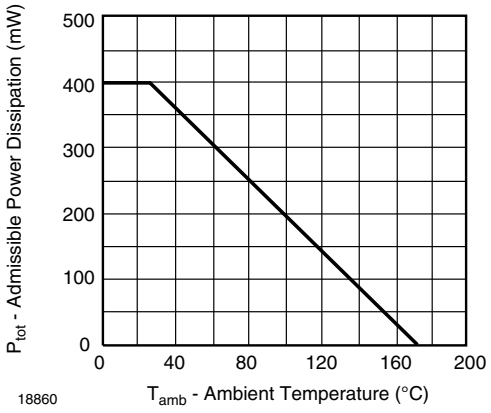


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

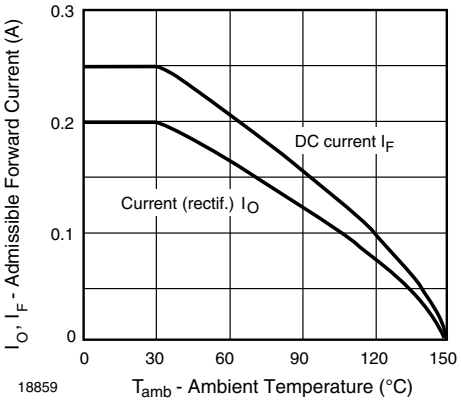


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

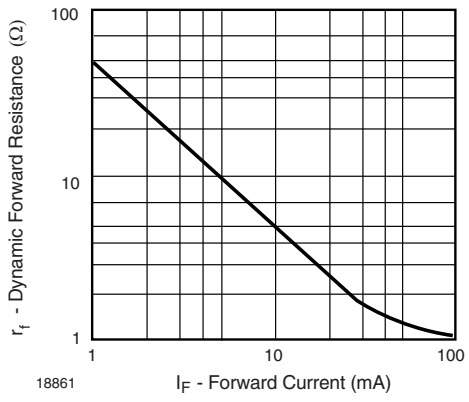


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

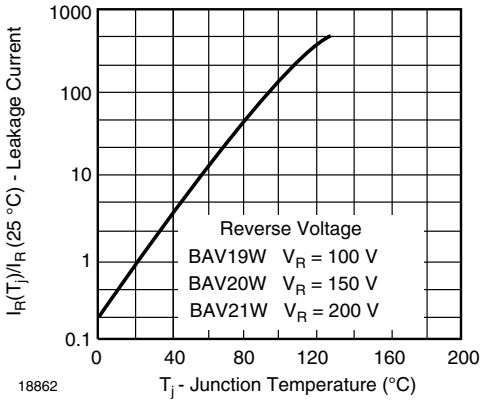


Fig. 5 - Leakage Current vs. Junction Temperature

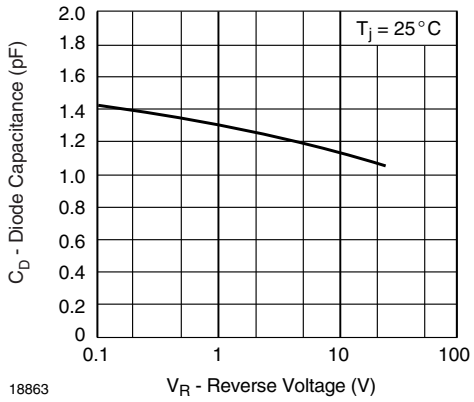


Fig. 6 - Capacitance vs. Reverse Voltage

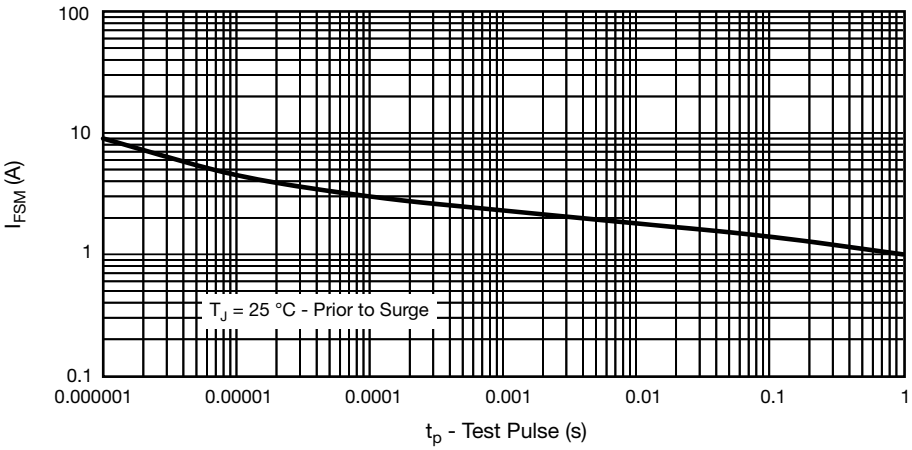
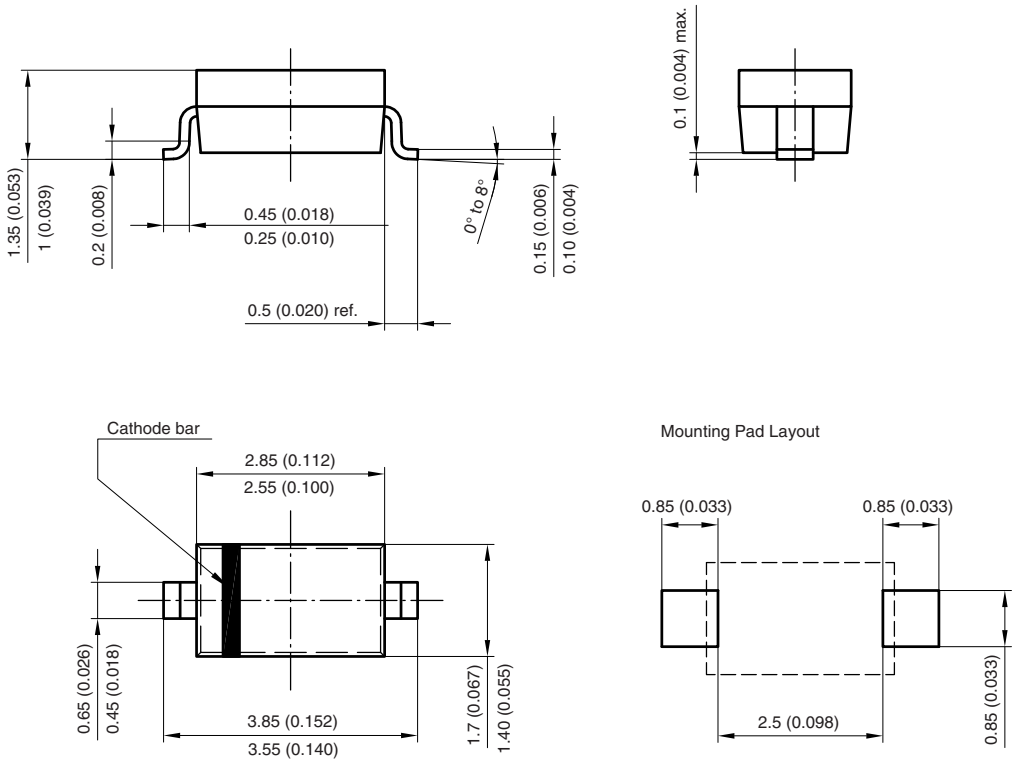


Fig. 7 - Non-Repetitive Peak Forward Current vs. Pulse Duration
Maximum Admissible Values of Square Pulse

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.