

Small Signal Switching Diodes, High Voltage



DESIGN SUPPORT TOOLS

[click logo to get started](#)

3D
Models
Available

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

FEATURES

- Silicon epitaxial planar diodes
- For general purpose
- AEC-Q101 qualified available
- 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



RoHS
COMPLIANT

PARTS TABLE

PART	TYPE DIFFERENTIATION	ORDERING CODE	TYPE MARKING	CIRCUIT CONFIGURATION	REMARKS
BAV19W	$V_R = 100\text{ V}$	BAV19W-E3-08 or BAV19W-E3-18 BAV19W-HE3-08 or BAV19W-HE3-18	A8	Single	Tape and reel
BAV20W	$V_R = 150\text{ V}$	BAV20W-E3-08 or BAV20W-E3-18 BAV20W-HE3-08 or BAV20W-HE3-18	A9	Single	Tape and reel
BAV21W	$V_R = 200\text{ V}$	BAV21W-E3-08 or BAV21W-E3-18 BAV21W-HE3-08 or BAV21W-HE3-18	AA	Single	Tape and reel

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, 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⁾	$f \geq 50\text{ Hz}$, $\theta = 180^{\circ}$		I_{FRM}	625	mA
Surge forward current	$t < 1\text{ s}$, $T_j = 25\text{ }^{\circ}\text{C}$		I_{FSM}	1	A
Power dissipation ⁽¹⁾			P_{tot}	410	mW

**THERMAL CHARACTERISTICS** ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

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

Note

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

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 100\text{ mA}$		V_F			1	V
	$I_F = 200\text{ mA}$		V_F			1.25	V
Leakage current	$V_R = 100\text{ V}$	BAV19W	I_R			100	nA
	$V_R = 100\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV19W	I_R			15	μA
	$V_R = 150\text{ V}$	BAV20W	I_R			100	nA
	$V_R = 150\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV20W	I_R			15	μA
	$V_R = 200\text{ V}$	BAV21W	I_R			100	nA
	$V_R = 200\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV21W	I_R			15	μA
Dynamic forward resistance	$I_F = 10\text{ mA}$		r_f		5		Ω
Diode capacitance	$V_R = 0, f = 1\text{ MHz}$		C_D		1.5		pF
Reverse recovery time	$I_F = 30\text{ mA}, I_R = 30\text{ mA},$ $i_R = 3\text{ mA}, R_L = 100\text{ }\Omega$		t_{rr}			50	ns

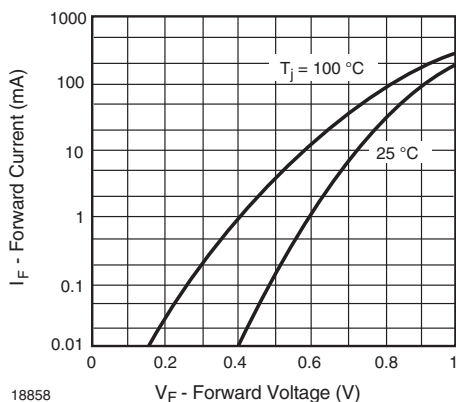
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Fig. 1 - Forward Current vs. Forward Voltage

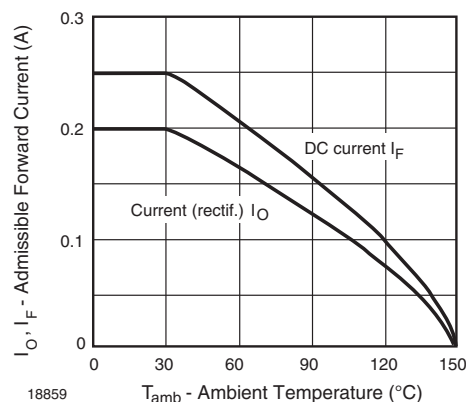


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

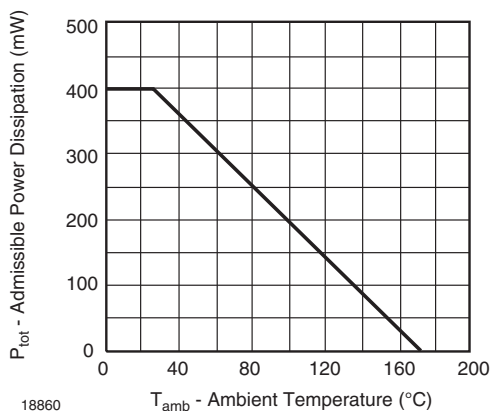


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

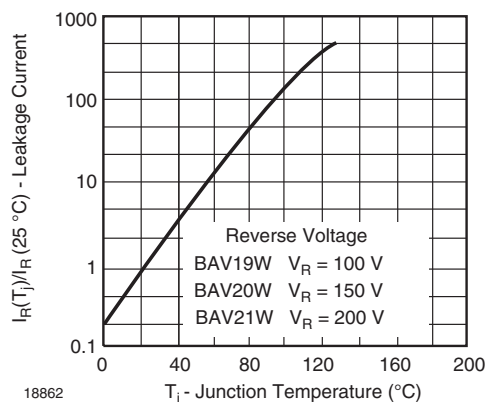


Fig. 5 - Leakage Current vs. Junction Temperature

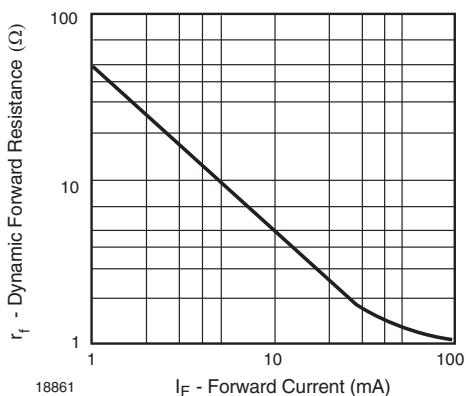


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

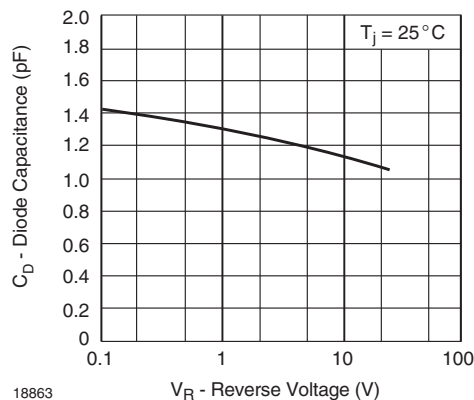
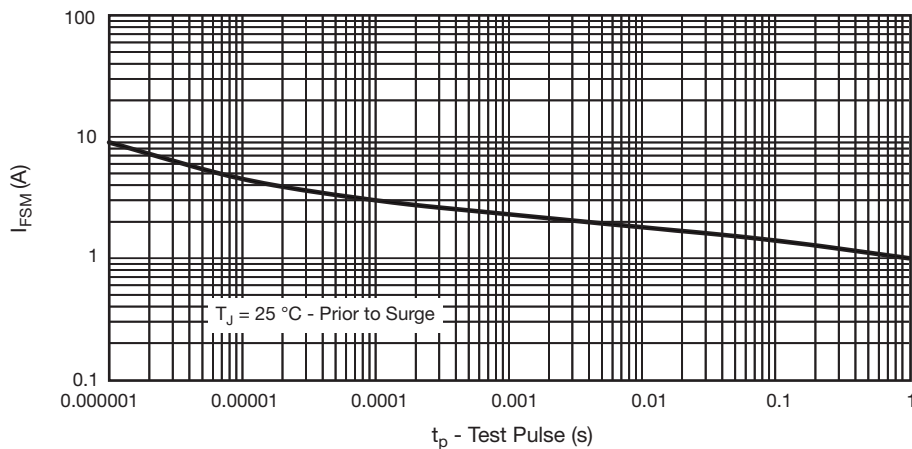
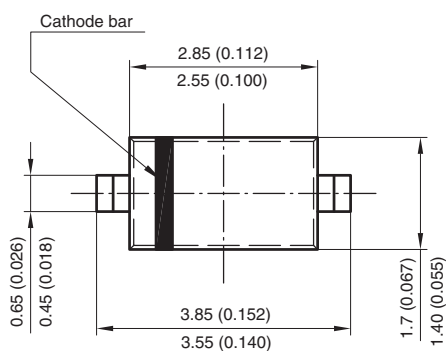
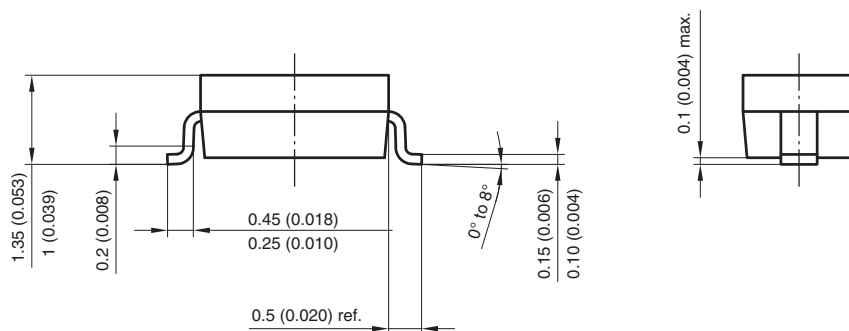


Fig. 6 - Capacitance vs. Reverse Voltage

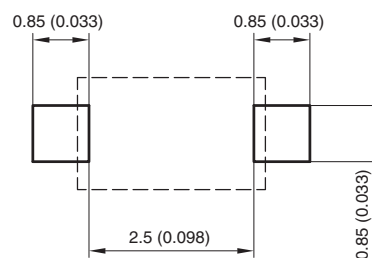

Fig. 7 - Non-Repetitive Peak Forward Current vs. Pulse Duration
Maximum Admissible Values of Square Pulse



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



Mounting Pad Layout



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.