

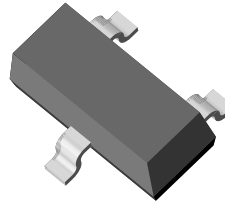
Small Signal Switching Diodes, High Voltage

Features

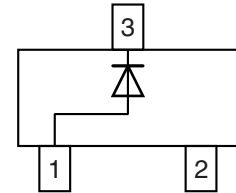
- Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion.
- These diodes are also available in other case styles including: the SOD-123 case with the type designations BAV19W-V to BAV21W-V, the Mini-MELF case with the type designation BAV101 to BAV103, the DO-35 case with the type designations BAV19-V to BAV21-V and the SOD-323 case with type designation BAV19WS-V to BAV21WS-V.
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT



16923



Mechanical Data

Case: SOT-23

Weight: approx. 8.8 mg

Packaging codes/options:

GS18/10K per 13" reel (8 mm tape), 10K/box

GS08/3K per 7" reel (8 mm tape), 15K/box

Parts Table

Part	Type differentiation	Ordering code	Marking	Remarks
BAS19-V	$V_{RRM} = 120\text{ V}$	BAS19-V-GS18 or BAS19-V-GS08	A8	Tape and reel
BAS20-V	$V_{RRM} = 200\text{ V}$	BAS20-V-GS18 or BAS20-V-GS08	A81	Tape and reel
BAS21-V	$V_{RRM} = 250\text{ V}$	BAS21-V-GS18 or BAS21-V-GS08	A82	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		BAS19-V	V_R	100	V
		BAS20-V	V_R	150	V
		BAS21-V	V_R	200	V
Repetitive peak reverse voltage		BAS19-V	V_{RRM}	120	V
		BAS20-V	V_{RRM}	200	V
		BAS21-V	V_{RRM}	250	V
Non-repetitive peak forward current	$t = 1\text{ }\mu\text{s}$		I_{FSM}	2.5	A
Non-repetitive peak forward surge current	$t = 1\text{ s}$		I_{FSM}	0.5	A
Maximum average forward rectified current	(av. over any 20 ms period)		$I_{F(AV)}$	200 ¹⁾	mA
DC forward current			I_F	200 ²⁾	mA
Repetitive peak forward current			I_{FRM}	625	mA
Power dissipation			P_{tot}	250 ²⁾	mW

¹⁾ Measured under pulse conditions; Pulse time = $T_p \leq 0.3\text{ ms}$

²⁾ Device on fiberglass substrate, see layout on next page

Thermal Characteristics

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

Parameter	Test condition	Symbol	Value	Unit
Thermal resistance junction to ambient air		R_{thJA}	430 ¹⁾	$^{\circ}\text{C}$
Junction temperature		T_j	150	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	- 65 to + 150	$^{\circ}\text{C}$

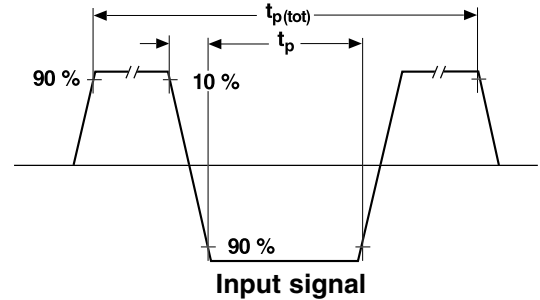
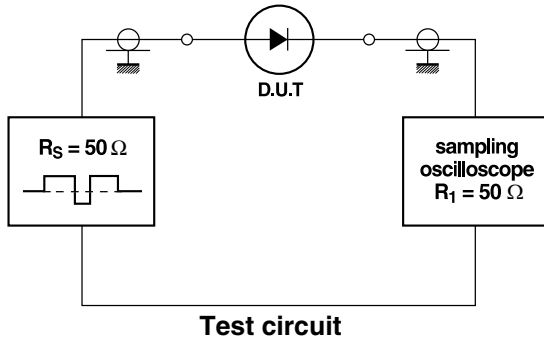
¹⁾ Device on fiberglass substrate, see layout on next page

Electrical Characteristics

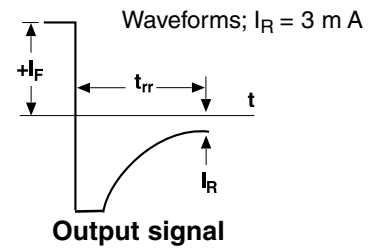
$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Parameter	Test condition	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	$I_F = 100\text{ mA}$	V_F			1.0	V
	$I_F = 200\text{ mA}$	V_F			1.25	V
Leakage current	$V_R = V_{Rmax.}$	I_R			100	nA
	$V_R = V_{Rmax.}, T_j = 150\text{ }^{\circ}\text{C}$	I_R			100	μA
Dynamic forward resistance	$I_F = 10\text{ mA}$	r_f		5		Ω
Diode capacitance	$V_R = 0, f = 1\text{ MHz}$	C_{tot}			5	pF
Reverse recovery time	$I_F = I_R = 30\text{ mA}, R_L = 100\text{ }\Omega,$ $I_{rr} = 3\text{ mA}$	t_{rr}			50	ns

Test Circuit and Waveforms



Input Signal	- total pulse duration - duty factor - rise time of reverse pulse - reverse pulse duration	$t_{p(tot)} = 2 \mu s$ $\delta = 0.0025$ $t_r = 0.6 ns$ $t_p = 100 ns$
Oscilloscope	- rise time - circuit capacitance*	$t_r = 0.35 ns$ $C < 1 pF$



*C = oscilloscope input capacitance + parasitic capacitance

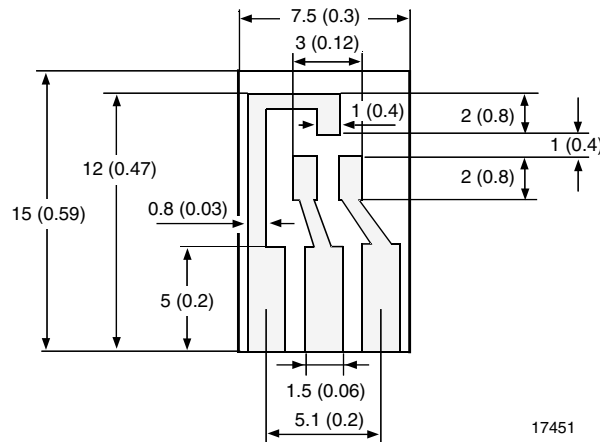
18098

Layout for R_{thJA} test

Thickness:

Fiberglass 1.5 mm (0.059 in.)

Copper leads 0.3 mm (0.012 in.)

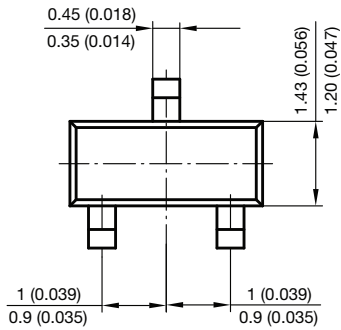
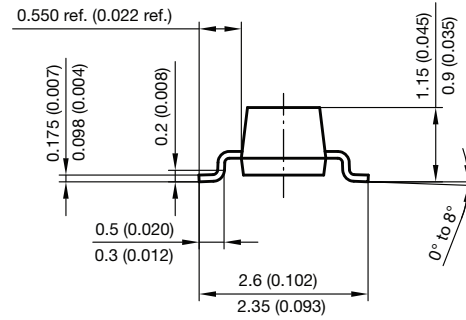
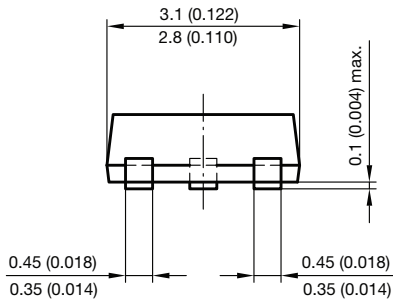


BAS19-V, BAS20-V, BAS21-V

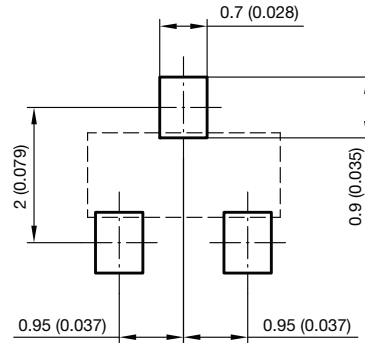


Vishay Semiconductors

Package Dimensions in millimeters (inches): **SOT-23**



Foot print recommendation:

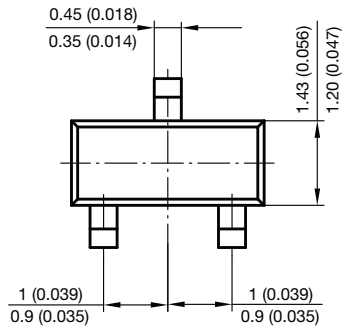
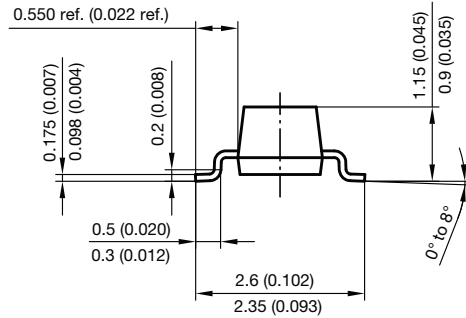
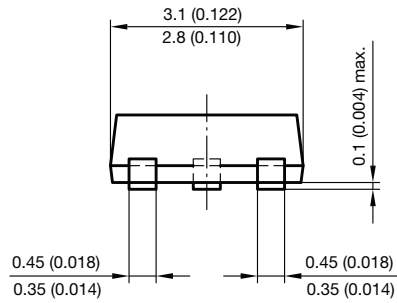


Document no.: 6.541-5014.01-4

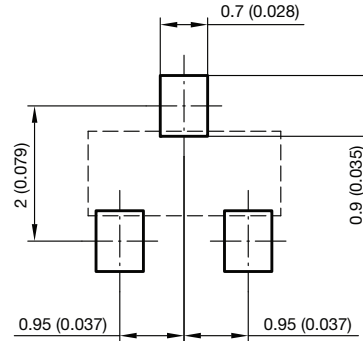
Rev. 8 - Date: 23.Sept.2009

17418

PACKAGE DIMENSIONS in millimeters (inches)



Foot print recommendation:



Document no.: 6.541-5014.01-4
Rev. 8 - Date: 23.Sept.2009
17418



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 and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. 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.