

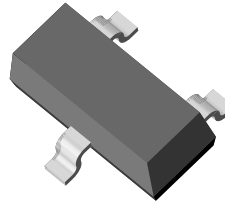
Small Signal Switching Diodes, High Voltage

Features

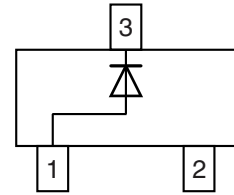
- Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion.
- These diodes are also available in other case styles including: the SOD-123 case with the type designations BAV19W-V to BAV21W-V, the Mini-MELF case with the type designation BAV101 to 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	$^{\circ}\text{C}$

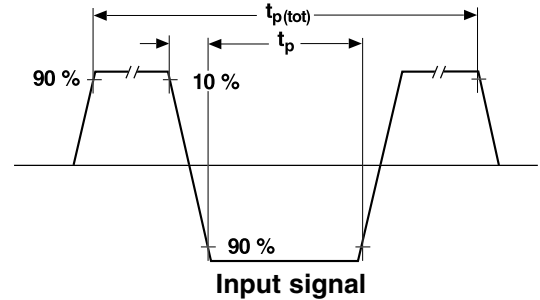
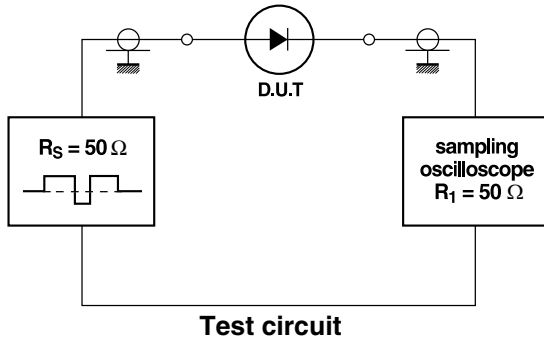
¹⁾ Device on fiberglass substrate, see layout on next page

Electrical Characteristics

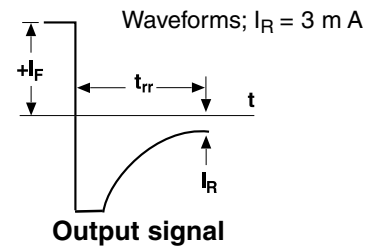
$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

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	$t_{p(\text{tot})} = 2 \mu\text{s}$ $\delta = 0.0025$ $t_r = 0.6\text{ns}$ $t_p = 100\text{ns}$
Oscilloscope	- rise time - circuit capacitance*	$t_r = 0.35\text{ns}$ $C < 1\text{pF}$



*C = oscilloscope input capacitance + parasitic capacitance

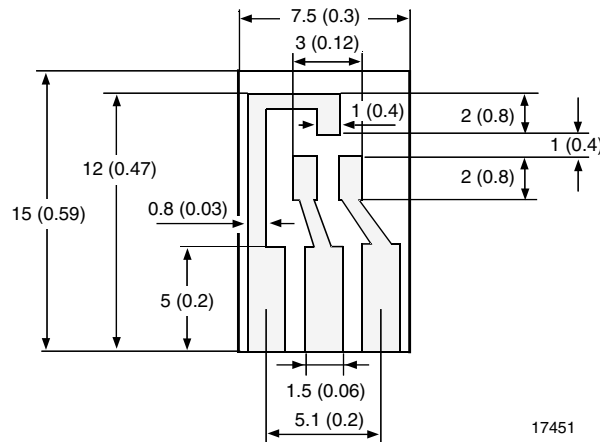
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Layout for R_{thJA} test

Thickness:

Fiberglass 1.5 mm (0.059 in.)

Copper leads 0.3 mm (0.012 in.)

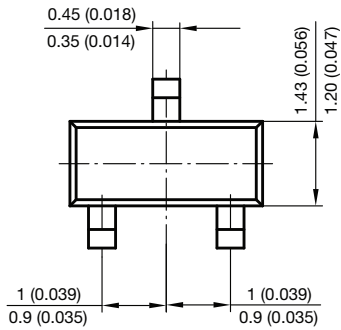
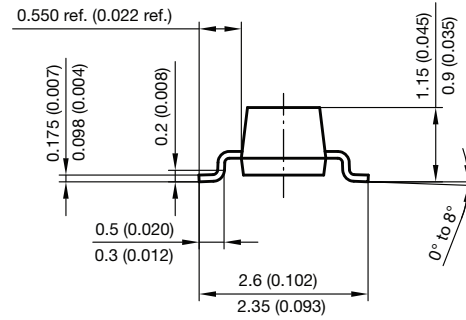
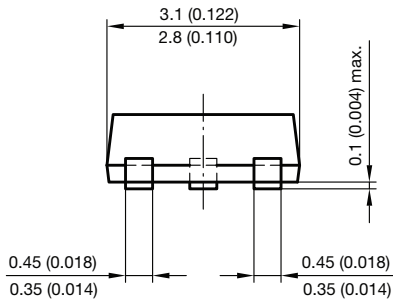


BAS19-V, BAS20-V, BAS21-V

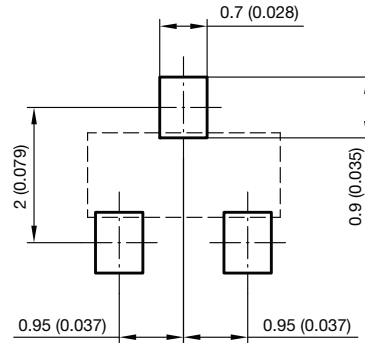


Vishay Semiconductors

Package Dimensions in millimeters (inches): SOT-23



Foot print recommendation:



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