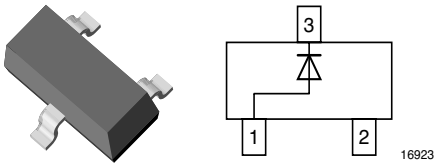
Small Signal Switching Diodes, High Voltage

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.
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



Mechanical Data

Case: SOT-23 Plastic case

Weight: approx. 8.8 mg

Packaging Codes/Options:

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

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

Parts Table

Part	Type differentiation	Ordering code	Marking	Remarks
BAS19-V	V_{RRM} = 120 V	BAS19-V-GS18 or BAS19-V-GS08	A8	Tape and Reel
BAS20-V	V_{RRM} = 200 V	BAS20-V-GS18 or BAS20-V-GS08	A81	Tape and Reel
BAS21-V	V_{RRM} = 250 V	BAS21-V-GS18 or BAS21-V-GS08	A82	Tape and Reel

Absolute Maximum Ratings

T_{amb} = 25 °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 µs		I_{FSM}	2.5	A
Non-repetitive peak forward surge current	t = 1 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	T_{amb} = 25 °C		I_F	200[2)]	mA
Repetitive peak forward current			I_{FRM}	625	mA
Power dissipation	T_{amb} = 25 °C		P_{tot}	250[2)]	mW

[1)] Measured under pulse conditions; Pulse time = $T_p \leq 0.3$ ms

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

Thermal Characteristics

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Thermal resistance junction to ambient air		R_{thJA}	430[1)]	°C
Junction temperature		T_j	150	°C
Storage temperature range		T_S	- 65 to + 150	°C

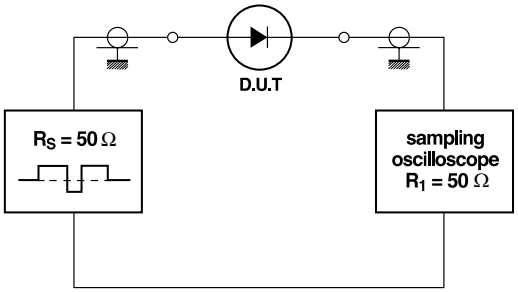
[1)] Device on fiberglass substrate, see layout on next page

Electrical Characteristics

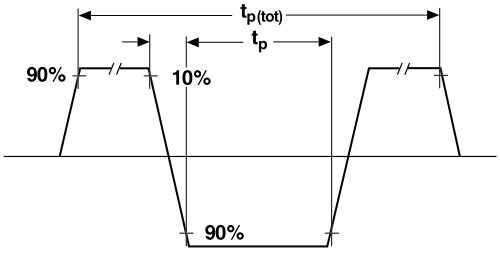
T_{amb} = 25 °C, unless otherwise specified

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

Test Circuit and Waveforms



Test circuit



Input signal

Input Signal	- total pulse duration	tp(tot) = 2 µs
	- duty factor	δ = 0.0025
	- rise time of reverse pulse	t_r = 0.6ns
	- reverse pulse duration	t_p = 100ns
Oscilloscope	- rise time	t_r = 0.35ns
	- cicuit capitance*	C < 1pF

*C = oscilloscope input capactitance + parasitic capacitance

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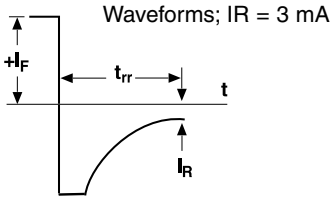
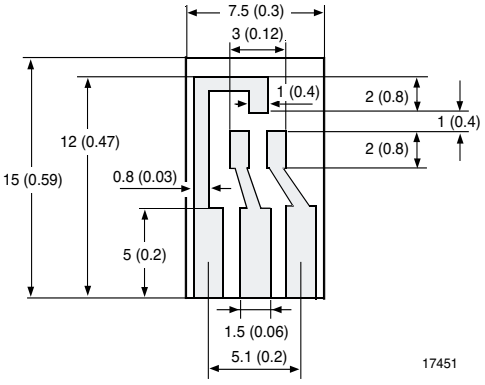


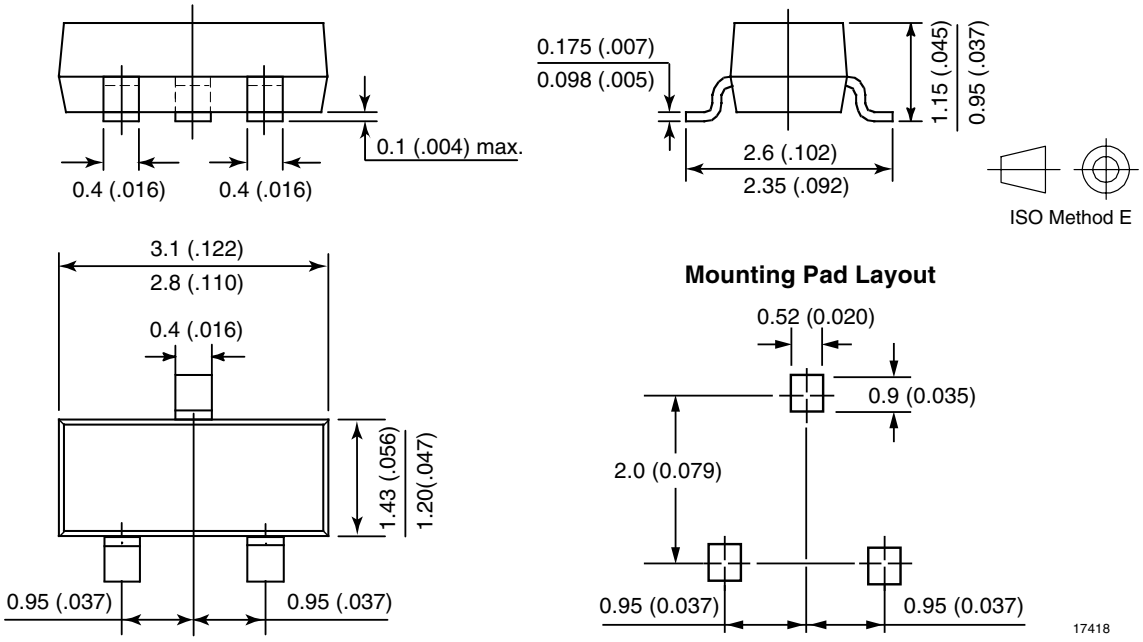
Output signal

Layout for R_{thJA} test

Thickness:
Fiberglass 1.5 mm (0.059 in.)
Copper leads 0.3 mm (0.012 in.)



Package Dimensions in mm (Inches)



Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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