Small Signal Switching Diodes, High Voltage

Features

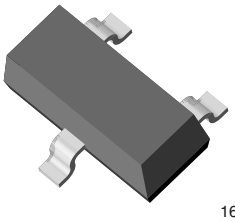
- Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion
- General purpose switching applications
- High conductance
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Pb-free

e3

RoHS COMPLIANT

GREEN (5-2008)**



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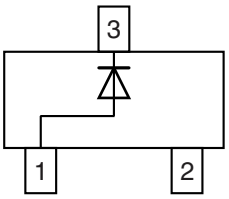


Mechanical Data

Case: SOT-23

Weight: approx. 8.1 mg

Packaging codes/options:

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

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

Parts Table

Part	Type differentiation	Ordering code	Marking	Remarks
BAS19-V-G	V_{RRM} = 120 V	BAS19-V-G-18 or BAS19-V-G-08	A8G	Tape and reel
BAS20-V-G	V_{RRM} = 200 V	BAS20-V-G-18 or BAS20-V-G-08	A9G	Tape and reel
BAS21-V-G	V_{RRM} = 250 V	BAS21-V-G-18 or BAS21-V-G-08	AAG	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-G	V_R	100	V
		BAS20-V-G	V_R	150	V
		BAS21-V-G	V_R	200	V
Repetitive peak reverse voltage		BAS19-V-G	V_{RRM}	120	V
		BAS20-V-G	V_{RRM}	200	V
		BAS21-V-G	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			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 = $T_p \leq 0.3$ 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_{stg}	- 65 to + 150	°C

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

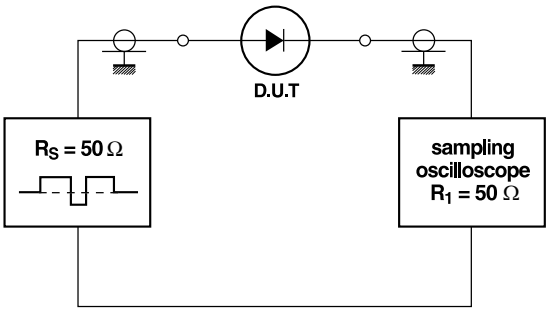
Electrical Characteristics

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

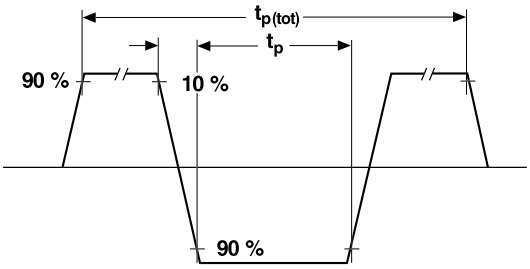
Parameter	Test condition	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	I_F = 100 mA	V_F			1.0	V
	I_F = 200 mA	V_F			1.25	V
Leakage current	$V_R = V_{Rmax.}$	I_R			100	nA
	$V_R = V_{Rmax.}$, T_j = 150 °C	I_R			100	µA
Dynamic forward resistance	I_F = 10 mA	r_f		5		Ω
Diode capacitance	V_R = 0, f = 1 MHz	C_{tot}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

For technical questions within your region, please contact one of the following:
DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

Test Circuit and Waveforms



Test circuit



Input signal

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

*C = oscilloscope input capactitance + parasitic capacitance

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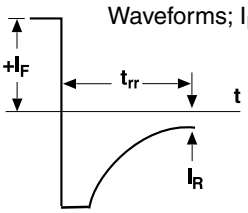
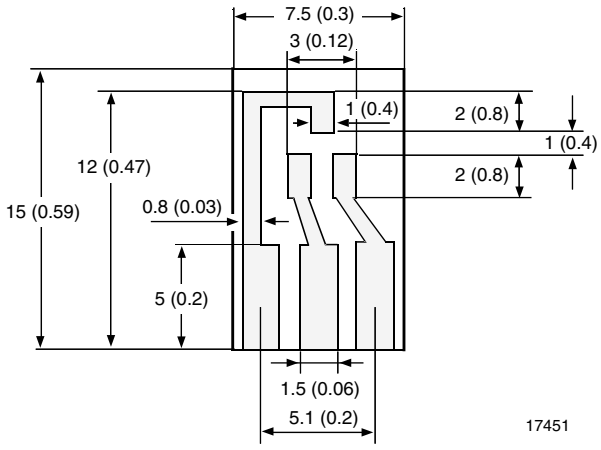
Waveforms; I_R = 3 m A



Output signal

Layout for R_{thJA} test

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



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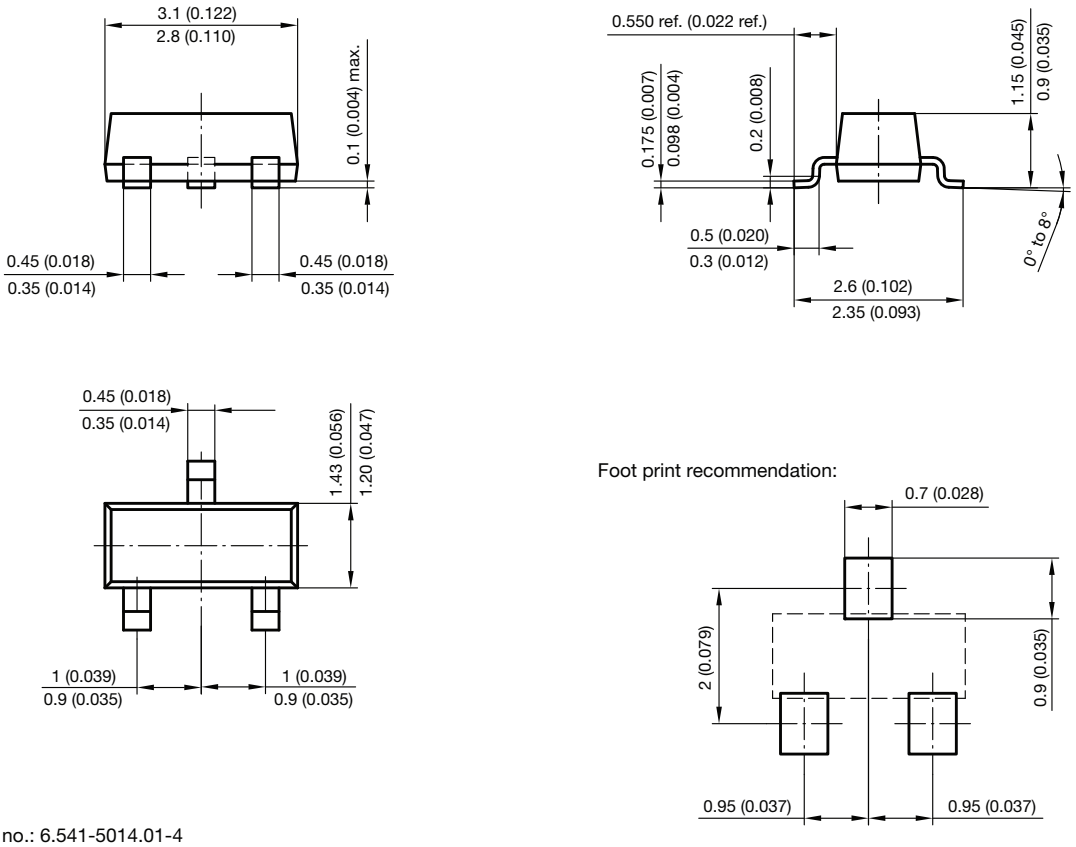
Package Dimensions in millimeters (inches): SOT-23



Foot print recommendation:

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