

## Small Signal Switching Diodes, High Voltage



### FEATURES

- Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion.
- 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](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

**DESIGN SUPPORT TOOLS** click logo to get started


### MECHANICAL DATA

**Case:** SOT-23

**Weight:** approx. 8.8 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	TYPE MARKING	CIRCUIT CONFIGURATION	REMARKS
BAS19	$V_R = 100\text{ V}$	BAS19-E3-08 or BAS19-E3-18 BAS19-HE3-08 or BAS19-HE3-18	A8	Single	Tape and reel
BAS20	$V_R = 150\text{ V}$	BAS20-E3-08 or BAS20-E3-18 BAS20-HE3-08 or BAS20-HE3-18	A81	Single	Tape and reel
BAS21	$V_R = 200\text{ V}$	BAS21-E3-08 or BAS21-E3-18 BAS21-HE3-08 or BAS21-HE3-18	A82	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		BAS19	$V_R$	100	V
		BAS20	$V_R$	150	V
		BAS21	$V_R$	200	V
Repetitive peak reverse voltage		BAS19	$V_{RRM}$	120	V
		BAS20	$V_{RRM}$	200	V
		BAS21	$V_{RRM}$	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 <sup>(1)</sup>	(av. over any 20 ms period)		$I_{F(AV)}$	200	mA
DC forward current <sup>(2)</sup>			$I_F$	200	mA
Repetitive peak forward current			$I_{FRM}$	625	mA
Power dissipation <sup>(2)</sup>			$P_{tot}$	250	mW

### Notes

<sup>(1)</sup> Measured under pulse conditions; pulse time =  $t_p \geq 0.3\text{ }\mu\text{s}$ 
<sup>(2)</sup> Device on fiberglass substrate, see layout on next page



THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air		R <sub>thJA</sub> <sup>(1)</sup>	430	°C
Junction temperature		T <sub>j</sub>	150	°C
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C
Operating temperature range		T <sub>op</sub>	-55 to +150	°C

**Note**

(1) Device on fiberglass substrate, see layout drawing below

ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I <sub>F</sub> = 100 mA		V <sub>F</sub>			1.0	V
	I <sub>F</sub> = 200 mA		V <sub>F</sub>			1.25	V
Leakage current	V <sub>R</sub> = 100 V	BAS19	I <sub>R</sub>			100	nA
	V <sub>R</sub> = 150 V	BAS20	I <sub>R</sub>			100	nA
	V <sub>R</sub> = 200 V	BAS21	I <sub>R</sub>			100	nA
	V <sub>R</sub> = V <sub>Rmax</sub> , T <sub>j</sub> = 150 °C		I <sub>R</sub>			100	μA
Dynamic forward resistance	I <sub>F</sub> = 10 mA		r <sub>f</sub>		5		Ω
Diode capacitance	V <sub>R</sub> = 0, f = 1 MHz		C <sub>D</sub>			5	pF
Reverse recovery time	I <sub>F</sub> = I <sub>R</sub> = 30 mA, R <sub>L</sub> = 100 Ω, i <sub>R</sub> = 3 mA		t <sub>rr</sub>			50	ns

**LAYOUT FOR R<sub>thJA</sub> TEST**

Thickness:

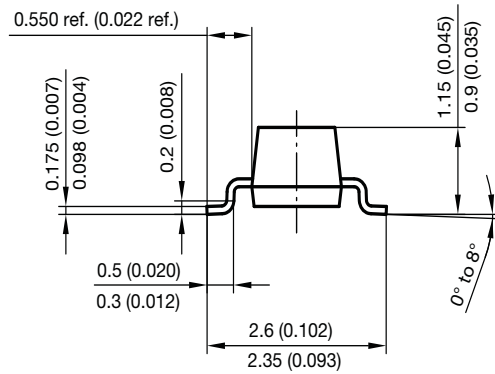
Fiberglass 1.5 mm (0.059 inches)

Copper leads 0.3 mm (0.012 inches)

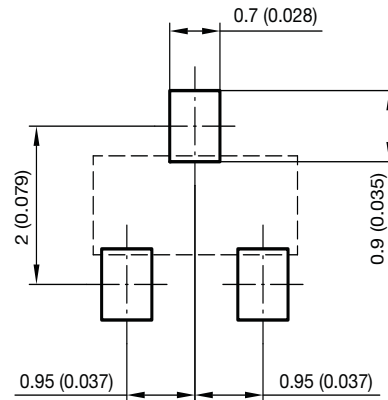




## PACKAGE DIMENSIONS in millimeters (inches): SOT-23



Foot print recommendation:



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