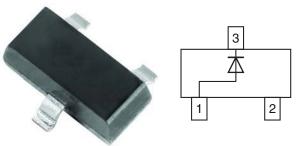


## Vishay Semiconductors

# **Small Signal Switching Diodes, High Voltage**



# MECHANICAL DATA

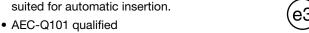
Case: SOT-23

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

#### **FEATURES**

- · Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion.



- Base P/N-E3 RoHS-compliant, commercial grade

  RoHS compliant
- Base P/N-HE3 RoHS-compliant, AEC-Q101 qualified
- Material categorization: For definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

PARTS TABLE							
PART	TYPE DIFFERENTIATION	ORDERING CODE	TYPE MARKING	INTERNAL CONSTRUCTION	REMARKS		
BAS19	V <sub>R</sub> = 100 V	BAS19-E3-08 or BAS19-E3-18	- A8	Cinalo dio do	Tape and reel		
		BAS19-HE3-08 or BAS19-HE3-18		Single diode			
BAS20	V <sub>R</sub> = 150 V	BAS20-E3-08 or BAS20-E3-18	A81	Cinale diede	Tana and real		
		BAS20-HE3-08 or BAS20-HE3-18	Aoi	Single diode	Tape and reel		
BAS21	V <sub>R</sub> = 200 V	BAS21-E3-08 or BAS21-E3-18	A82	Cinalo diado	Tape and reel		
		BAS21-HE3-08 or BAS21-HE3-18		Single diode			

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT	
		BAS19	$V_{R}$	100	V	
Continuous recerse voltage		BAS20	V <sub>R</sub>	150	V	
		BAS21	V <sub>R</sub>	200	V	
		BAS19	$V_{RRM}$	120	V	
Repetitive peak reverse voltage		BAS20	$V_{RRM}$	200	V	
		BAS21	$V_{RRM}$	250	V	
Non repetitive peak forward current	t = 1 μs		I <sub>FSM</sub>	2.5	А	
Non repetitive peak forward surge current	t = 1 s		I <sub>FSM</sub>	0.5	А	
Maximum average forward rectified current <sup>(1)</sup>	(av. over any 20 ms period)		I <sub>F(AV)</sub>	200	mA	
DC forward current (2)			I <sub>F</sub>	200	mA	
Repetitive peak forward current			I <sub>FRM</sub>	625	mA	
Power dissipation (2)			P <sub>tot</sub>	250	mW	

#### Notes

 $<sup>^{(1)}</sup>$  Measured under pulse conditions; pulse time =  $t_p \geq 0.3 \ \text{ms}$ 

<sup>(2)</sup> Device on fiberglass substrate, see layout on next page



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# Vishay Semiconductors

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

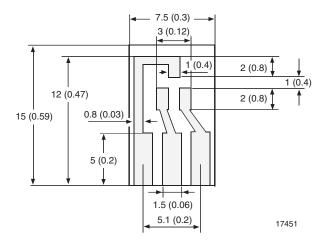
<sup>(1)</sup> Device on fiberglass substrate, see layout drawing below

<b>ELECTRICAL CHARACTERISTICS</b> (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
Forward voltage	I <sub>F</sub> = 200 mA		V <sub>F</sub>			1.25	V
	V <sub>R</sub> = 100 V	BAS19	I <sub>R</sub>			100	nA
Lookaga aurrant	V <sub>R</sub> = 150 V	BAS20	I <sub>R</sub>			100	nA
Leakage current	V <sub>R</sub> = 200 V	BAS21	I <sub>R</sub>			100	nA
	$V_R = V_{Rmax.}, T_j = 150  ^{\circ}C$		I <sub>R</sub>			100	μΑ
Dynamic forward resistance	I <sub>F</sub> = 10 mA		r <sub>f</sub>		5		Ω
Diode capacitance	$V_R = 0$ , $f = 1$ MHz		C <sub>D</sub>			5	pF
Reverse recovery time	$I_F = I_R = 30 \text{ mA}, R_L = 100 \Omega,$ $i_R = 3 \text{ mA}$		t <sub>rr</sub>			50	ns

### LAYOUT FOR $R_{thJA}$ TEST

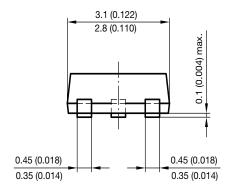
Thickness:

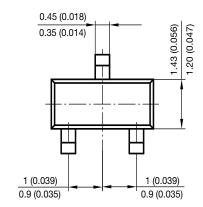
Fiberglass 1.5 mm (0.059 inches) Copper leads 0.3 mm (0.012 inches)



# Vishay Semiconductors

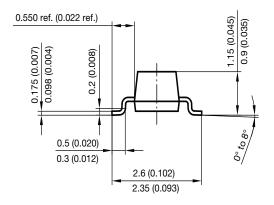
### PACKAGE DIMENSIONS in millimeters (inches): SOT-23



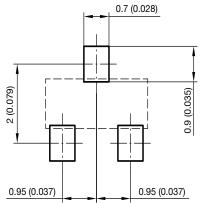


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#### Foot print recommendation:





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