



## 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
- 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

### 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	INTERNAL CONSTRUCTION	REMARKS
BAS19	$V_R = 100\text{ V}$	BAS19-E3-08 or BAS19-E3-18	A8	Single diode	Tape and reel
		BAS19-HE3-08 or BAS19-HE3-18			
BAS20	$V_R = 150\text{ V}$	BAS20-E3-08 or BAS20-E3-18	A81	Single diode	Tape and reel
		BAS20-HE3-08 or BAS20-HE3-18			
BAS21	$V_R = 200\text{ V}$	BAS21-E3-08 or BAS21-E3-18	A82	Single diode	Tape and reel
		BAS21-HE3-08 or BAS21-HE3-18			

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 =  $t_p \geq 0.3\text{ ms}$

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



<b>THERMAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air		$R_{thJA}^{(1)}$	430	$^{\circ}\text{C}$
Junction temperature		$T_j$	150	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	- 65 to + 150	$^{\circ}\text{C}$
Operating temperature range		$T_{op}$	- 55 to + 150	$^{\circ}\text{C}$

**Note**

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

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	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	$V_R = 100\text{ V}$	BAS19	$I_R$			100	nA
	$V_R = 150\text{ V}$	BAS20	$I_R$			100	nA
	$V_R = 200\text{ V}$	BAS21	$I_R$			100	nA
	$V_R = V_{Rmax}, T_j = 150\text{ }^{\circ}\text{C}$		$I_R$			100	$\mu\text{A}$
Dynamic forward resistance	$I_F = 10\text{ mA}$		$r_f$		5		$\Omega$
Diode capacitance	$V_R = 0, f = 1\text{ MHz}$		$C_D$			5	pF
Reverse recovery time	$I_F = I_R = 30\text{ mA}, R_L = 100\text{ }\Omega, i_R = 3\text{ mA}$		$t_{rr}$			50	ns

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

Thickness:

Fiberglass 1.5 mm (0.059 inches)

Copper leads 0.3 mm (0.012 inches)



17451



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



Foot print recommendation:



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