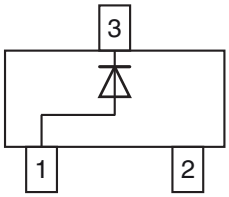
Small Signal Switching Diodes, High Voltage



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

Pb-free

e3

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 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 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 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 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Continuous recerse 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 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 (1)	(av. over any 20 ms period)		$I_{F(AV)}$	200	mA
DC forward current (2)			I_F	200	mA
Repetitive peak forward current			I_{FRM}	625	mA
Power dissipation (2)			P_{tot}	250	mW

Notes

(1) Measured under pulse conditions; pulse time = $t_p \geq 0.3$ ms

(2) Device on fiberglass substrate, see layout on next page

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

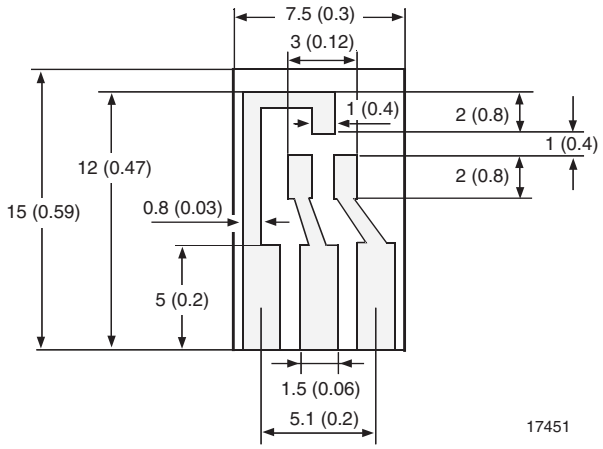
Note

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

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)							
PARAMETER	**TEST CONDITION**	**PART**	**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 = 100 V	BAS19	I_R			100	nA
	V_R = 150 V	BAS20	I_R			100	nA
	V_R = 200 V	BAS21	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_D			5	pF
Reverse recovery time	$I_F = I_R$ = 30 mA, R_L = 100 Ω, i_R = 3 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)



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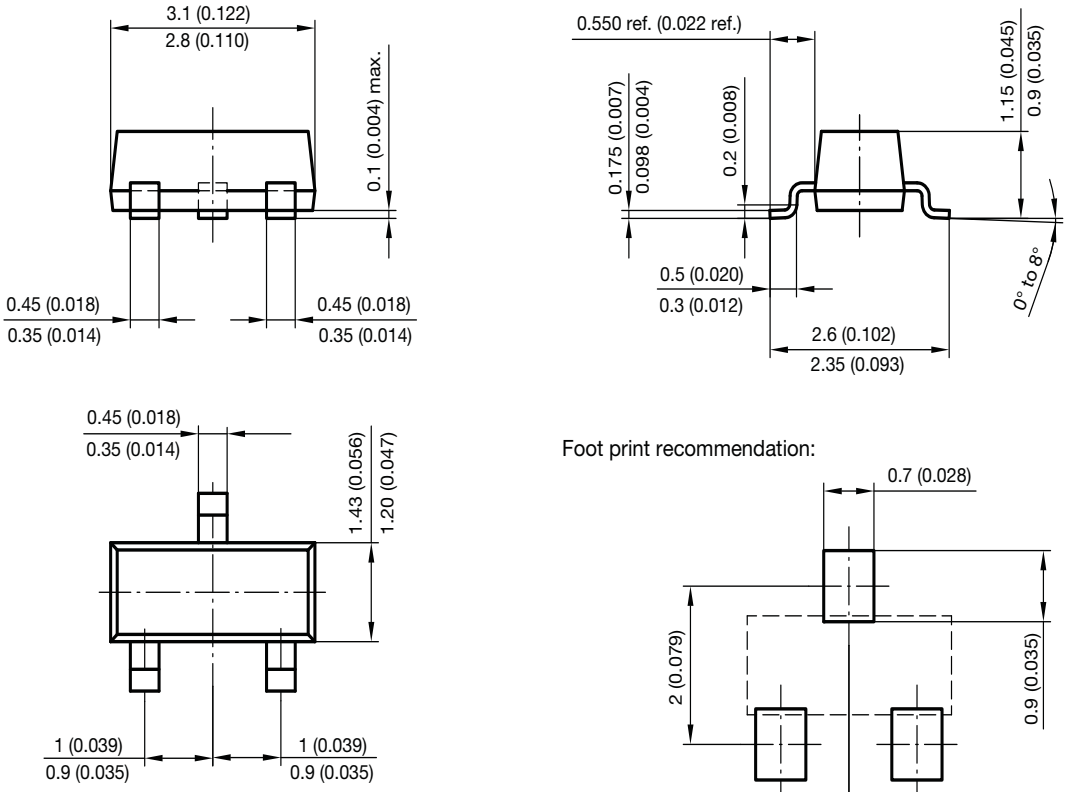
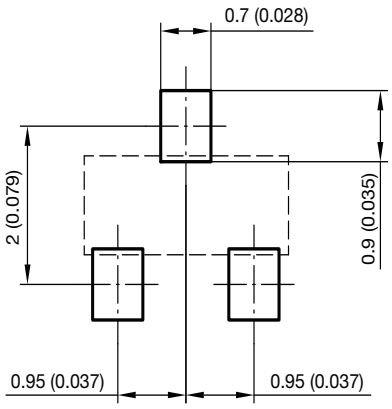
PACKAGE DIMENSIONS in millimeters (inches): **SOT-23**



Foot print recommendation:



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