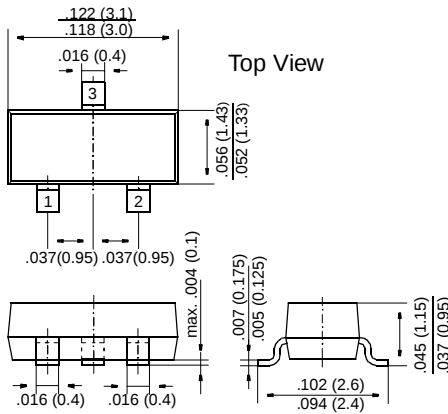


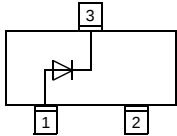
BAS19, BAS20, BAS21

Small Signal Diodes

SOT-23



Dimensions in inches and (millimeters)



Top View

Marking

BAS19 = A8
BAS20 = A81
BAS21 = A82

FEATURES

- ◆ Silicon Planar Epitaxial High-Speed Diodes
- ◆ For switching and general purpose applications.
- ◆ These diodes are also available in other case styles including: the SOD-123 case with the type designation BAV19W - BAV21W, the MiniMELF case with the type designation BAV101 - BAV103, and the DO-35 case with the type designation BAV19 - BAV21.



MECHANICAL DATA

Case: SOT-23 Plastic Package

Weight: approx. 0.008 g

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

	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			
at $t = 1 \mu s$	I_{FSM}	2.5	A
at $t = 1 s$	I_{FSM}	0.5	A
Average Rectified Forward Current (averaged over any 20 ms period)	$I_{F(AV)}$	200 ¹⁾	mA
Forward DC Current at $T_{amb} = 25 \text{ }^\circ\text{C}$	I_F	200 ²⁾	mA
Repetitive Peak Forward Current	I_{FRM}	625	mA
Power Dissipation up to $T_{amb} = 25 \text{ }^\circ\text{C}$	P_{tot}	200 ²⁾	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_S	-65 to +150	$^\circ\text{C}$

¹⁾ Measured under pulse conditions; Pulse time = $t_p \leq 0.3 \text{ ms}$.

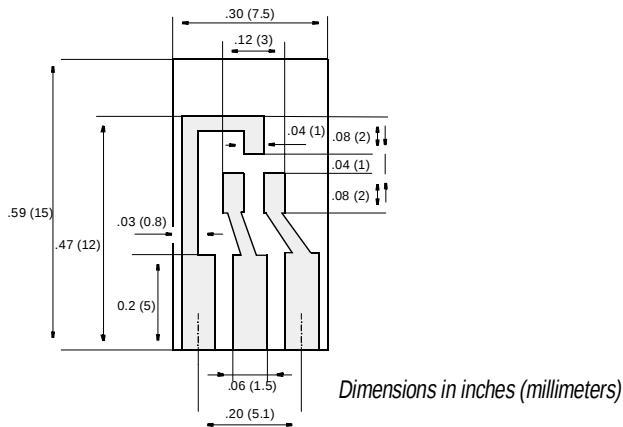
²⁾ Device on fiberglass substrate, see layout.

BAS19, BAS20, BAS21

ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

	Symbol	Min.	Typ.	Max.	Unit
Forward Voltage at $I_F = 100 \text{ mA}$ at $I_F = 200 \text{ mA}$	V_F V_F	— —	— —	1.0 1.25	V V
Leakage Current at $V_R = V_{R\text{max}}$ at $V_R = V_{R\text{max}}$; $T_j = 150 \text{ }^\circ\text{C}$	I_R I_R	— —	— —	100 100	nA μA
Dynamic Forward Resistance at $I_F = 10 \text{ mA}$	r_f	—	5	—	Ω
Capacitance at $V_R = 0$, $f = 1 \text{ MHz}$	C_{tot}	—	—	5	pF
Reverse Recovery Time (see figures) from $I_F = 30 \text{ mA}$ through $I_R = 30 \text{ mA}$ to $I_R = 3 \text{ mA}$, $R_L = 100 \text{ }\Omega$	t_{rr}	—	—	50	ns
Thermal Resistance Junction to Ambient Air	R_{thJA}	—	—	430 ²⁾	K/W
²⁾ Device on fiberglass substrate, see layout.					

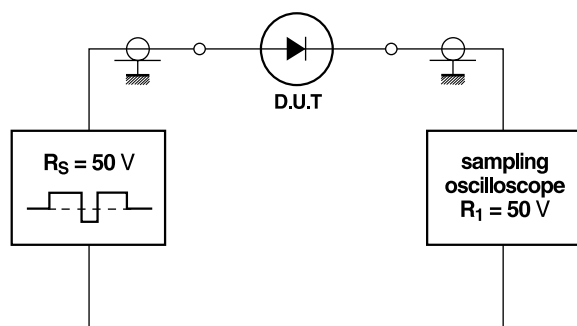


Layout for R_{thJA} test

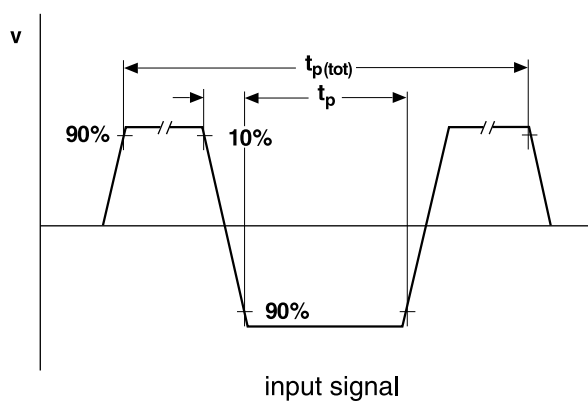
Thickness: Fiberglass 0.059 in (1.5 mm)

Copper leads 0.012 in (0.3 mm)

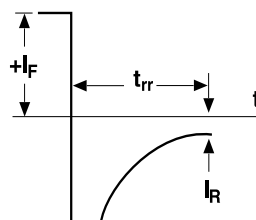
Test Circuit and Waveforms BAS19, BAS20, BAS21



Test circuit



input signal



output signal

Waveforms; $I_R = 3\text{ mA}$

Input Signal

- total pulse duration $t_{p(tot)} = 2\text{ }\mu\text{s}$
- duty factor $\delta = 0.0025$
- rise time of reverse pulse $t_r = 0.6\text{ ns}$
- reverse pulse duration $t_p = 100\text{ ns}$

Oscilloscope

- rise time $t_r = 0.35\text{ ns}$
- circuit capacitance* $C < 1\text{ pF}$

*C = oscilloscope input capacitance + parasitic capacitance