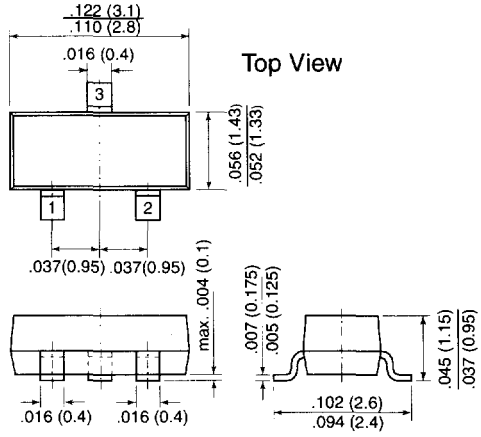
GENERAL SEMICONDUCTOR®

BAS19 thru BAS21

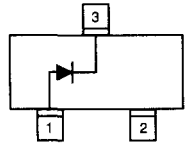
Small Signal Diodes

TO-236AB (SOT-23)



Dimensions in inches and (millimeters)

Marking
BAS19 = A8
BAS20 = A81
BAS21 = A82



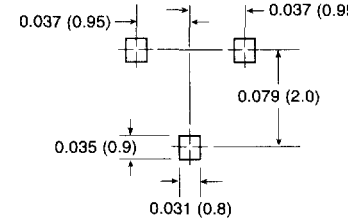
Features

- Silicon Epitaxial Planar Diode
- *Fast switching diode in case SOT-23, especially suited for automatic insertion.*
- These diodes are also available in other case styles including: the SOD-123 case with the type designations BAV19W to BAV21W, the Mini-MELF case with the type designation BAV101 to BAV103, the DO-35 case with the type designations BAV19 to BAV21 and the SOD-323 case with type designation BAV19WS to BAV21WS.

Mechanical Data

Case: SOT-23 Plastic Package
Weight: approx. 0.008g
Packaging Codes/Options:
E8/10K per 13" reel (8mm tape), 30K/box
E9/3K per 7" reel (8mm tape), 30K/box

Mounting Pad Layout



Switching Diodes

Maximum Ratings and Thermal Characteristics T_A = 25°C unless otherwise noted

Parameter		Symbol	Value	Unit
Continuous Reverse Voltage	BAS19 BAS20 BAS21	V_R	100 150 200	V
Repetitive Peak Reverse Voltage	BAS19 BAS20 BAS21	V_{RRM}	120 200 250	V
Non-Repetitive Peak Forward Current	at t = 1µs at t = 1s	I_{FSM}	2.5 0.5	A
Average Rectified Forward Current (av. over any 20ms period)		$I_{F(AV)}$	200(1)	mA
Forward DC Current at T_{amb} = 25°C		I_F	200(2)	mA
Repetitive Peak Forward Current		I_{FRM}	625	mA
Power Dissipation up to T_{amb} = 25°C		P_{tot}	250(2)	mW
Thermal Resistance Junction to Ambient Air		$R_{\theta JA}$	430(2)	°C/W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_S	–65 to +150	°C

Notes: (1) Measured under pulse conditions; Pulse time = tp ≤ 0.3ms
(2) Device on fiberglass substrate, see layout on next page

5/8/00

BAS19 thru BAS21

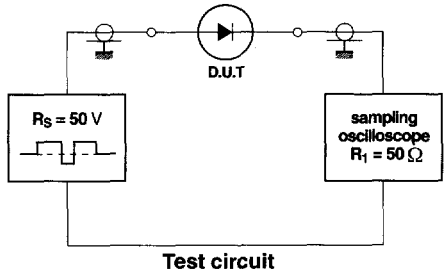
Small Signal Diodes

Electrical Characteristics (T_A = 25°C unless otherwise noted)

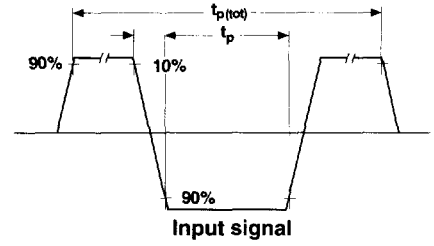
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	I_F = 100mA I_F = 200mA	— —	— —	1.0 1.25	mV mV
Leakage Current	I_R	$V_R = V_{Rmax}$ $V_R = V_{Rmax}$; T_j = 150°C	— —	— —	100 100	nA µA
Dynamic Forward Resistance	r_f	I_F = 10mA	—	5	—	Ω
Capacitance	C_{tot}	V_R = 0 f = 1MHz	—	—	5	pF
Reverse Recovery Time (see figures)	t_{rr}	I_F = 30mA, I_R = 30mA I_{rr} = 3mA, R_L = 100Ω	—	—	50	ns

(1)Device on fiberglass substrate, see layout (SOT-23).

Test Circuit and Waveforms (BAS19, BAS20, BAS21)



Test circuit

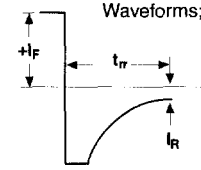


Input signal

Input Signal	- total pulse duration	tp(tot) = 2µs
	- duty factor	δ = 0.0025
	- rise time of reverse pulse	t_r = 0.6ns
	- reverse pulse duration	t_p = 100ns
Oscilloscope	- rise time	t_r = 0.35ns
	- cicuit capitance*	C < 1pF

*C = oscilloscope input capactitance + parasitic capacitance

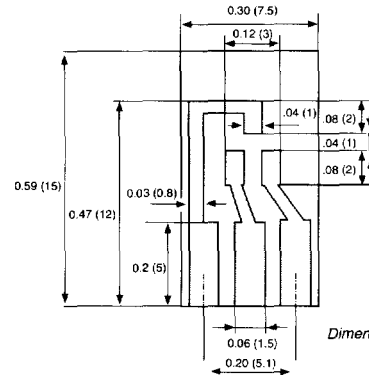
Waveforms; IR = 3 mA



Output signal

Layout for $R_{\theta JA}$ test

Thickness: Fiberglass 0.059 in. (1.5 mm)
Copper leads 0.012 in. (0.3 mm)



Dimensions in inches (millimeters)