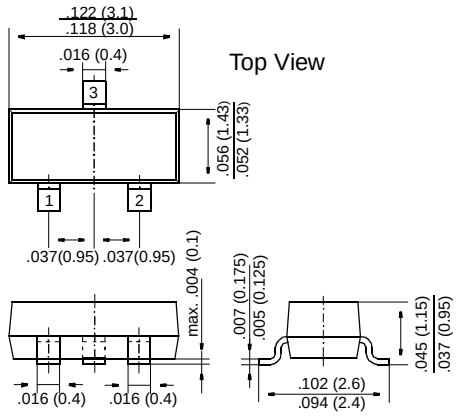
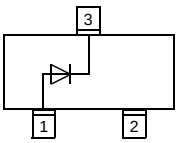
BAS19, BAS20, BAS21

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 µs	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 °C	I_F	200[2)]	mA
Repetitive Peak Forward Current	I_{FRM}	625	mA
Power Dissipation up to T_{amb} = 25 °C	P_{tot}	200[2)]	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	– 65 to +150	°C

[1)] Measured under pulse conditions; Pulse time = tp ≤ 0.3 ms.
[2)] Device on fiberglass substrate, see layout.

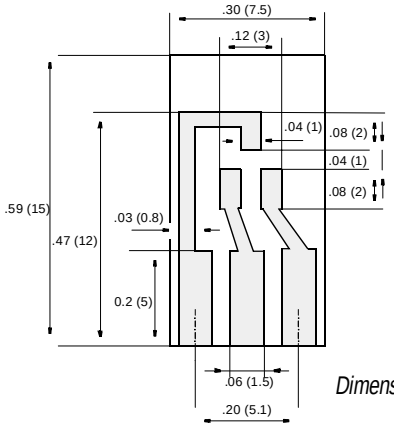
GENERAL SEMICONDUCTOR®

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 mA at I_F = 200 mA	 V_F V_F	 – –	 – –	 1.0 1.25	 V V
Leakage Current at $V_R = V_{Rmax}$ at $V_R = V_{Rmax}$; T_j = 150 °C	 I_R I_R	 – –	 – –	 100 100	 nA µA
Dynamic Forward Resistance at I_F = 10 mA	r_f	–	5	–	Ω
Capacitance at V_R = 0, f = 1 MHz	C_{tot}	–	–	5	pF
Reverse Recovery Time (see figures) from I_F = 30 mA through I_R = 30 mA to I_R = 3 mA, R_L = 100 Ω	t_{rr}	–	–	50	ns
Thermal Resistance Junction to Ambient Air	R_{thJA}	–	–	430[2)]	K/W
[2)] Device on fiberglass substrate, see layout.					



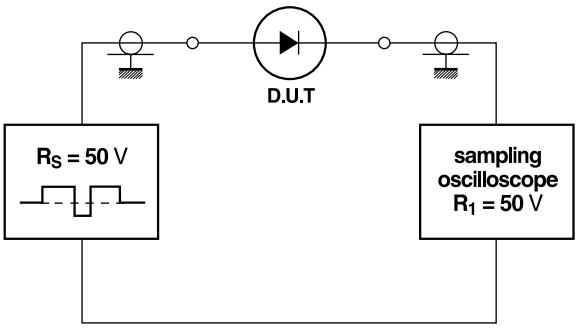
Dimensions in inches (millimeters)

Layout for R_{thJA} test

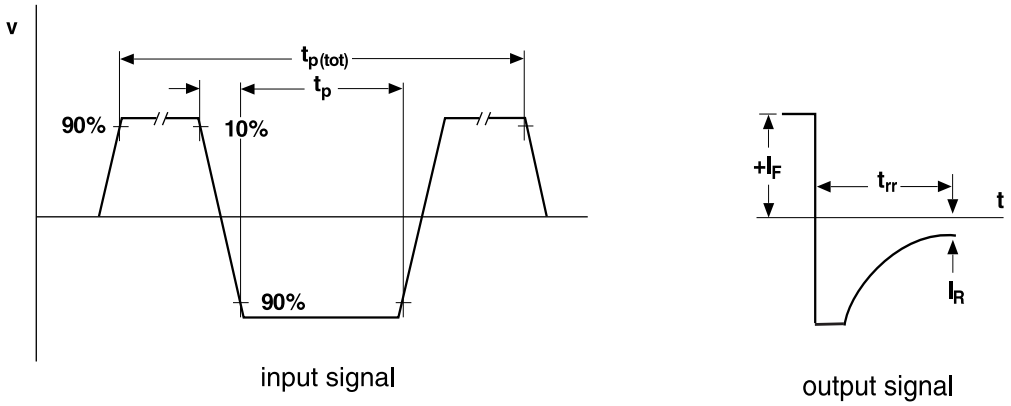
Thickness: Fiberglass 0.059 in (1.5 mm)
Copper leads 0.012 in (0.3 mm)

GENERAL SEMICONDUCTOR®

Test Circuit and Waveforms BAS19, BAS20, BAS21



Test circuit



Waveforms; I_R = 3 mA

Input Signal

– total pulse duration	$t_{p(tot)}$ = 2 µs
– duty factor	δ = 0.0025
– rise time of reverse pulse	t_r = 0.6 ns
– reverse pulse duration	t_p = 100 ns

Oscilloscope

– rise time	t_r = 0.35 ns
– circuit capacitance*	C < 1 pF

*C = oscilloscope input capacitance + parasitic capacitance