

BAS19 THRU BAS21

Small Signal Diodes 250mW

Features

- Ideally Suited for Automatic Insertion
- 150°C Junction Temperature
- Fast Switching speed
- Epitaxial Planar Die Construction
- Lead Free Finish/Rohs Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Halogen free available upon request by adding suffix "-HF"

Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Weight: 0.008 grams (approx.)

MCC Part Number	Marking	Continuous Reverse Voltage V_R (V)	Repetitive Peak Reverse Voltage V_{RRM} (V)
BAS19	JP	100	120
BAS20	JR	150	200
BAS21	JS	200	250

Maximum Ratings @ 25°C Unless Otherwise Specified

Parameter	Symbol	Value	Unit
Non-repetitive Peak Forward Surge Current @ $t=1\mu s$	I_{FSM}	2.5	A
Average Rectified Forward Current	$I_{F(AV)}$	200 ⁽¹⁾	mA
Forward DC Current at $T_{amb}=25^\circ C$	I_F	200 ⁽²⁾	mA
Repetitive Peak Forward Current	I_{FRM}	625	mA
Power Dissipation up to $T_{amb}=25^\circ C$	P_{tot}	250	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	430	$^\circ C/W$
Operating & Storage Temperature	T_j, T_{STG}	-65~150	$^\circ C$

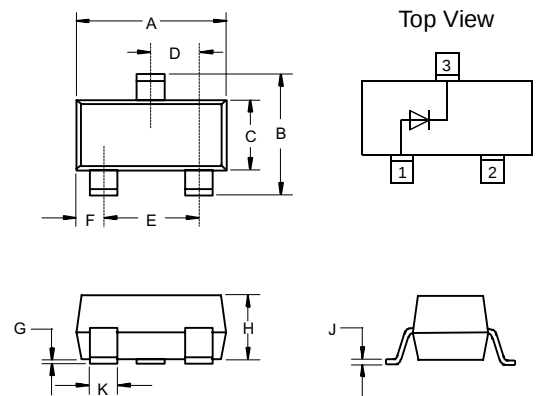
Notes: (1) Measured under pulse conditions;

Pulse time = $t_p \leq 0.3ms$

(2) Device on fiberglass substrate,

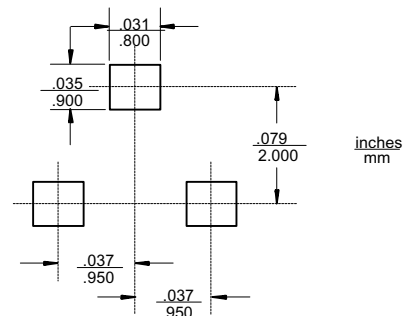
See layout on next page

SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.098	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout



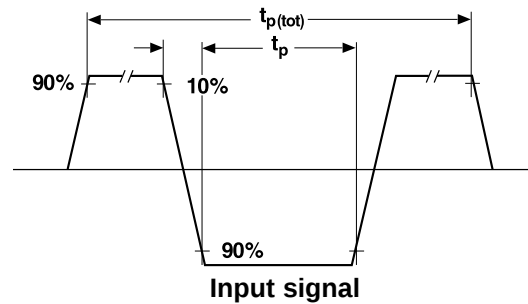
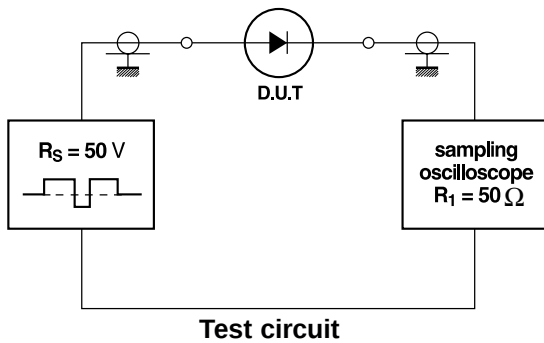
BAS19 thru BAS21

Electrical Characteristics (T_j = 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	V
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

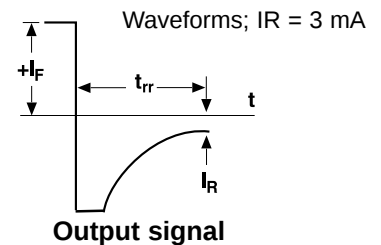
(1) Device on fiberglass substrate, see layout (SOT-23).

Test Circuit and Waveforms (BAS19, BAS20, BAS21)



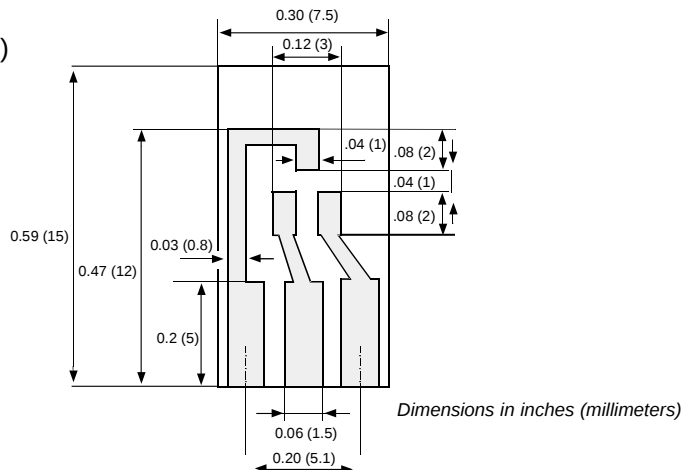
Input Signal	- total pulse duration - duty factor - rise time of reverse pulse - reverse pulse duration	tp(tot) = 2μs δ = 0.0025 tr = 0.6ns tp = 100ns
Oscilloscope	- rise time - circuit capacitance*	tr = 0.35ns C < 1pF

*C = oscilloscope input capacitance + parasitic capacitance



Layout for RθJA test

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



Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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