

# 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.)

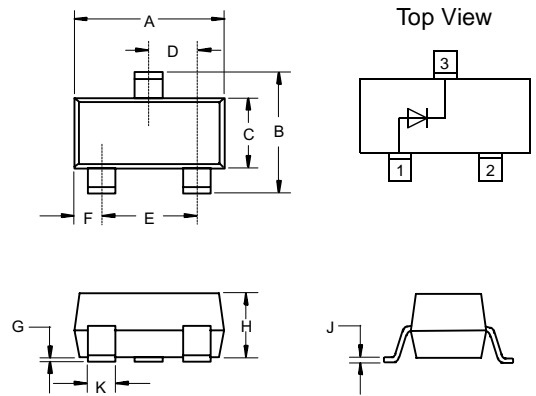
MCC Part Number	Marking	Continuous Reverse Voltage $V_R$ (V)	Repetitive Peak Reverse Voltage $V_{RRM}$ (V)
BAS19	JP	100	120
BAS20	JR	150	200
BAS21	JS	200	250

### 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 <sup>(1)</sup>	mA
Forward DC Current at $T_{amb}=25^\circ C$	$I_F$	200 <sup>(2)</sup>	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	°C/W
Operating & Storage Temperature	$T_j, T_{STG}$	-65~150	°C

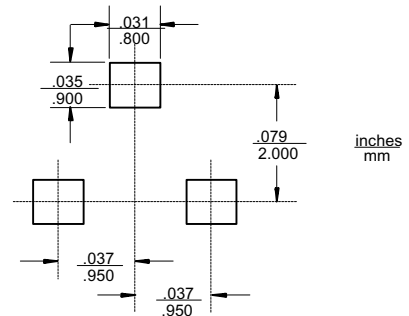
- Notes:** (1) Measured under pulse conditions;  
 Pulse time =  $t_p \leq 0.3ms$   
 (2) Device on fiberglass substrate,  
 See layout on next page

### 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



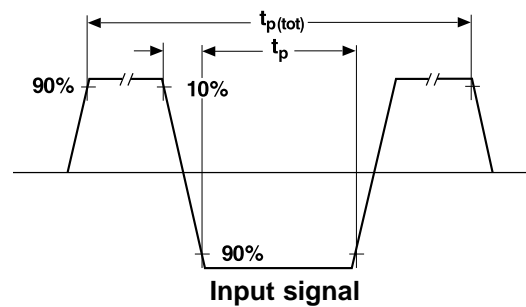
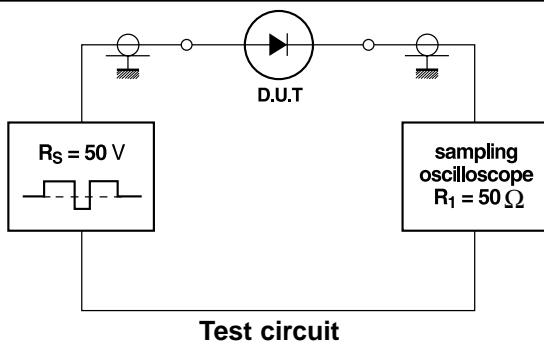
# BAS19 thru BAS21

## Electrical Characteristics (T<sub>J</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 100mA	—	—	1.0	V
		I <sub>F</sub> = 200mA	—	—	1.25	V
Leakage Current	I <sub>R</sub>	V <sub>R</sub> = V <sub>Rmax</sub>	—	—	100	nA
		V <sub>R</sub> = V <sub>Rmax</sub> ; T <sub>j</sub> = 150°C	—	—	100	μA
Dynamic Forward Resistance	r <sub>f</sub>	I <sub>F</sub> = 10mA	—	5	—	Ω
Capacitance	C <sub>tot</sub>	V <sub>R</sub> = 0 f = 1MHz	—	—	5	pF
Reverse Recovery Time (see figures)	t <sub>rr</sub>	I <sub>F</sub> = 30mA, I <sub>R</sub> = 30mA I <sub>rr</sub> = 3mA, R <sub>L</sub> = 100Ω	—	—	50	ns

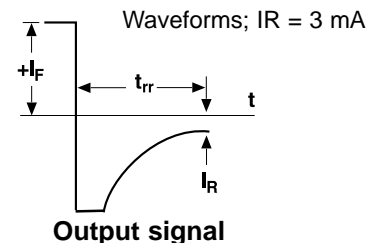
(1) Device on fiberglass substrate, see layout (SOT-23).

## Test Circuit and Waveforms (BAS19, BAS20, BAS21)



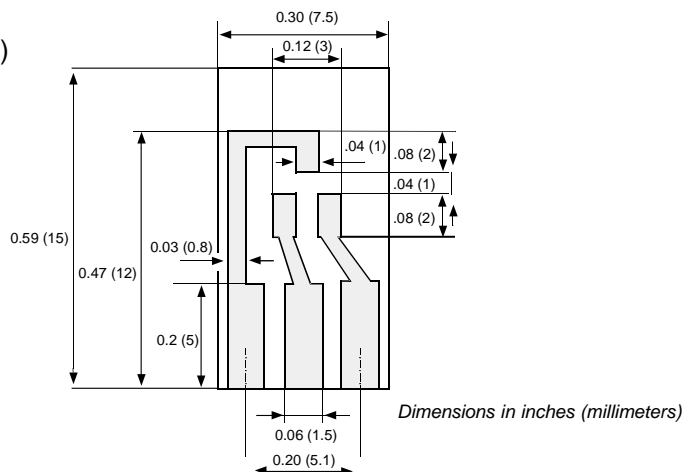
Input Signal	- total pulse duration - duty factor - rise time of reverse pulse - reverse pulse duration	tp(tot) = 2μs δ = 0.0025 tr = 0.6ns tp = 100ns
Oscilloscope	- rise time - circuit capacitance*	tr = 0.35ns C < 1pF

\*C = oscilloscope input capacitance + parasitic capacitance



## Layout for R<sub>ΘJA</sub> test

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





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### 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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