

BAS19 THRU BAS21

Small Signal Diodes 250mW

Features

- Ideally Suited for Automatic Insertion
- 150°C Junction Temperature
- Fast Switching speed
- Epitaxial Planar Die Construction

Mechanical Data

- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0 and MSL Rating 1
- Weight: 0.008 grams (approx.)

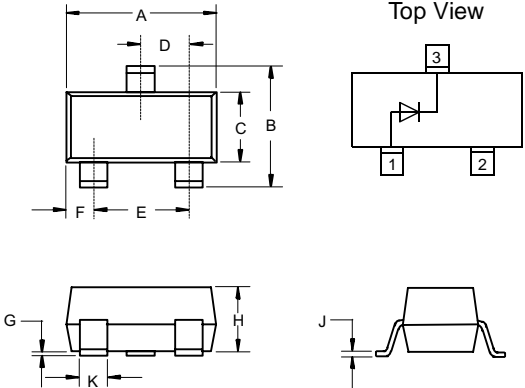
| MCC Part Number | Marking | Continuous Reverse Voltage V_R (V) | Repetitive Peak Reverse Voltage V_{RRM} (V) |
|-----------------|---------|--------------------------------------|---|
| BAS19 | JP | 100 | 120 |
| BAS20 | JR | 150 | 200 |
| BAS21 | JS | 200 | 250 |

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 | °C/W |
| Operating & Storage Temperature | T_j, T_{STG} | -65~150 | °C |

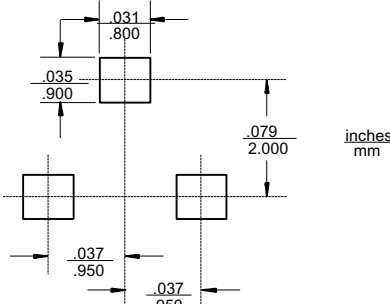
- Notes:** (1) Measured under pulse conditions;
Pulse time = $t_p \leq 0.3ms$
(2) Device on fiberglass substrate,
See layout on next page

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

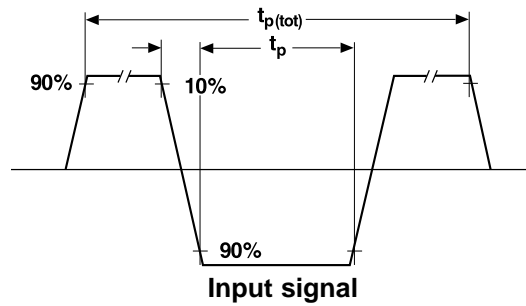
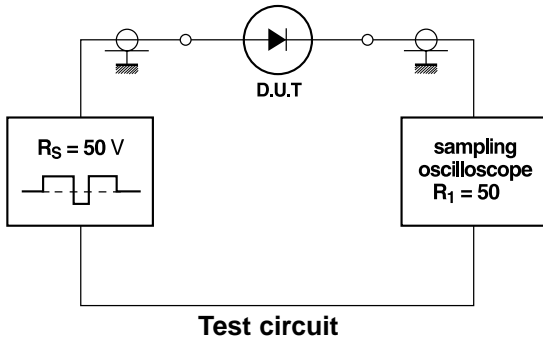
Electrical Characteristics

(T_J = 25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|-------------------------------------|------------------|--|-----|-----|------|------|
| Forward Voltage | V _F | I _F = 100mA | — | — | 1.0 | V |
| | | I _F = 200mA | — | — | 1.25 | V |
| Leakage Current | I _R | V _R = V _{Rmax} | — | — | 100 | nA |
| | | V _R = V _{Rmax} ; T _j = 150°C | — | — | 100 | 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 |

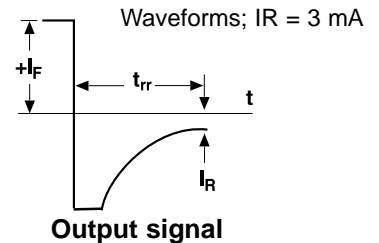
(1) Device on fiberglass substrate, see layout (SOT-23).

Test Circuit and Waveforms (BAS19, BAS20, BAS21)



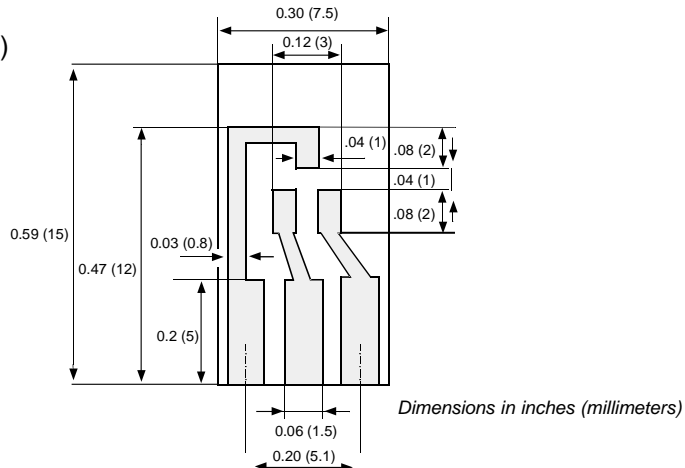
| | | |
|--------------|---|---|
| Input Signal | - total pulse duration - duty factor - rise time of reverse pulse - reverse pulse duration | tp(tot) = 2μs δ = 0.0025 tr = 0.6ns tp = 100ns |
| Oscilloscope | - rise time - circuit capacitance* | tr = 0.35ns C < 1pF |

*C = oscilloscope input capacitance + parasitic capacitance



Layout for R_{ΘJA} 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 |