



# BAS40 THRU BAS70

## Surface Mount Schottky Barrier Diode 200 mWatt

### Features

- SOT-23 Package For surface mount application
- Protects from line to  $V_{CC}$  and line to ground
- Low forward voltage and reverse recovery characteristics
- Bidirectional-low-forward available with "-04" suffix (Figure 2)
- Tape & Reel EIA Standard 481.

### Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"
- Mounting Position: Any
- Weight: .008 grams (approx.)

### MAXIMUM RATINGS

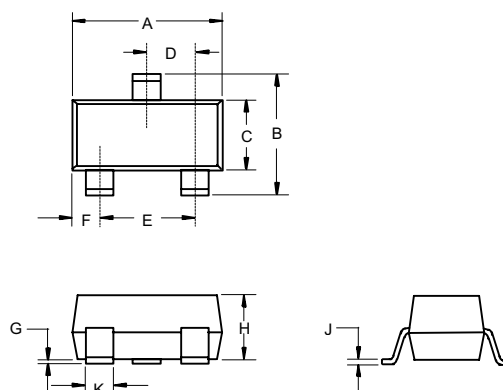
- Operating Temperature:  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Storage Temperature:  $-55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- Power Dissipation: 200 mWatts @  $T_{amb}=25^{\circ}\text{C}$
- Forward Continuous Current: BAS40  $I_F = 200\text{mA}$  @  $T_a=25^{\circ}\text{C}$   
BAS70  $I_F = 70\text{mA}$  @  $T_a=25^{\circ}\text{C}$
- Surge Forward Current: BAS40  $I_{FSM}=600\text{mA}$  @  $t_p<1\text{s}$ ,  $T_{amb}=25^{\circ}\text{C}$   
BAS70  $I_{FSM}=100\text{mA}$  @  $t_p<1\text{s}$ ,  $T_{amb}=25^{\circ}\text{C}$

### DESCRIPTION

Various configurations of Schottky barrier's diodes in SOT-23 package are provided for general-purpose use in high-speed switching, mixers and detector applications. They may also be used for signal integrity and counteract the transmission-line effects with (PC) board traces by clamping over/and undershoot from signal reflections with the schottky-low-threshold voltages.

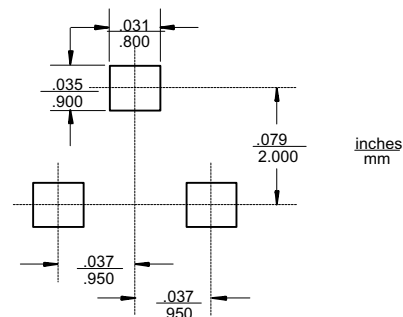
This type of termination also does not depend on matching the transmission line characteristic impedance, making it particularly useful where line impedance is unknown or a variable. This method of termination can control distortions of clock, data, address, and control lines as well as provides a stabilizing effect on signal jitter. It can also significantly reduce power consumption compared to standard resistor-based termination methods.

### SOT-23



| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | .110   | .120  | 2.80 | 3.04 |      |
| B   | .083   | .104  | 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  |      |

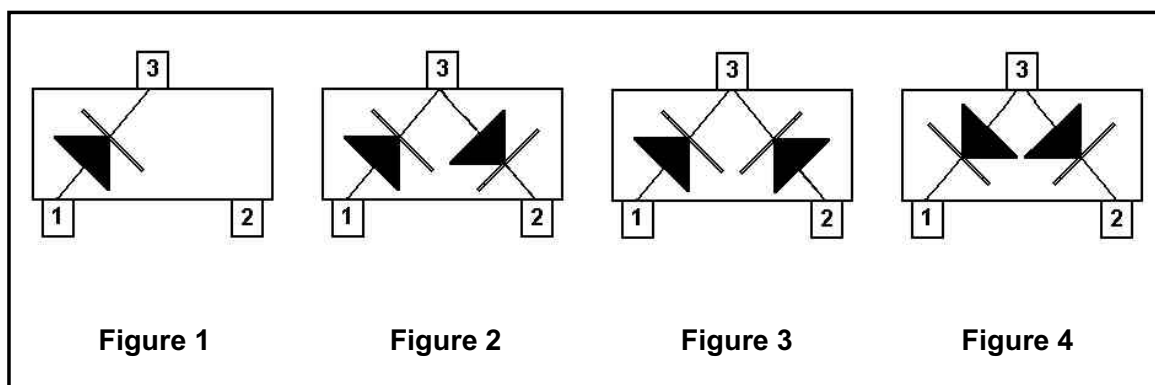
### Suggested Solder Pad Layout



# BAS40 and BAS70

## ELECTRICAL CHARACTERISTICS PER DIODE @ 25°C Unless otherwise specified

| DEVICE TYPE | DEVICE MARKING | FIGURE | Repetitive Peak Reverse Voltage | Reverse Breakdown Voltage Tested with 10µA Pulse | Leakage Current Pulse test tp < 300µs @ |     | Forward Voltage Pulse Test tp < 300µs at I <sub>F</sub> = 1 mA at I <sub>F</sub> = 40 mA |                      |                      | Reverse Recovery Time from I <sub>F</sub> = 10 mA through I <sub>R</sub> =10mA to I <sub>R</sub> =1mA | Thermal Resistance Junction to Ambient Air | Capacitance At V <sub>R</sub> = 0V F = 1 MHz C <sub>tot</sub> |
|-------------|----------------|--------|---------------------------------|--------------------------------------------------|-----------------------------------------|-----|------------------------------------------------------------------------------------------|----------------------|----------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------|
|             |                |        | V <sub>RRM</sub> (VOLTS)        | V <sub>(BR)/R</sub> (VOLTS)                      | I <sub>R</sub> (nA)                     |     | V <sub>F</sub> (mV)                                                                      |                      |                      | t <sub>rr</sub> (ns)                                                                                  | R <sub>thJA</sub> (K/W)                    | pF                                                            |
|             |                |        | TYP                             | MIN                                              | TYP                                     | MAX | I <sub>F</sub> =1mA                                                                      | I <sub>F</sub> =15mA | I <sub>F</sub> =40mA | MAX                                                                                                   | MAX                                        | MAX                                                           |
| BAS40       | 43             | 1      | 40                              | 40                                               | 10                                      | 200 | 380                                                                                      |                      | 1000                 | 5                                                                                                     | 430                                        | 5                                                             |
| BAS40-04    | 44             | 2      | 40                              | 40                                               | 10                                      | 200 | 380                                                                                      |                      | 1000                 | 5                                                                                                     | 430                                        | 5                                                             |
| BAS40-05    | 45             | 3      | 40                              | 40                                               | 10                                      | 200 | 380                                                                                      |                      | 1000                 | 5                                                                                                     | 430                                        | 5                                                             |
| BAS40-06    | 46             | 4      | 40                              | 40                                               | 10                                      | 200 | 380                                                                                      |                      | 1000                 | 5                                                                                                     | 430                                        | 5                                                             |
| BAS70       | 73             | 1      | 70                              | 70                                               | 10                                      | 200 | 410                                                                                      | 1000                 |                      | 5                                                                                                     | 430                                        | 2                                                             |
| BAS70-04    | 74             | 2      | 70                              | 70                                               | 10                                      | 200 | 410                                                                                      | 1000                 |                      | 5                                                                                                     | 430                                        | 2                                                             |
| BAS70-05    | 75             | 3      | 70                              | 70                                               | 10                                      | 200 | 410                                                                                      | 1000                 |                      | 5                                                                                                     | 430                                        | 2                                                             |
| BAS70-06    | 76             | 4      | 70                              | 70                                               | 10                                      | 200 | 410                                                                                      | 1000                 |                      | 5                                                                                                     | 430                                        | 2                                                             |



# BAS40 and BAS70

## Typical Characteristics

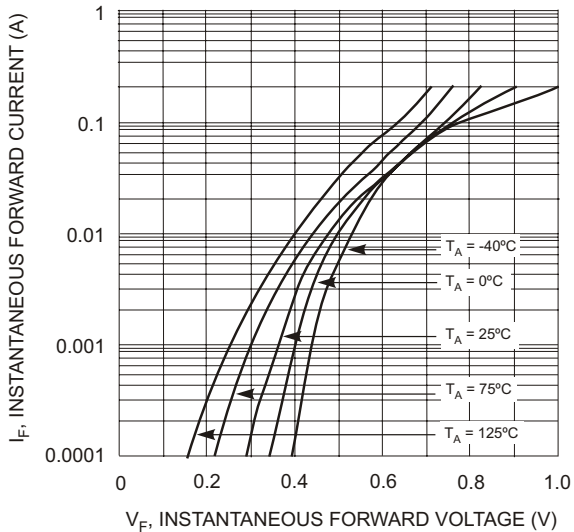


Fig. 1 Typical Forward Voltage

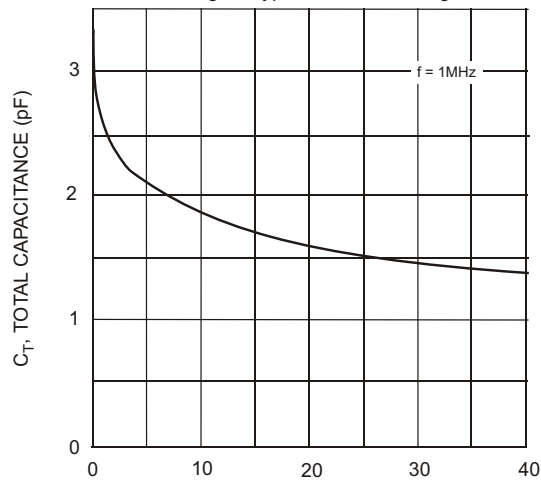


Fig. 3 Typical Capacitance

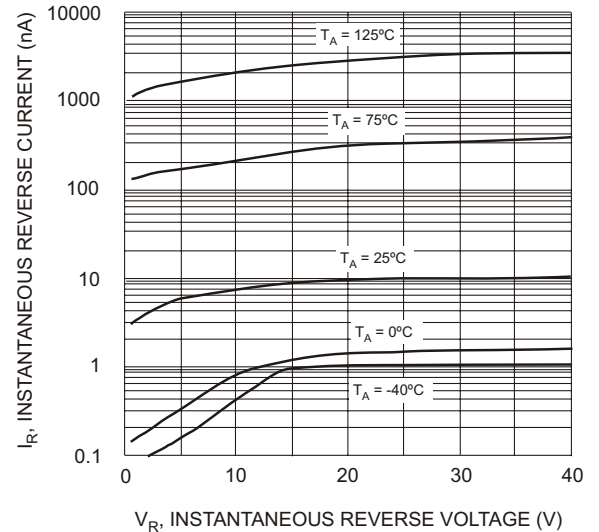


Fig. 2 Typical Reverse Characteristics

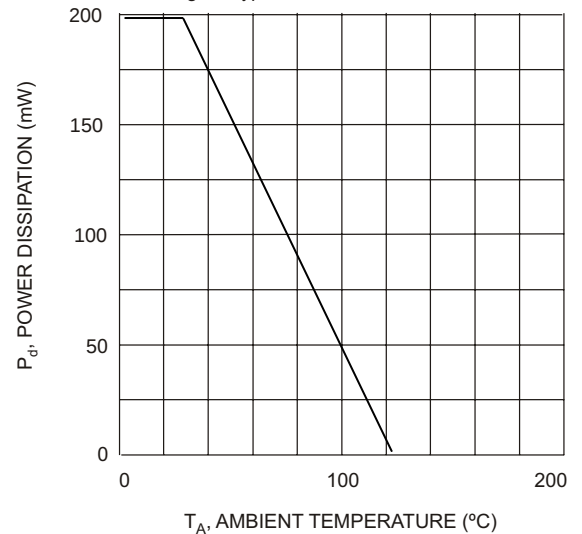


Fig. 4 Power Derating Curve, Total Package

## 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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