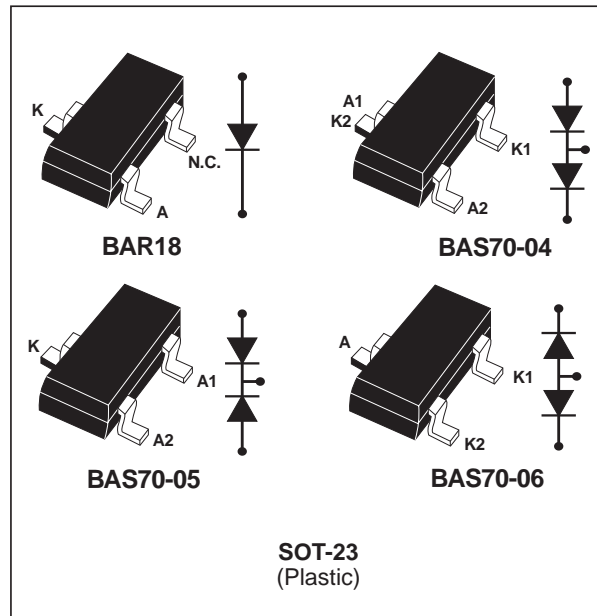




THE DATASHEET OF BAR18FILM



SMALL SIGNAL SCHOTTKY DIODES



DESCRIPTION

Low turn-on and high breakdown voltage diodes intended for ultrafast switching and UHF detectors in hybrid micro circuits.

ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | Value | Unit |
|-----------|--|-------------------------------------|------------------|
| V_{RRM} | Repetitive peak reverse voltage | 70 | V |
| I_F | Continuous forward current | 70 | mA |
| P_{tot} | Power dissipation (note 1) | $T_{amb} = 25^\circ\text{C}$ 250 | mW |
| T_{stg} | Maximum storage temperature range | - 65 to +150 | $^\circ\text{C}$ |
| T_j | Maximum operating junction temperature * | 150 | $^\circ\text{C}$ |
| T_L | Maximum temperature for soldering during 10s | 260 | $^\circ\text{C}$ |

Note 1: for double diodes, P_{tot} is the total dissipation of both diodes

$$* : \frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}} \text{ thermal runaway condition for a diode on its own heatsink}$$

THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|---------------|-------------------------|-------|--------------------|
| $R_{th(j-a)}$ | Junction to ambient (*) | 500 | $^\circ\text{C/W}$ |

(*) Mounted on epoxy board with recommended pad layout.

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

| Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|------------|--|------|------|------|------|
| V_{BR} | $T_j = 25^\circ\text{C}$ $I_R = 10\mu\text{A}$ | 70 | | | V |
| V_F^* | $T_j = 25^\circ\text{C}$ $I_F = 1\text{mA}$ | | | 410 | mV |
| I_R^{**} | $T_j = 25^\circ\text{C}$ $V_R = 50\text{V}$ | | | 200 | nA |

Pulse test: * $t_p = 380\mu\text{s}$, $\delta < 2\%$
 ** $t_p = 5\text{ms}$, $\delta < 2\%$

DYNAMIC CHARACTERISTICS

| Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|----------|--|------|------|------|------|
| C | $T_j = 25^\circ\text{C}$ $V_R = 0\text{V}$ $F = 1\text{MHz}$ | | | 2 | pF |
| τ^* | $T_j = 25^\circ\text{C}$ $I_F = 5\text{mA}$ Krakauer Method | | | 100 | ps |

* Effective carrier life time.

Fig. 1-1: Forward voltage drop versus forward current (low level).

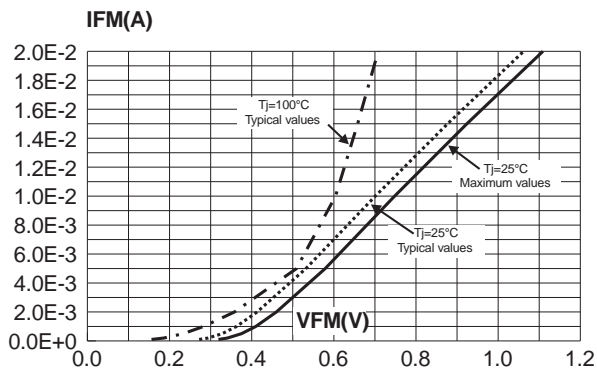


Fig. 1-2: Forward voltage drop versus forward current (high level).

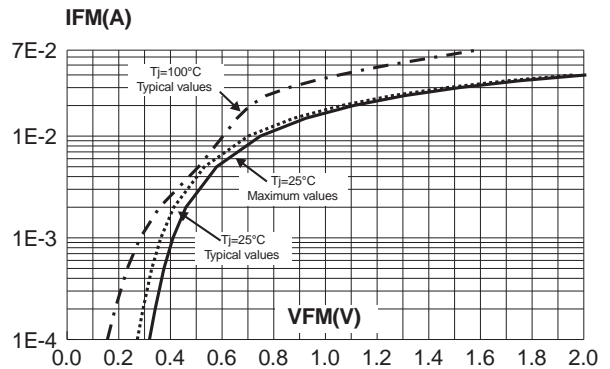


Fig. 2: Reverse leakage current versus reverse voltage applied (typical values).

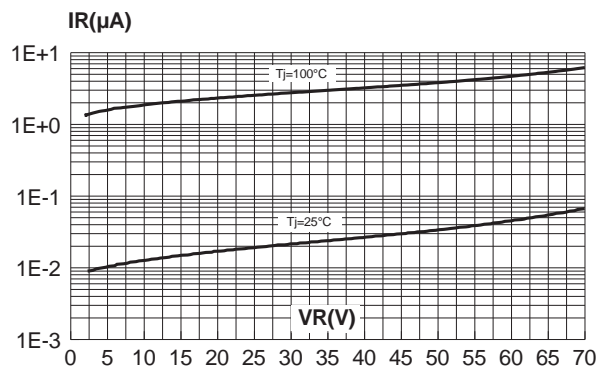


Fig. 3: Reverse leakage current versus junction temperature (typical values)

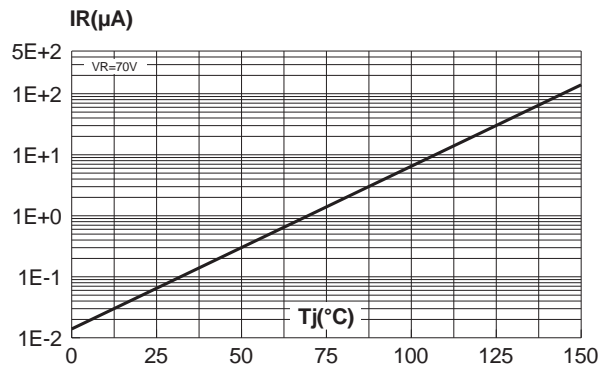


Fig. 4: Junction capacitance versus reverse voltage applied (typical values).

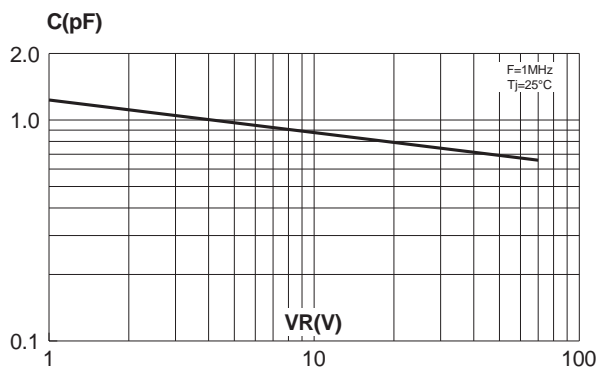


Fig. 5: Relative variation of thermal impedance junction to ambient versus pulse duration (alumine substrate 10mm*8mm*0.5mm).

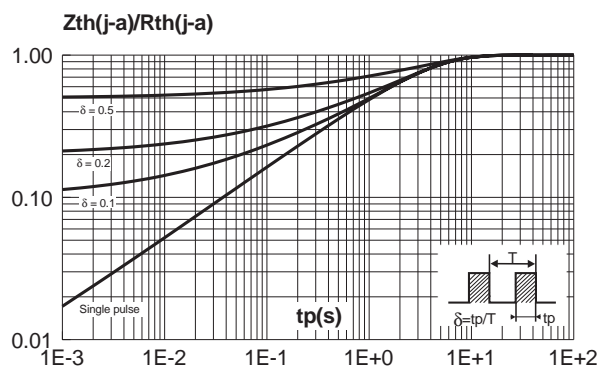
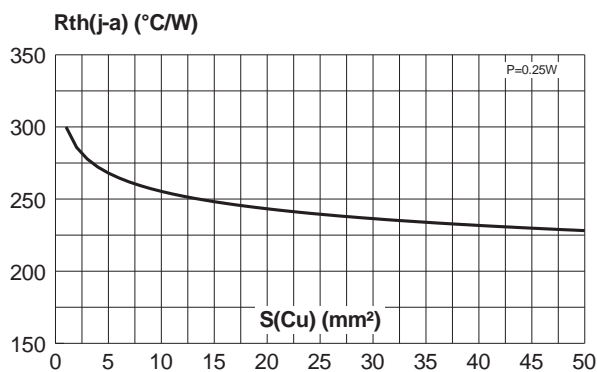
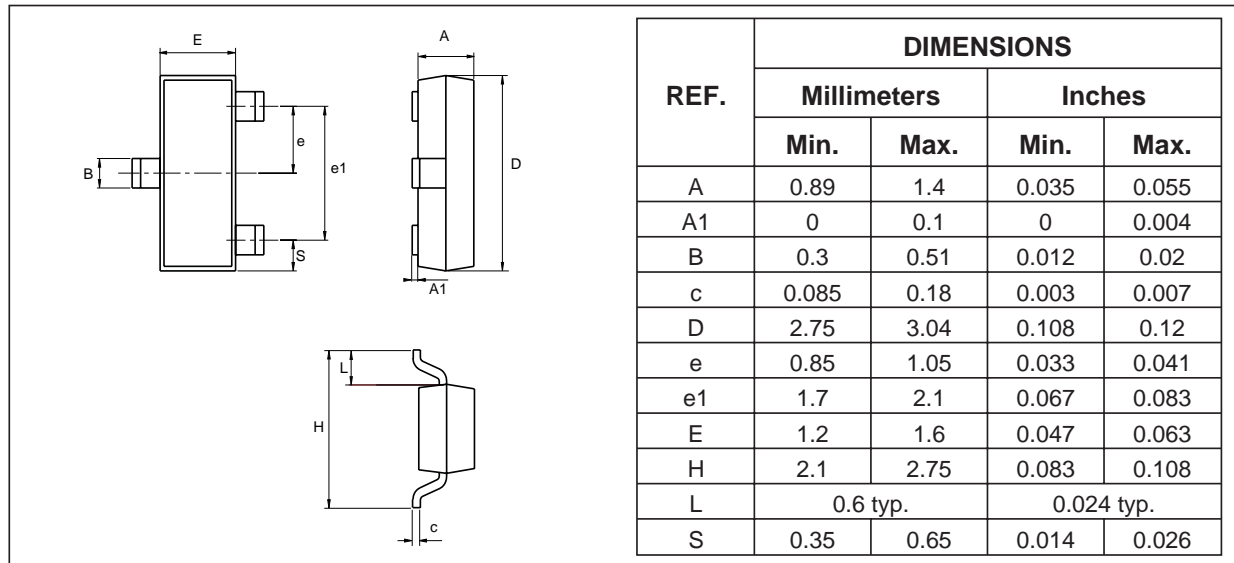


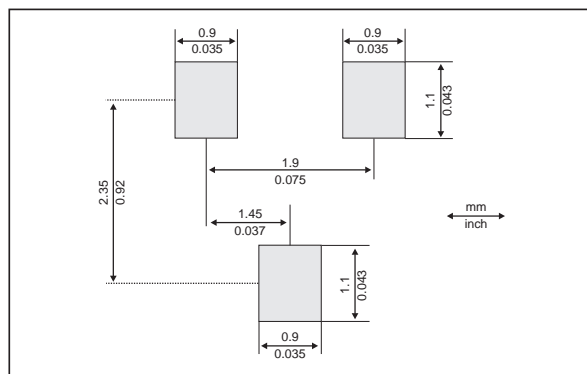
Fig. 6: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35 μm).



PACKAGE MECHANICAL DATA
SOT23 (Plastic)



FOOTPRINT DIMENSIONS



| Ordering type | Marking | Package | Weight | Base qty | Delivery mode |
|---------------|---------|---------|--------|----------|---------------|
| BAR18 | D76 | SOT-23 | 0.01g | 3000 | Tape & reel |
| BAS70-04 | D96 | SOT-23 | 0.01g | 3000 | Tape & reel |
| BAS70-05 | D97 | SOT-23 | 0.01g | 3000 | Tape & reel |
| BAS70-06 | D98 | SOT-23 | 0.01g | 3000 | Tape & reel |

- Epoxy meets UL94,V0

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