



BAR46 BAR46AFILM

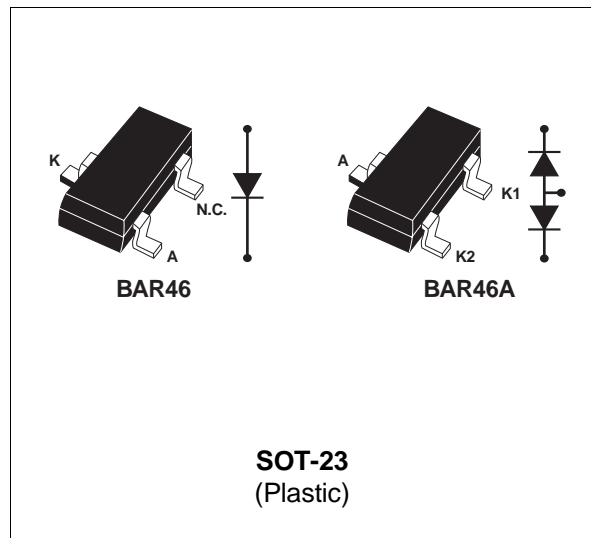
SMALL SIGNAL SCHOTTKY DIODES

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- SURFACE MOUNT DEVICE

DESCRIPTION

High voltage Schottky rectifier suited for SLIC protection during the card insertion operation.



ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit |
|------------------|--|-------------------------|--------------|------|
| V _{RRM} | Repetitive peak reverse voltage | | 100 | V |
| I _F | Continuous forward current | | 150 | mA |
| P _{tot} | Power dissipation (note 1) | T _{amb} = 25°C | 230 | mW |
| T _{stg} | Maximum storage temperature range | | - 65 to +150 | °C |
| T _j | Maximum operating junction temperature * | | 150 | °C |
| T _L | Maximum temperature for soldering during 10s | | 260 | °C |

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

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

THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|----------------------|--------------------|-------|------|
| R _{th(j-a)} | Junction-ambient * | 500 | °C/W |

* Mounted on epoxy board, with recommended pad layout.

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ELECTRICAL CHARACTERISTICS STATIC CHARACTERISTICS

| Symbol | Test conditions | | Min. | Typ. | Max. | Unit |
|------------|----------------------|--------------------------------|------|------|------|---------------|
| V_{BR} | $T_j = 25\text{ °C}$ | $I_R = 100\text{ }\mu\text{A}$ | 100 | | | V |
| V_F^* | $T_j = 25\text{ °C}$ | $I_F = 0.1\text{ mA}$ | | | 0.25 | V |
| | $T_j = 25\text{ °C}$ | $I_F = 10\text{ mA}$ | | | 0.45 | |
| | $T_j = 25\text{ °C}$ | $I_F = 250\text{ mA}$ | | | 1 | |
| I_R^{**} | $T_j = 25\text{ °C}$ | $V_R = 1.5\text{ V}$ | | | 0.5 | μA |
| | $T_j = 60\text{ °C}$ | | | | 5 | |
| | $T_j = 25\text{ °C}$ | $V_R = 10\text{ V}$ | | | 0.8 | |
| | $T_j = 60\text{ °C}$ | | | | 7.5 | |
| | $T_j = 25\text{ °C}$ | $V_R = 50\text{ V}$ | | | 2 | |
| | $T_j = 60\text{ °C}$ | | | | 15 | |
| | $T_j = 25\text{ °C}$ | $V_R = 75\text{ V}$ | | | 5 | |
| | $T_j = 60\text{ °C}$ | | | | 20 | |

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 | $T_j = 25\text{ °C}$ | $V_R = 0\text{ V}$ | | 10 | | pF |
| | $T_j = 25\text{ °C}$ | $V_R = 1\text{ V}$ | | 6 | | |

Fig. 1: Forward current versus forward voltage at different temperatures (typical values).

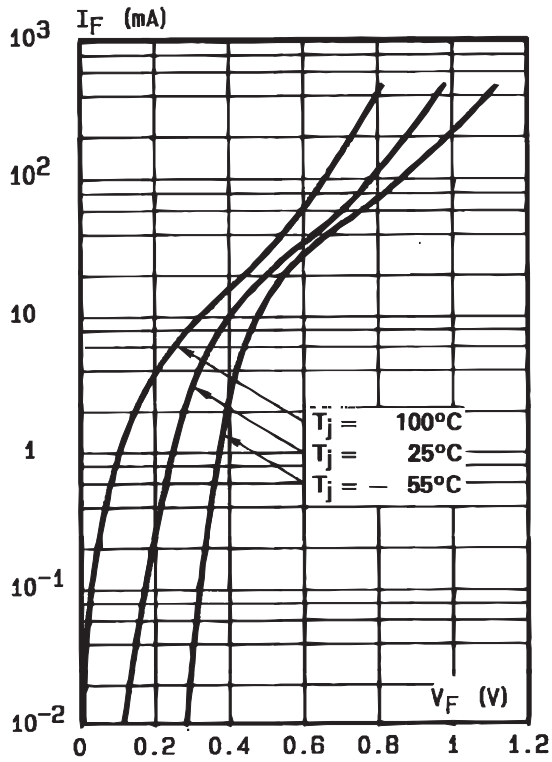


Fig. 2: Forward current versus forward voltage (typical values).

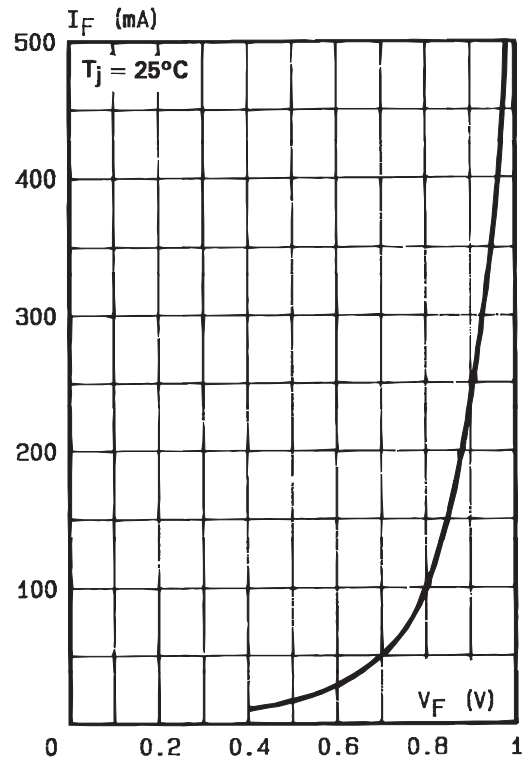


Fig. 3: Reverse current versus junction temperature (typical values).

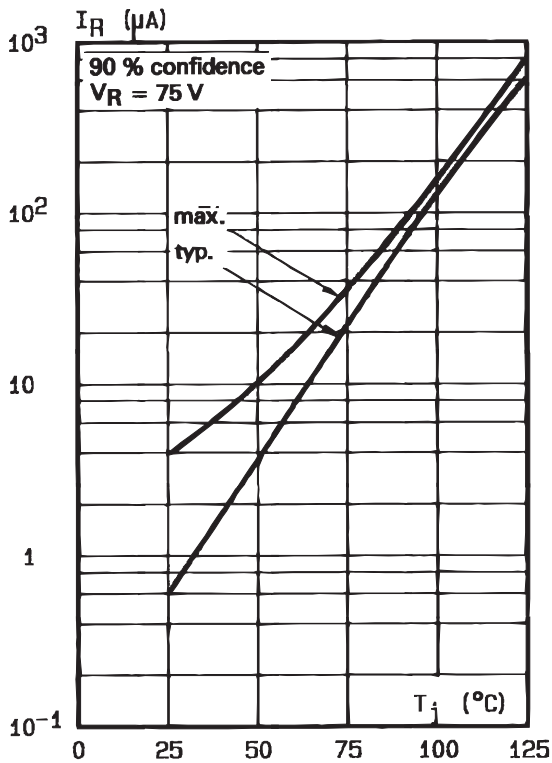
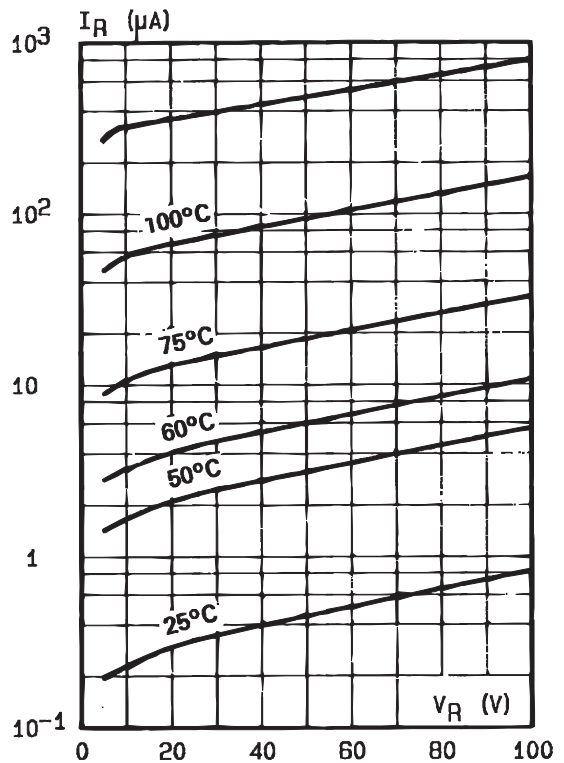
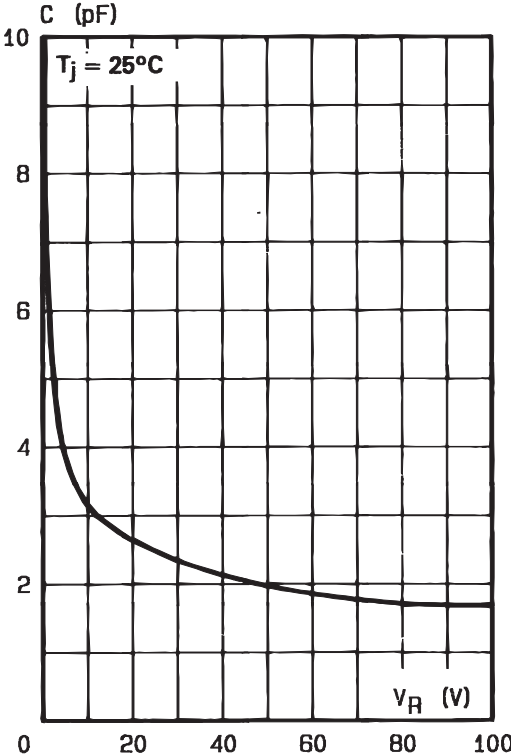


Fig. 4: Reverse current versus continuous reverse voltage (typical values).



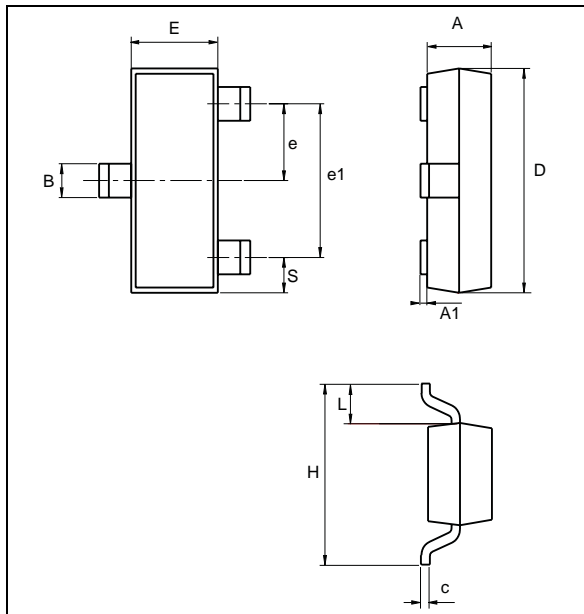
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Fig. 5: Capacitance C versus reverse applied voltage V_R (typical values).



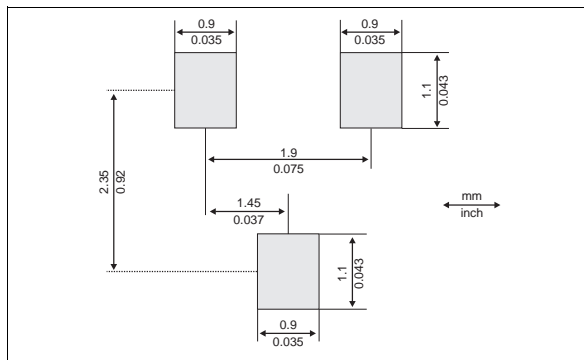
PACKAGE MECHANICAL DATA

SOT-23 (Plastic)



| REF. | DIMENSIONS | | | |
|------|-------------|------|------------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 0.89 | 1.4 | 0.035 | 0.055 |
| A1 | 0 | 0.1 | 0 | 0.004 |
| B | 0.3 | 0.51 | 0.012 | 0.02 |
| c | 0.085 | 0.18 | 0.003 | 0.007 |
| D | 2.75 | 3.04 | 0.108 | 0.12 |
| e | 0.85 | 1.05 | 0.033 | 0.041 |
| e1 | 1.7 | 2.1 | 0.067 | 0.083 |
| E | 1.2 | 1.6 | 0.047 | 0.063 |
| H | 2.1 | 2.75 | 0.083 | 0.108 |
| L | 0.6 typ. | | 0.024 typ. | |
| S | 0.35 | 0.65 | 0.014 | 0.026 |

FOOT PRINT DIMENSIONS (Millimeter)



| Ordering type | Marking | Package | Weight | Base qty | Delivery mode |
|---------------|---------|---------|--------|----------|---------------|
| BAR46 | S46 | SOT-23 | 0.01g | 3000 | Tape & reel |
| BAR46AFILM | A46 | SOT-23 | 0.01g | 3000 | Tape & reel |

■ Epoxy meets UL94,V0

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