



# BAR46 BAR46AFILM

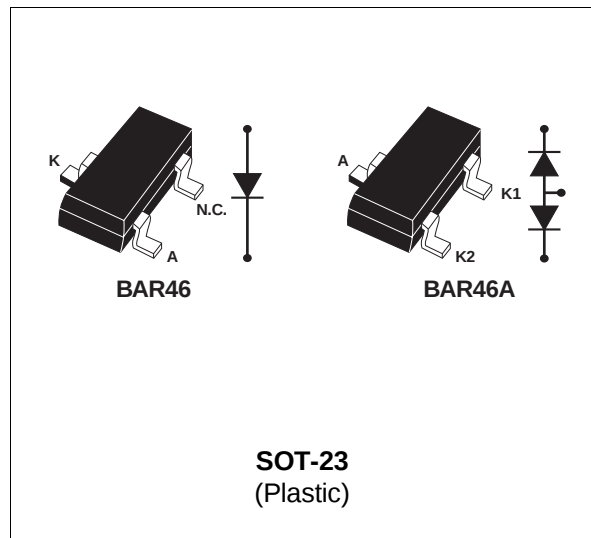
## SMALL SIGNAL SCHOTTKY DIODES

### 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 <sub>RRM</sub> | Repetitive peak reverse voltage              |                         | 100          | V    |
| I <sub>F</sub>   | Continuous forward current                   |                         | 150          | mA   |
| P <sub>tot</sub> | Power dissipation (note 1)                   | T <sub>amb</sub> = 25°C | 230          | mW   |
| T <sub>stg</sub> | Maximum storage temperature range            |                         | - 65 to +150 | °C   |
| T <sub>j</sub>   | Maximum operating junction temperature *     |                         | 150          | °C   |
| T <sub>L</sub>   | Maximum temperature for soldering during 10s |                         | 260          | °C   |

**Note 1:** for double diodes, P<sub>tot</sub> 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 <sub>th(j-a)</sub> | Junction-ambient * | 500   | °C/W |

\* Mounted on epoxy board, with recommended pad layout.

## BAR46 /BAR46AFILM

### ELECTRICAL CHARACTERISTICS

#### STATIC CHARACTERISTICS

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

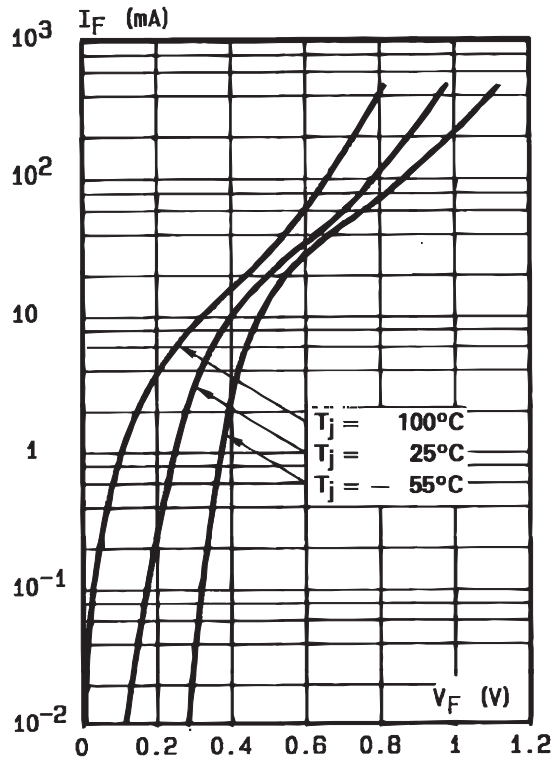
Pulse test : \*  $t_p = 380\mu\text{s}$   $\delta < 2\%$

\*\*  $t_p = 5\text{ ms}$ ,  $\delta < 2\%$

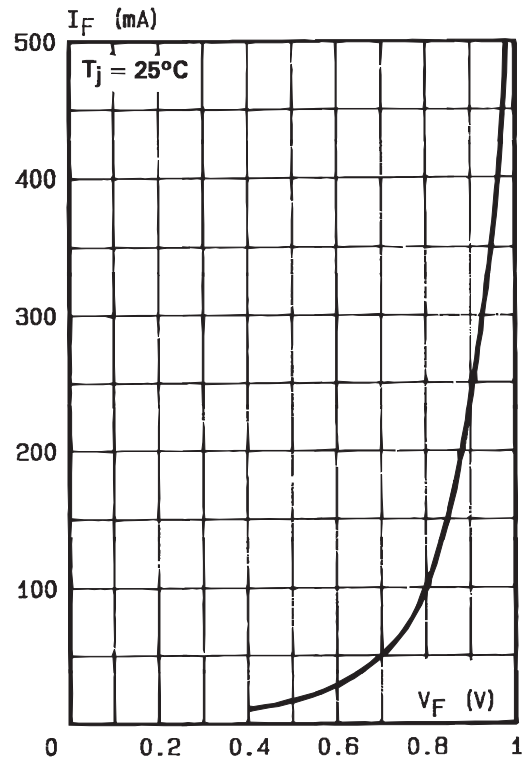
#### DYNAMIC CHARACTERISTICS

| Symbol | Test conditions                    |                    | Min.     | Typ. | Max. | Unit |
|--------|------------------------------------|--------------------|----------|------|------|------|
| C      | $T_j = 25\text{ }^{\circ}\text{C}$ | $V_R = 0\text{ V}$ | F = 1MHz | 10   |      | pF   |
|        | $T_j = 25\text{ }^{\circ}\text{C}$ | $V_R = 1\text{ V}$ |          | 6    |      |      |

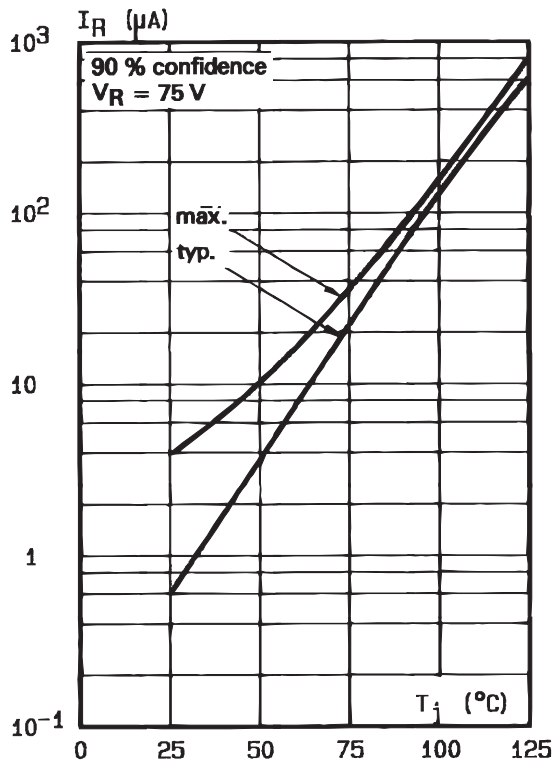
**Fig. 1:** Forward current versus forward voltage at different temperatures (typical values).



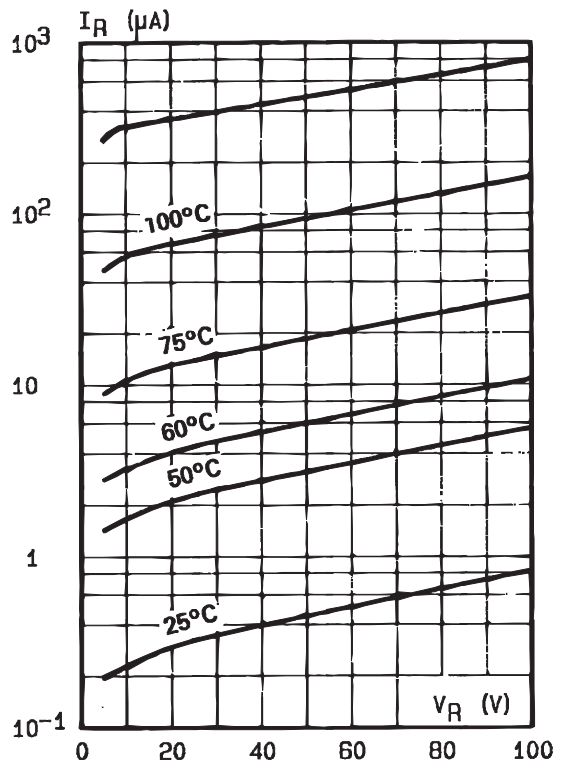
**Fig. 2:** Forward current versus forward voltage (typical values).



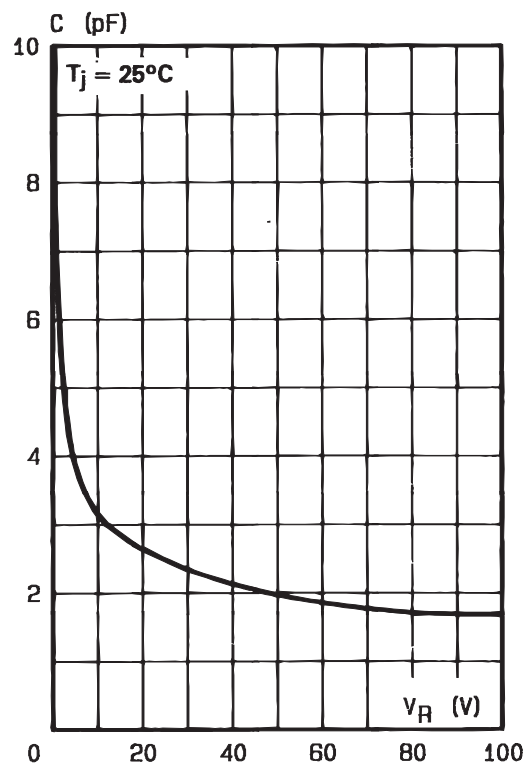
**Fig. 3:** Reverse current versus junction temperature (typical values).

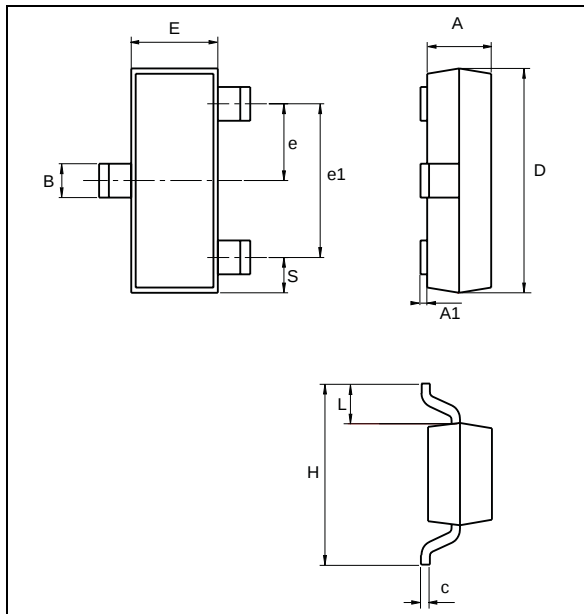


**Fig. 4:** Reverse current versus continuous reverse voltage (typical values).

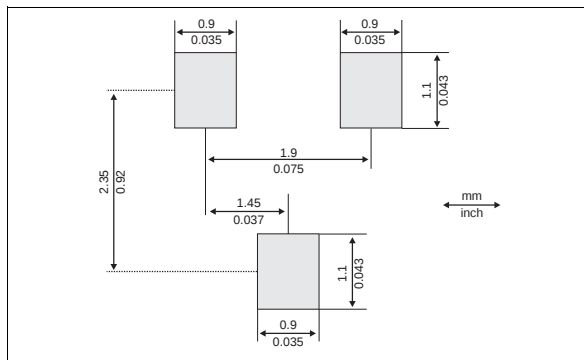


**Fig. 5:** Capacitance  $C$  versus reverse applied voltage  $V_R$  (typical values).



**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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