



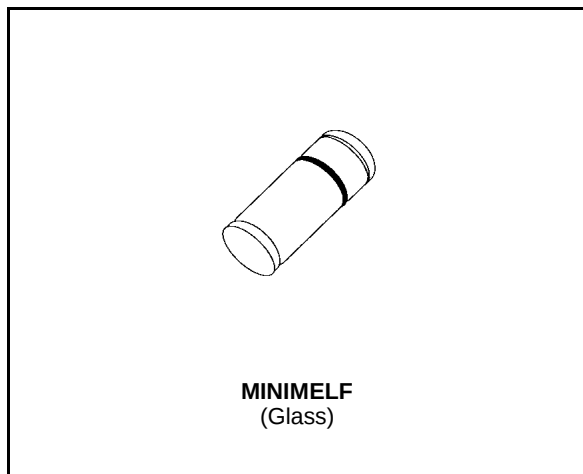
# TMMBAT 47 TMMBAT 48

## SMALL SIGNAL SCHOTTKY DIODES

### DESCRIPTION

General purpose, metal to silicon diodes featuring very low turn-on voltage and fast switching.

These devices have integrated protection against excessive voltage such as electrostatic discharges.



### ABSOLUTE RATINGS (limiting values)

| Symbol                             | Parameter                                    |                                | TMMBAT47                   | TMMBAT48 | Unit     |
|------------------------------------|----------------------------------------------|--------------------------------|----------------------------|----------|----------|
| V <sub>RRM</sub>                   | Repetitive Peak Reverse Voltage              |                                | 20                         | 40       | V        |
| I <sub>F</sub>                     | Forward Continuous Current                   | T <sub>I</sub> = 25 °C         | 350                        |          | mA       |
| I <sub>FRM</sub>                   | Repetitive Peak Fordward Current             | t <sub>p</sub> ≤ 1s<br>δ ≤ 0.5 | 1                          |          | A        |
| I <sub>FSM</sub>                   | Surge non Repetitive Forward Current         | t <sub>p</sub> = 10ms          | 7.5                        |          | A        |
|                                    |                                              | t <sub>p</sub> = 1s            | 1.5                        |          |          |
| P <sub>tot</sub>                   | Power Dissipation                            | T <sub>I</sub> = 25 °C         | 330                        |          | mW       |
| T <sub>stg</sub><br>T <sub>j</sub> | Storage and Junction Temperature Range       |                                | - 65 to 150<br>- 65 to 125 |          | °C<br>°C |
| T <sub>L</sub>                     | Maximum Temperature for Soldering during 15s |                                | 260                        |          | °C       |

### THERMAL RESISTANCE

| Symbol        | Test Conditions | Value | Unit                 |
|---------------|-----------------|-------|----------------------|
| $R_{th(j-l)}$ | Junction-leads  | 300   | $^{\circ}\text{C/W}$ |

## TMMBAT 47/TMMBAT 48

### ELECTRICAL CHARACTERISTICS

#### STATIC CHARACTERISTICS

| Symbol                | Test Conditions       |                        |                       | Min.      | Typ. | Max. | Unit |
|-----------------------|-----------------------|------------------------|-----------------------|-----------|------|------|------|
| V <sub>BR</sub>       | T <sub>J</sub> = 25°C | I <sub>R</sub> = 10μA  | TMMBAT47              | 20        |      |      | V    |
|                       | T <sub>J</sub> = 25°C | I <sub>R</sub> = 25μA  | TMMBAT48              | 40        |      |      |      |
| V <sub>F</sub> *      | T <sub>J</sub> = 25°C | I <sub>F</sub> = 0.1mA | All Types             |           |      | 0.25 | V    |
|                       | T <sub>J</sub> = 25°C | I <sub>F</sub> = 1mA   |                       |           |      | 0.3  |      |
|                       | T <sub>J</sub> = 25°C | I <sub>F</sub> = 10mA  |                       |           |      | 0.4  |      |
|                       | T <sub>J</sub> = 25°C | I <sub>F</sub> = 30mA  | TMMBAT47              |           |      | 0.5  |      |
|                       | T <sub>J</sub> = 25°C | I <sub>F</sub> = 150mA |                       |           |      | 0.8  |      |
|                       | T <sub>J</sub> = 25°C | I <sub>F</sub> = 300mA |                       |           |      | 1    |      |
|                       | T <sub>J</sub> = 25°C | I <sub>F</sub> = 50mA  | TMMBAT48              |           |      | 0.5  |      |
|                       | T <sub>J</sub> = 25°C | I <sub>F</sub> = 200mA |                       |           |      | 0.75 |      |
|                       | T <sub>J</sub> = 25°C | I <sub>F</sub> = 500mA |                       |           |      | 0.9  |      |
|                       | I <sub>R</sub> *      | T <sub>J</sub> = 25°C  | V <sub>R</sub> = 1.5V | All Types |      |      |      |
| T <sub>J</sub> = 60°C |                       |                        |                       |           |      | 10   |      |
| T <sub>J</sub> = 25°C |                       | V <sub>R</sub> = 10V   | TMMBAT47              |           |      | 4    |      |
| T <sub>J</sub> = 60°C |                       |                        |                       |           |      | 20   |      |
| T <sub>J</sub> = 25°C |                       | V <sub>R</sub> = 20V   |                       |           |      | 10   |      |
| T <sub>J</sub> = 60°C |                       |                        |                       |           |      | 30   |      |
| T <sub>J</sub> = 25°C |                       | V <sub>R</sub> = 10V   | TMMBAT48              |           |      | 2    |      |
| T <sub>J</sub> = 60°C |                       |                        |                       |           |      | 15   |      |
| T <sub>J</sub> = 25°C |                       | V <sub>R</sub> = 20V   |                       |           |      | 5    |      |
| T <sub>J</sub> = 60°C |                       |                        |                       |           |      | 25   |      |
| T <sub>J</sub> = 25°C |                       | V <sub>R</sub> = 40V   |                       |           |      | 25   |      |
| T <sub>J</sub> = 60°C |                       |                        |                       |           |      | 50   |      |

#### DYNAMIC CHARACTERISTICS

| Symbol   | Test Conditions          |                     |                   | Min.                  | Typ.              | Max. | Unit |
|----------|--------------------------|---------------------|-------------------|-----------------------|-------------------|------|------|
| C        | $T_j = 25^\circ\text{C}$ | $V_R = 0\text{V}$   | f = 1MHz          |                       | 20                |      | pF   |
|          | $T_j = 25^\circ\text{C}$ | $V_R = 1\text{V}$   |                   |                       | 12                |      |      |
| $t_{rr}$ | $T_j = 25^\circ\text{C}$ | $I_F = 10\text{mA}$ | $V_R = 1\text{V}$ | $i_{rr} = 1\text{mA}$ | $R_L = 100\Omega$ | 10   | ns   |

\* Pulse test:  $t_p \leq 300\mu\text{s}$   $\delta < 2\%$ .

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

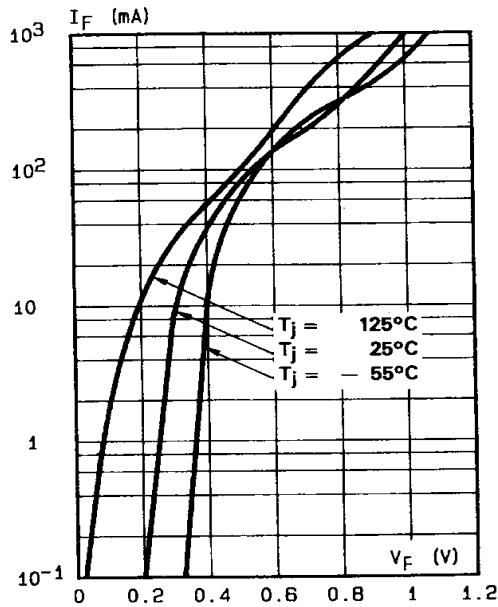


Figure 2. Forward current versus forward voltage (typical values).

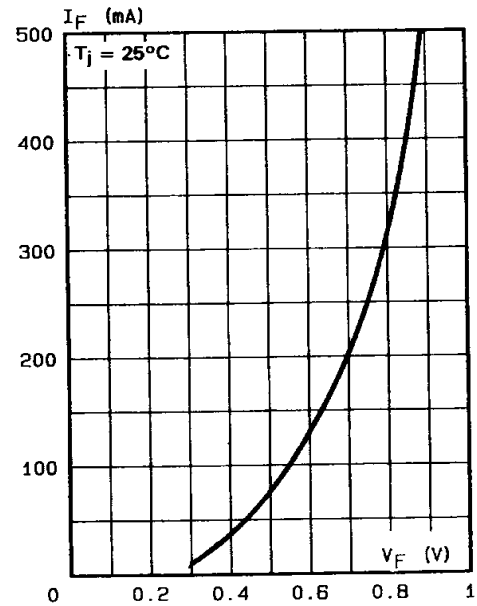


Figure 3. Reverse current versus junction temperature.

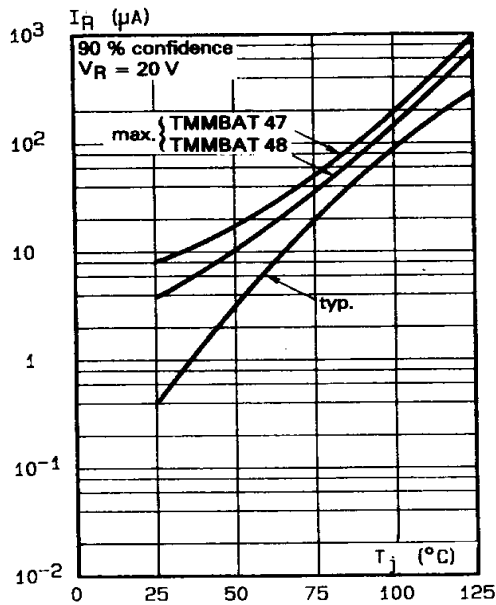


Figure 4. Reverse current versus continuous reverse voltage (typical values).

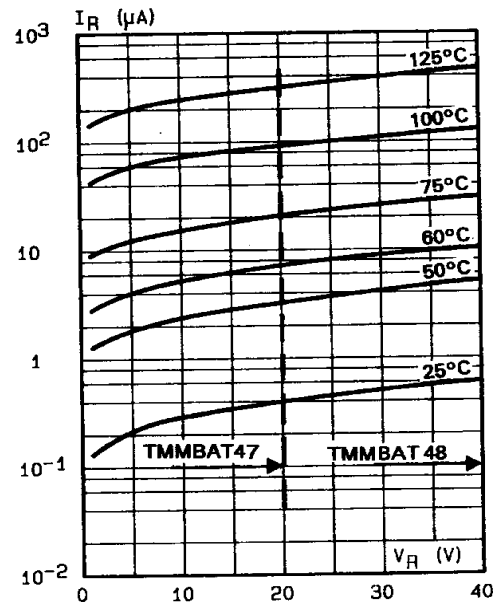
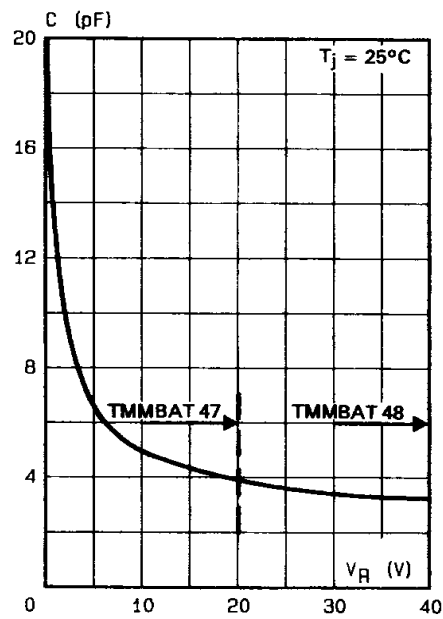
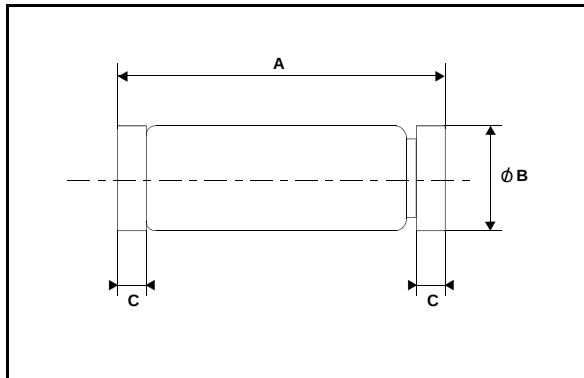


Figure 5. Capacitance C versus reverse applied voltage  $V_R$  (typical values).



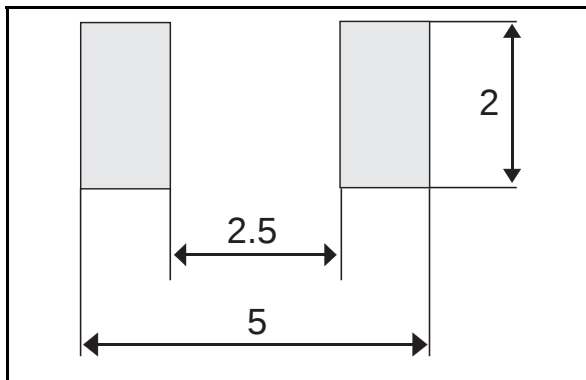
## PACKAGE MECHANICAL DATA

## MINIMELF Glass



| REF. | DIMENSIONS  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A    | 3.30        | 3.40 | 3.6  | 0.130  | 0.134 | 0.142 |
| B    | 1.59        | 1.60 | 1.62 | 0.063  | 0.063 | 0.064 |
| C    | 0.40        | 0.45 | 0.50 | 0.016  | 0.018 | 0.020 |
| D    |             | 1.50 |      |        | 0.059 |       |

## FOOT PRINT DIMENSIONS (Millimeter)



Marking: ring at cathode end.  
Weight: 0.05g

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