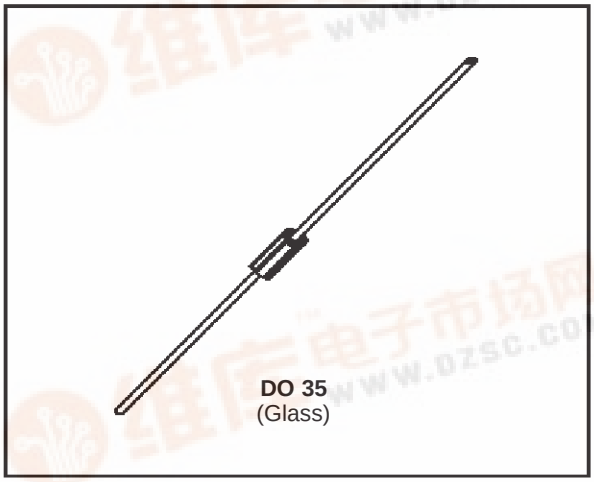
# BAT 47
# BAT 48

## SMALL SIGNAL SCHOTTKY DIODE



**DO 35**
(Glass)

### 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 | | BAT47 | BAT48 | Unit |
|---|---|---|---|---|---|
| $V_{RRM}$ | Repetitive Peak Reverse Voltage | | 20 | 40 | V |
| $I_F$ | Forward Continuous Current* | $T_a$ = 25 °C | 350 | | mA |
| $I_{FRM}$ | Repetitive Peak Fordward Current* | $t_p \leq 1s$<br>$\delta \leq 0.5$ | 1 | | A |
| $I_{FSM}$ | Surge non Repetitive Forward Current* | $t_p$ = 10ms | 7.5 | | A |
| | | $t_p$ = 1s | 1.5 | | |
| $P_{tot}$ | Power Dissipation* | $T_a$ = 25 °C | 330 | | mW |
| $T_{stg}$<br>$T_j$ | Storage and Junction Temperature Range | | - 65 to + 150<br>- 65 to + 125 | | °C<br>°C |
| $T_L$ | Maximum Temperature for Soldering during 10s at 4mm from Case | | 230 | | °C |

### THERMAL RESISTANCE

| Symbol | Test Conditions | Value | Unit |
|---|---|---|---|
| $R_{th(j-l)}$ | Junction-ambient* | 300 | °C/W |

* On infinite heatsink with 4mm lead length

## ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

| Symbol | Test Conditions | | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_{(BR)}$ | $I_R$ = 10µA | | BAT47 | 20 | | | V |
| | $I_R$ = 25µA | | BAT48 | 40 | | | |
| $V_F$* | $T_j$ = 25°C $I_F$ = 0.1mA | | All Types | | | 0.25 | V |
| | $T_j$ = 25°C $I_F$ = 1mA | | | | | 0.3 | |
| | $T_j$ = 25°C $I_F$ = 10mA | | | | | 0.4 | |
| | $T_j$ = 25°C $I_F$ = 30mA | | BAT47 | | | 0.5 | |
| | $T_j$ = 25°C $I_F$ = 150mA | | | | | 0.8 | |
| | $T_j$ = 25°C $I_F$ = 300mA | | | | | 1 | |
| | $T_j$ = 25°C $I_F$ = 50mA | | BAT48 | | | 0.5 | |
| | $T_j$ = 25°C $I_F$ = 200mA | | | | | 0.75 | |
| | $T_j$ = 25°C $I_F$ = 500mA | | | | | 0.9 | |
| $I_R$* | $T_j$ = 25°C | $V_R$ = 1.5V | All Types | | | 1 | µA |
| | $T_j$ = 60°C | | | | | 10 | |
| | $T_j$ = 25°C | $V_R$ = 10V | BAT47 | | | 4 | |
| | $T_j$ = 60°C | | | | | 20 | |
| | $T_j$ = 25°C | $V_R$ = 20V | | | | 10 | |
| | $T_j$ = 60°C | | | | | 30 | |
| | $T_j$ = 25°C | $V_R$ = 10V | BAT48 | | | 2 | |
| | $T_j$ = 60°C | | | | | 15 | |
| | $T_j$ = 25°C | $V_R$ = 20V | | | | 5 | |
| | $T_j$ = 60°C | | | | | 25 | |
| | $T_j$ = 25°C | $V_R$ = 40V | | | | 25 | |
| | $T_j$ = 60°C | | | | | 50 | |

DYNAMIC CHARACTERISTICS

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

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

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

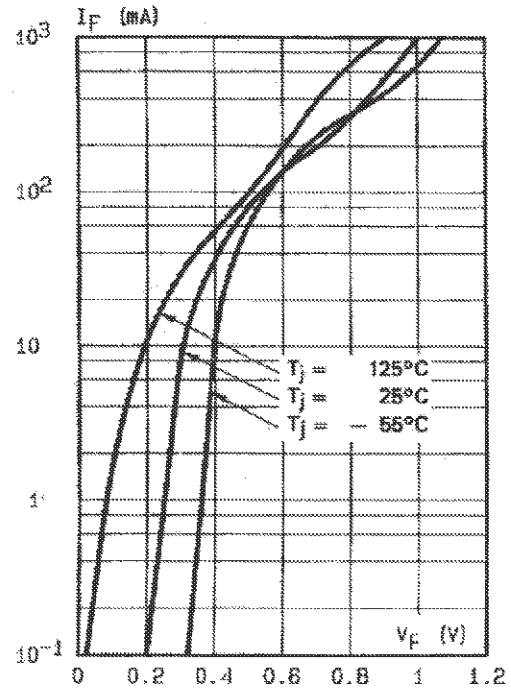



**Figure 2. Forward current versus forward voltage (typical values).**

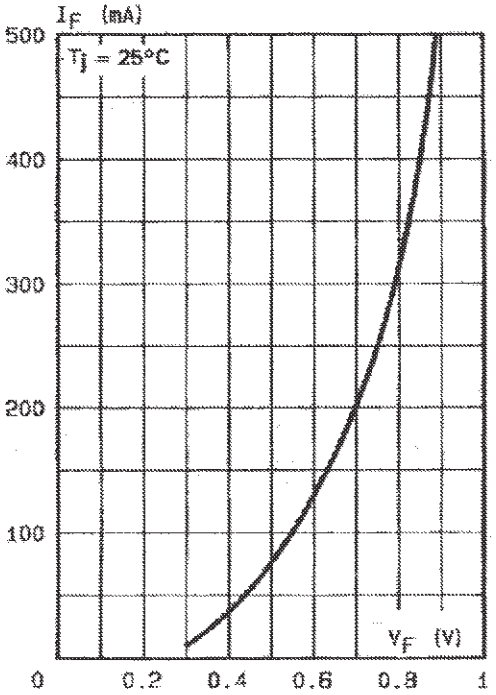



**Figure 3. Reverse current versus junction temperature.**

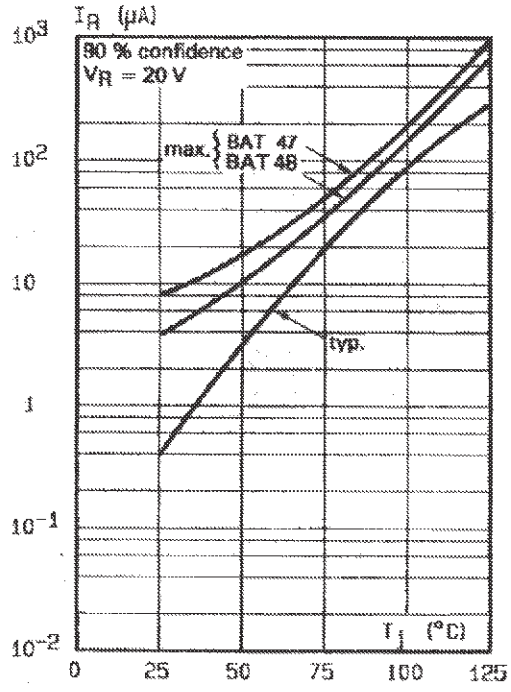



**Figure 4. Reverse current versus continuous reverse voltage (typical values).**

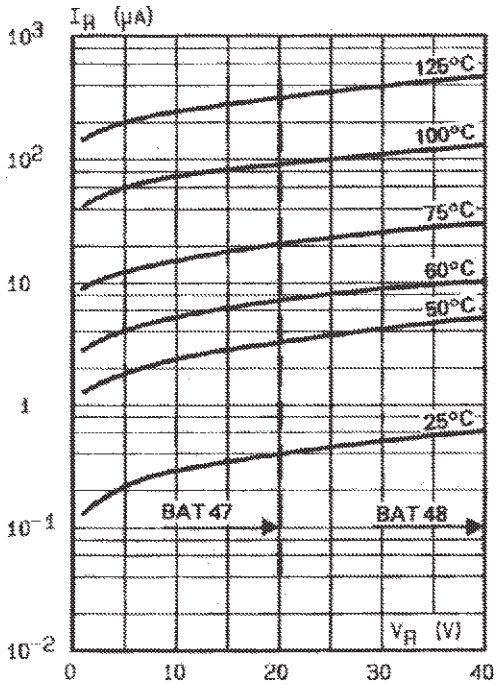
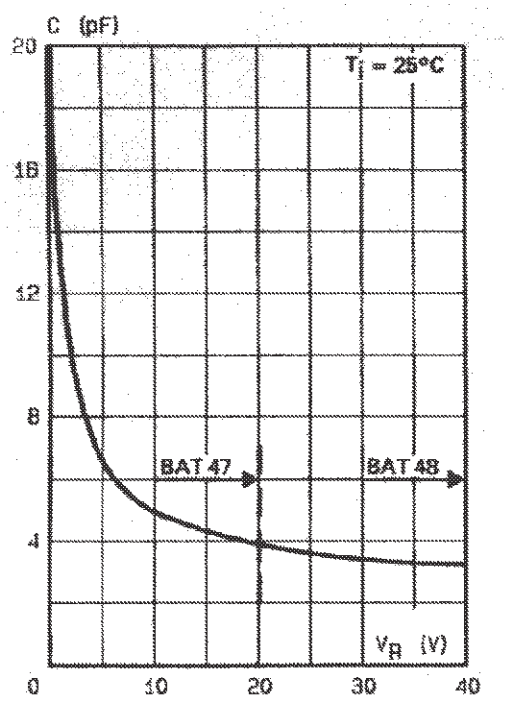
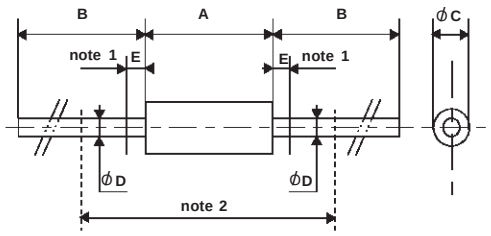


**Figure 5. Capacitance C versus reverse**



## PACKAGE MECHANICAL DATA

DO 35 Glass




| REF. | DIMENSIONS | | | |
|---|---|---|---|---|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 3.05 | 4.50 | 0.120 | 0.177 |
| B | 1.53 | 2.00 | 0.060 | 0.079 |
| C | 12.7 | | 0.500 | |
| D | 0.458 | 0.558 | 0.018 | 0.022 |

Cooling method: by convection and conduction.
Marking: clear, ring at cathode end.
Weight: 0.015g