

# UF4001 - UF4007

## Features

- Low forward voltage drop.
- High surge current capability.
- High reliability.
- High current capability.



**DO-41**

COLOR BAND DENOTES CATHODE

## Fast Rectifiers (Glass Passivated)

### Absolute Maximum Ratings\*

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol      | Parameter                                                                           | Value       |      |      |      |      |      |      | Units            |
|-------------|-------------------------------------------------------------------------------------|-------------|------|------|------|------|------|------|------------------|
|             |                                                                                     | 4001        | 4002 | 4003 | 4004 | 4005 | 4006 | 4007 |                  |
| $V_{RRM}$   | Maximum Repetitive Reverse Voltage                                                  | 50          | 100  | 200  | 400  | 600  | 800  | 1000 | V                |
| $I_{F(AV)}$ | Average Rectified Forward Current,<br>.375 " lead length @ $T_A = 75^\circ\text{C}$ | 1.0         |      |      |      |      |      |      | A                |
| $I_{FSM}$   | Non-repetitive Peak Forward Surge Current<br>8.3 ms Single Half-Sine-Wave           | 30          |      |      |      |      |      |      | A                |
| $T_{stg}$   | Storage Temperature Range                                                           | -65 to +150 |      |      |      |      |      |      | $^\circ\text{C}$ |
| $T_J$       | Operating Junction Temperature                                                      | -65 to +150 |      |      |      |      |      |      | $^\circ\text{C}$ |

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### Thermal Characteristics

| Symbol          | Parameter                               | Value | Units                     |
|-----------------|-----------------------------------------|-------|---------------------------|
| $P_D$           | Power Dissipation                       | 2.08  | W                         |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 60    | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JL}$ | Thermal Resistance, Junction to Lead    | 15    | $^\circ\text{C}/\text{W}$ |

### Electrical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol          | Parameter                                                                                         | Device   |      |      |      |      |      |      | Units    |
|-----------------|---------------------------------------------------------------------------------------------------|----------|------|------|------|------|------|------|----------|
|                 |                                                                                                   | 4001     | 4002 | 4003 | 4004 | 4005 | 4006 | 4007 |          |
| V <sub>F</sub>  | Forward Voltage @ 1.0 A                                                                           | 1.0      |      |      |      | 1.7  |      |      | V        |
| t <sub>rr</sub> | Reverse Recovery Time<br>I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>RR</sub> = 0.25 A | 50       |      |      |      | 75   |      |      | ns       |
| I <sub>R</sub>  | Reverse Current @ rated V <sub>R</sub><br>T <sub>A</sub> = 25°C<br>T <sub>A</sub> = 100°C         | 10<br>50 |      |      |      |      |      |      | μA<br>μA |
| C <sub>T</sub>  | Total Capacitance<br>V <sub>R</sub> = 4.0 V, f = 1.0 MHz                                          | 17       |      |      |      |      |      |      | pF       |

## Typical Characteristics

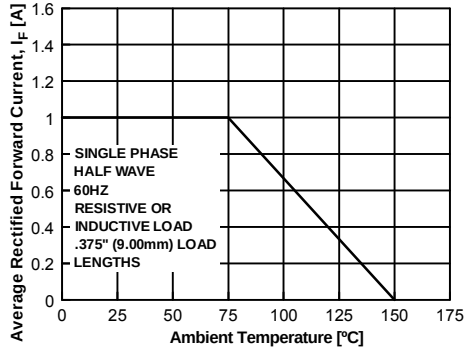


Figure 1. Forward Current Derating Curve

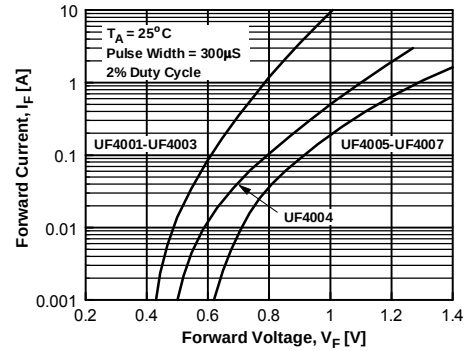


Figure 2. Forward Voltage Characteristics

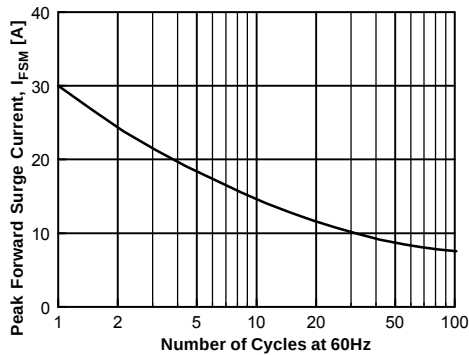


Figure 3. Non-Repetitive Surge Current

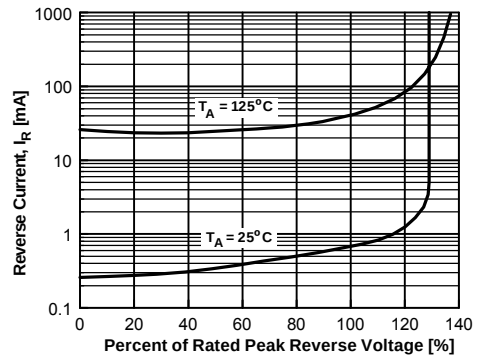


Figure 4. Reverse Current vs Reverse Voltage

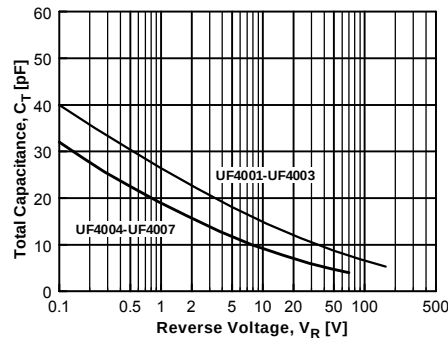
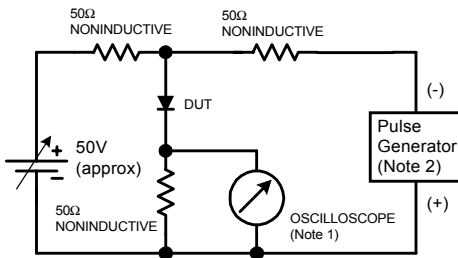
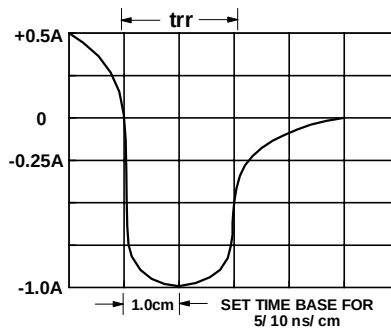


Figure 5. Total Capacitance



NOTES:

1. Rise time = 7.0 ns max; Input impedance = 1.0 megaohm 22 pf.
2. Rise time = 10 ns max; Source impedance = 50 ohms.



### Reverse Recovery Time Characteristic and Test Circuit Diagram

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| CROSSVOLT™           | GlobalOptoisolator™ | POP™                | SuperSOT™-3     |      |
| DenseTrench™         | GTO™                | Power247™           | SuperSOT™-6     |      |
| DOME™                | HiSeC™              | PowerTrench         | SuperSOT™-8     |      |
| EcoSPARK™            | ISOPLANAR™          | QFET™               | SyncFET™        |      |
| E <sup>2</sup> CMOS™ | LittleFET™          | QS™                 | TinyLogic™      |      |
| EnSigna™             | MicroFET™           | QT Optoelectronics™ | TruTranslation™ |      |
| FACT™                | MicroPak™           | Quiet Series™       | UHC™            |      |
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