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August 2016

# UF4001 - UF4007 Fast Rectifiers

## Features

- Low Forward Voltage Drop
- High Surge Current Capability
- High Reliability
- High Current Capability
- Glass-Passivated Junction



**DO-41 (Plastic)**  
COLOR BAND DENOTES CATHODE

## Ordering Information

| Part Number | Top Mark | Package          | Packing Method |
|-------------|----------|------------------|----------------|
| UF4001      | UF4001   | DO-204AL (DO-41) | Tape and Reel  |
| UF4002      | UF4002   | DO-204AL (DO-41) | Tape and Reel  |
| UF4003      | UF4003   | DO-204AL (DO-41) | Tape and Reel  |
| UF4004      | UF4004   | DO-204AL (DO-41) | Tape and Reel  |
| UF4005      | UF4005   | DO-204AL (DO-41) | Tape and Reel  |
| UF4006      | UF4006   | DO-204AL (DO-41) | Tape and Reel  |
| UF4007      | UF4007   | DO-204AL (DO-41) | Tape and Reel  |

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol      | Parameter   | Value       |         |         |         |         |         |         | Unit             |
|-------------|---|-------------|---------|---------|---------|---------|---------|---------|------------------|
|             |   | UF 4001     | UF 4002 | UF 4003 | UF 4004 | UF 4005 | UF 4006 | UF 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 at $T_A = 75^\circ\text{C}$ | 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 |         |         |         |         |         |         | $^\circ\text{C}$ |

## Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter                               | Value | Unit                      |
|-----------------|---|-------|---------------------------|
| $P_D$           | 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    | 30    | $^\circ\text{C}/\text{W}$ |

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol   | Parameter                              | Conditions   | Value      |            |            |            |            |            | Unit          |
|----------|--|--|------------|------------|------------|------------|------------|------------|---------------|
|          |  |  | UF<br>4001 | UF<br>4002 | UF<br>4003 | UF<br>4004 | UF<br>4005 | UF<br>4006 |               |
| $V_F$    | Maximum Forward Voltage                | $I_F = 1.0\text{ A}$   | 1.0        |            |            | 1.7        |            |            | V             |
| $t_{rr}$ | Maximum Reverse Recovery Time          | $I_F = 0.5\text{ A}$ ,<br>$I_R = 1.0\text{ A}$ ,<br>$I_{RR} = 0.25\text{ A}$ | 50         |            |            | 75         |            |            | ns            |
| $I_R$    | Maximum Reverse Current at Rated $V_R$ | $T_A = 25^\circ\text{C}$   | 10         |            |            |            |            |            | $\mu\text{A}$ |
|          |  | $T_A = 100^\circ\text{C}$  | 50         |            |            |            |            |            |               |
| $C_T$    | Maximum Total Capacitance              | $V_R = 4.0\text{ V}$ ,<br>$f = 1.0\text{ MHz}$                               | 17         |            |            |            |            |            | pF            |

## Typical Performance Characteristics

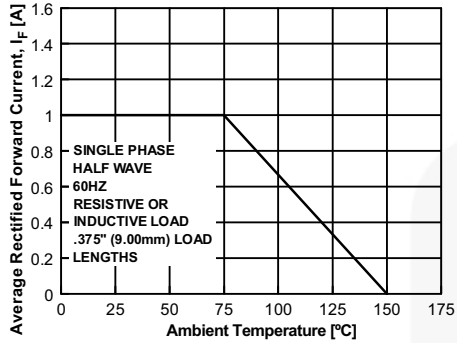


Figure 1. Forward Current Derating Curve

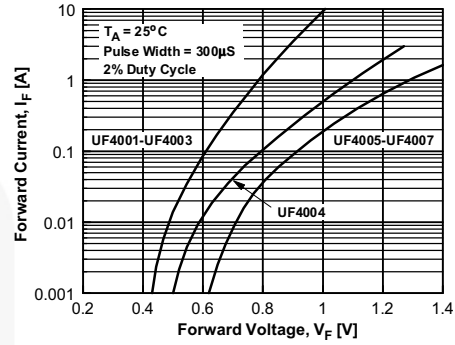


Figure 2. Forward Characteristics

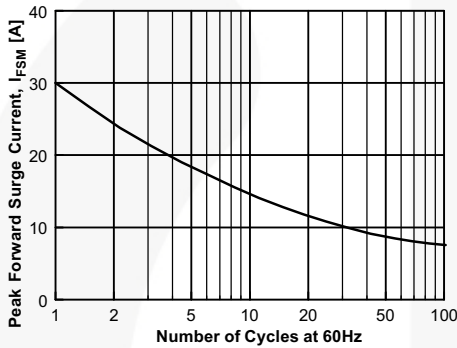


Figure 3. Non-Repetitive Surge Current

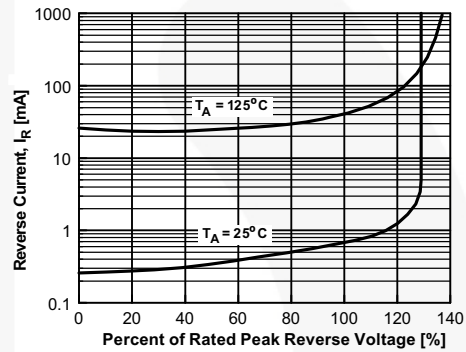


Figure 4. Reverse Characteristics

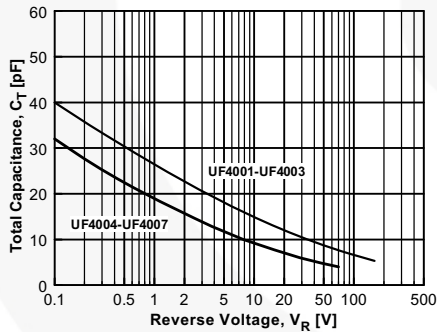
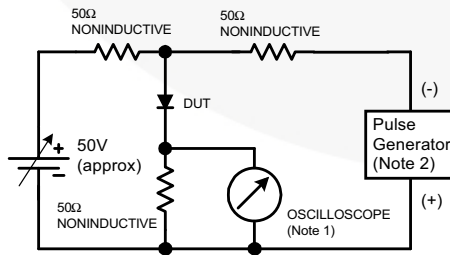
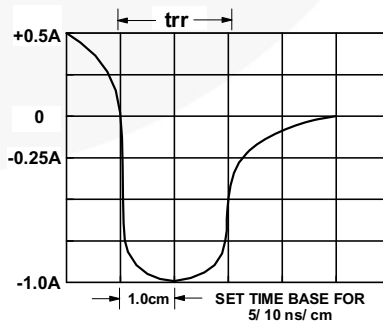


Figure 5. Typical Junction Capacitance



- 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.

Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram





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