

# Fast Rectifiers

## UF4001 - UF4007

### Features

- Low Forward Voltage Drop
- High Surge Current Capability
- High Reliability
- High Current Capability
- Glass–Passivated Junction
- These are Pb–Free Devices

### ABSOLUTE MAXIMUM RATINGS

(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 |         |         |         |         |         |         | $^\circ\text{C}$ |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### 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.)

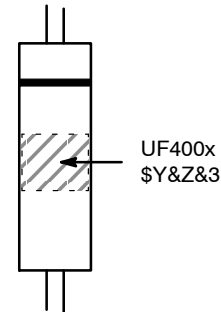
| Symbol   | Parameter                              | Test Conditions  | Value    |        |        |        |        |        |        | Unit          |
|----------|--|--|----------|--------|--------|--------|--------|--------|--------|---------------|
|          |  |  | UF4001   | UF4002 | UF4003 | UF4004 | UF4005 | UF4006 | UF4007 |               |
| $V_F$    | Maximum Forward Voltage                | $I_F = 1.0\text{ A}$   | 1.0      |        |        | 1.7    |        |        |        | V             |
| $t_{rr}$ | Maximum Reverse Recovery Time          | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{RR} = 0.25\text{ A}$ | 50       |        |        | 75     |        |        |        | ns            |
| $I_R$    | Maximum Reverse Current at Rated $V_R$ | $T_A = 25^\circ\text{C}$<br>$T_A = 100^\circ\text{C}$                  | 10<br>50 |        |        |        |        |        |        | $\mu\text{A}$ |
| $C_T$    | Maximum Total Capacitance              | $V_R = 4.0\text{ V}$ , $f = 1.0\text{ MHz}$                            | 17       |        |        |        |        |        |        | pF            |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



AXIAL LEAD / DO–41  
CASE 017AH

### MARKING DIAGRAM



UF400x = Specific Device Code  
 $x = 1/2/3/4/5/6/7$   
 $\$Y$  = onsemi Logo  
 $\&Z$  = Assembly Plant Code  
 $\&3$  = 3–Digit Data Code (Year & Week)

(Color Band Denotes Cathode)

### ORDERING INFORMATION

| Device | Package                         | Shipping†             |
|--------|---------------------------------|-----------------------|
| UF4001 | Axial Lead (DO–41)<br>(Pb–Free) | 5000 /<br>Tape & Reel |
| UF4002 |                                 |                       |
| UF4003 |                                 |                       |
| UF4004 |                                 |                       |
| UF4005 |                                 |                       |
| UF4006 |                                 |                       |
| UF4007 |                                 |                       |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, [BRD8011/D](http://BRD8011/D).

# UF4001 – UF4007

## TYPICAL PERFORMANCE CHARACTERISTICS

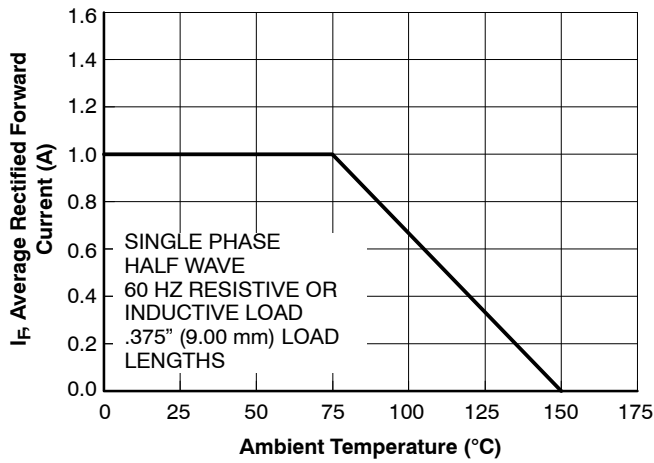


Figure 1. Forward Current Derating Curve

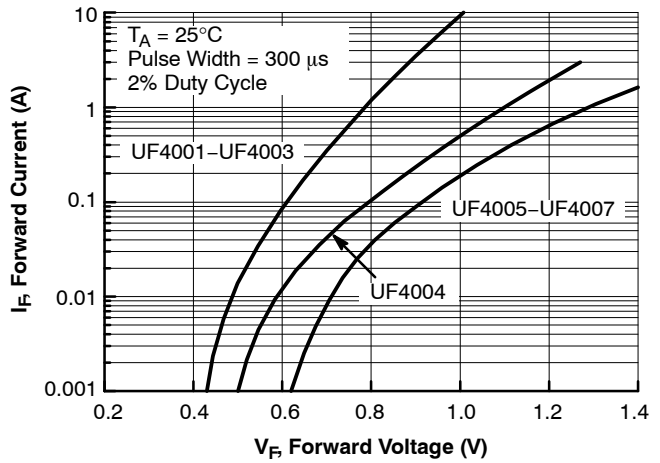


Figure 2. Forward Characteristics

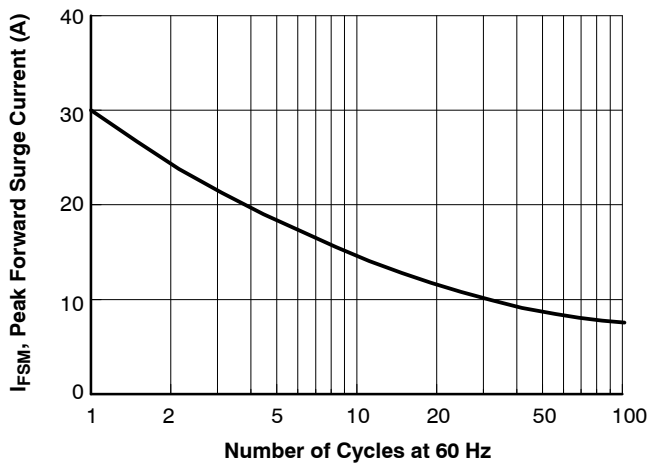


Figure 3. Non-Repetitive Surge Current

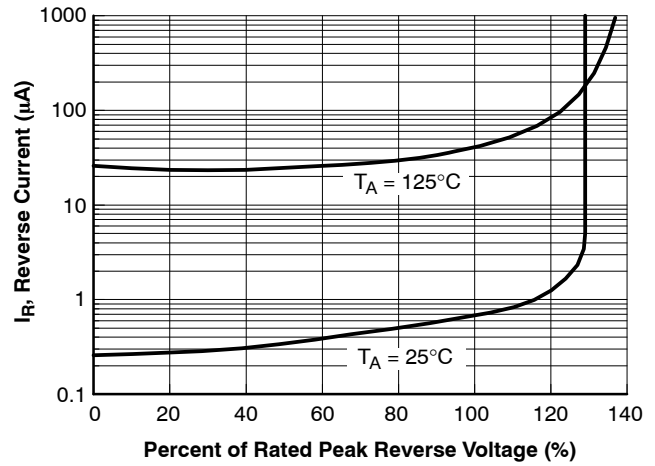


Figure 4. Reverse Characteristics

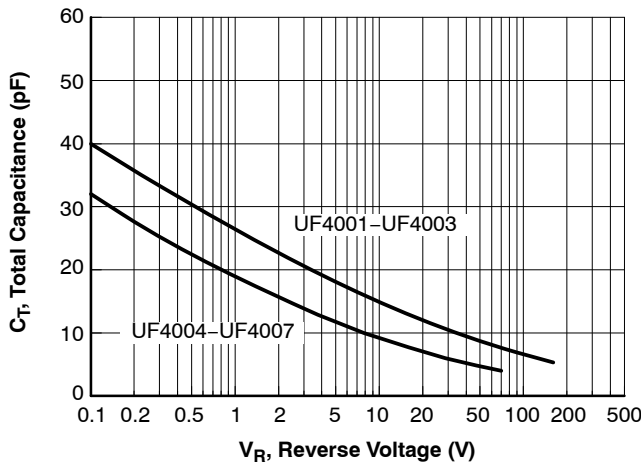
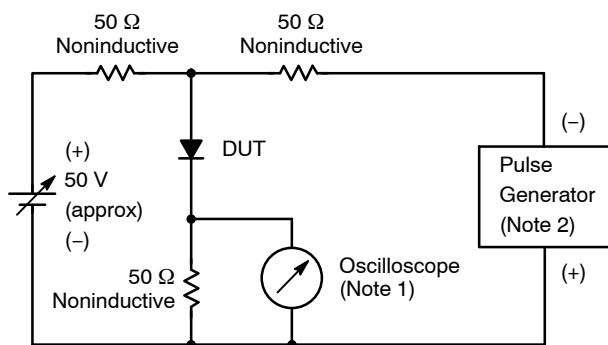


Figure 5. Typical Junction Capacitance

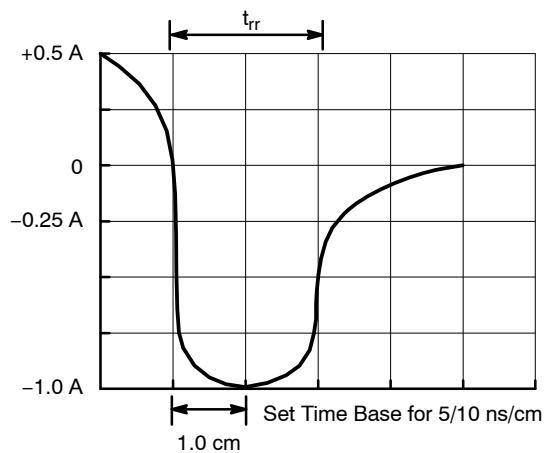
## UF4001 – UF4007

### TEST CIRCUIT DIAGRAM



NOTES:

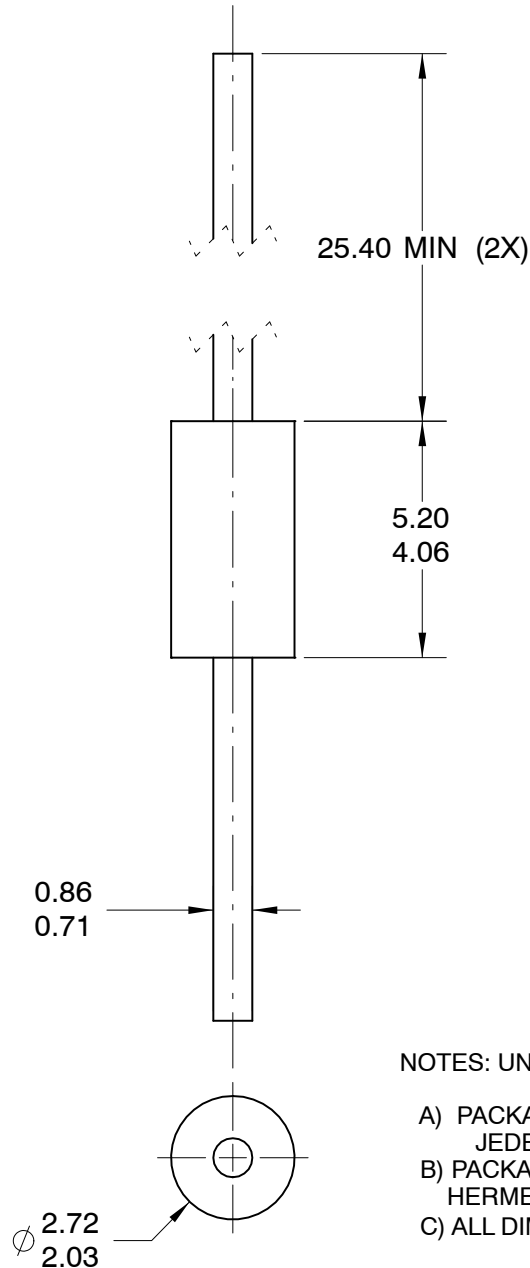
1. Rise Time = 7.0 ns max. Input Impedance = 1 M $\Omega$ , 22 pF.
2. Rise Time = 10 ns max. Source Impedance = 50  $\Omega$ .



**Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram**

**AXIAL LEAD / DO-41**  
CASE 017AH  
ISSUE O

DATE 31 AUG 2016



NOTES: UNLESS OTHERWISE SPECIFIED

- A) PACKAGE STANDARD REFERENCE:  
JEDEC DO-204 VARIATION AL.
- B) PACKAGE BODY CAN BE PLASTIC OR  
HERMETICALLY SEALED GLASS.
- C) ALL DIMENSIONS ARE IN MILLIMETERS.

|                         |                           |   |
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