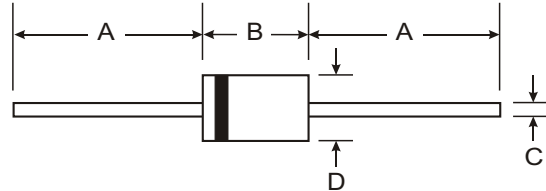


### Features

- Diffused Junction
- Ultra-Fast Switching for High Efficiency
- Surge Overload Rating to 50A Peak
- Low Reverse Leakage Current
- Lead Free Finish, RoHS Compliant (Note 4)**



### Mechanical Data

- Case: DO-41, DO-15
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish Tin. Plated Leads Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: Cathode Band
- Marking: Type Number
- Ordering Information: See Last Page
- DO-41 Weight: 0.35 grams (approximate)
- DO-15 Weight: 0.40 grams (approximate)

| Dim | DO-41 |       | DO-15 |       |
|-----|-------|-------|-------|-------|
|     | Min   | Max   | Min   | Max   |
| A   | 25.40 |       | 25.40 |       |
| B   | 4.06  | 5.21  | 5.50  | 7.62  |
| C   | 0.71  | 0.864 | 0.686 | 0.889 |
| D   | 2.00  | 2.72  | 2.60  | 3.60  |

"S" Suffix Designates DO-41 Package  
No Suffix Designates DO-15 Package

### Maximum Ratings and Electrical Characteristics @ T<sub>A</sub> = 25 °C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| Characteristic  | Symbol   | UF 1501/S   | UF 1502/S | UF 1503/S | UF 1504/S | UF 1505/S | UF 1506/S | UF 1507/S | Unit |
|---|--|-------------|-----------|-----------|-----------|-----------|-----------|-----------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage (Note 5)                     | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 50          | 100       | 200       | 400       | 600       | 800       | 1000      | V    |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub>                                    | 35          | 70        | 140       | 280       | 420       | 560       | 700       | V    |
| Average Rectified Output Current<br>(Note 1) @ T <sub>A</sub> = 50 °C   | I <sub>O</sub>   | 1.5         |           |           |           |           |           |           | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave Superimposed on Rated Load                 | I <sub>FSM</sub>                                       | 50          |           |           |           |           |           |           | A    |
| Forward Voltage @ I <sub>F</sub> = 1.5A   | V <sub>FM</sub>  | 1.0         |           | 1.3       |           | 1.7       |           | V         |      |
| Peak Reverse Current<br>at Rated DC Blocking Voltage (Note 5) @ T <sub>A</sub> = 25 °C<br>@ T <sub>A</sub> = 100 °C | I <sub>RM</sub>  | 5.0<br>100  |           |           |           |           |           |           | A    |
| Reverse Recovery Time (Note 3)  | t <sub>rr</sub>  | 50          |           |           |           | 75        |           |           | ns   |
| Typical Total Capacitance (Note 2)  | C <sub>T</sub>   | 35          |           |           |           | 20        |           |           | pF   |
| Typical Thermal Resistance Junction to Ambient  | R <sub>JA</sub>  | 70          |           |           |           |           |           |           | °C/W |
| Operating and Storage Temperature Range   | T <sub>j</sub> , T <sub>STG</sub>                      | -65 to +150 |           |           |           |           |           |           | °C   |

- Notes:
- Valid provided that leads are maintained at ambient temperature at a distance of 9.5mm from the case.
  - Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  - Measured with I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1.0A, I<sub>rr</sub> = 0.25A. See figure 5.
  - RoHS revision 13.2.2003. High temperature solder exemptions applied, see EU Directive Annex Note 7.
  - Short duration pulse test used to minimize self-heating effect.

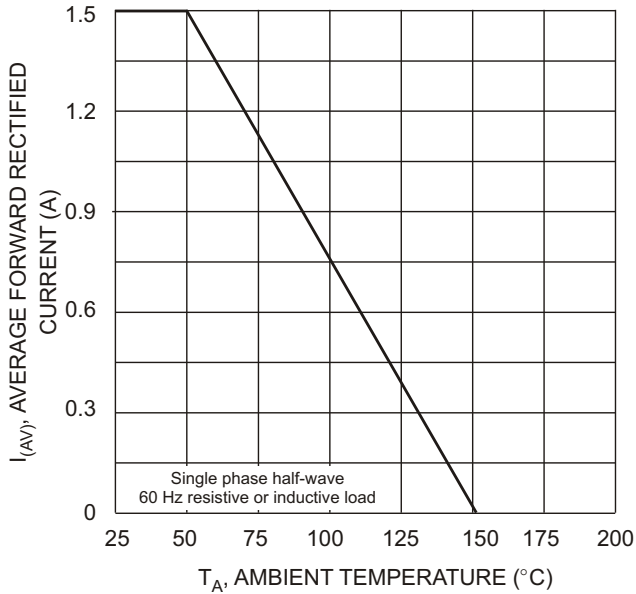


Fig. 1 Forward Current Derating Curve

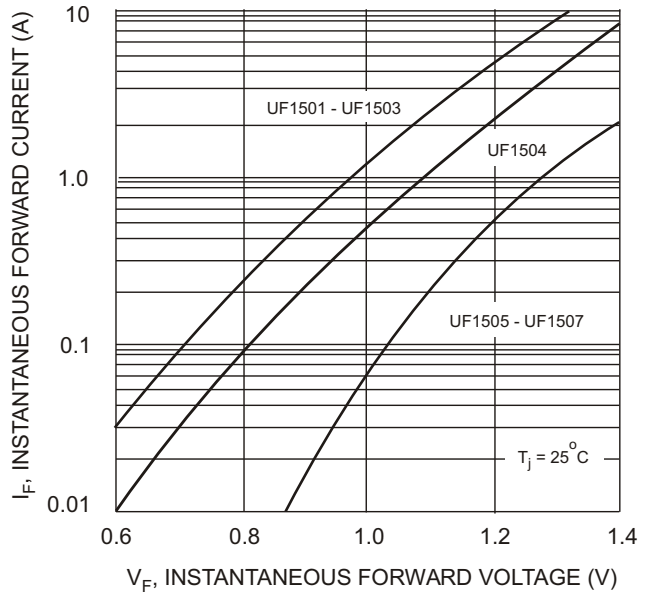


Fig. 2 Typical Forward Characteristics

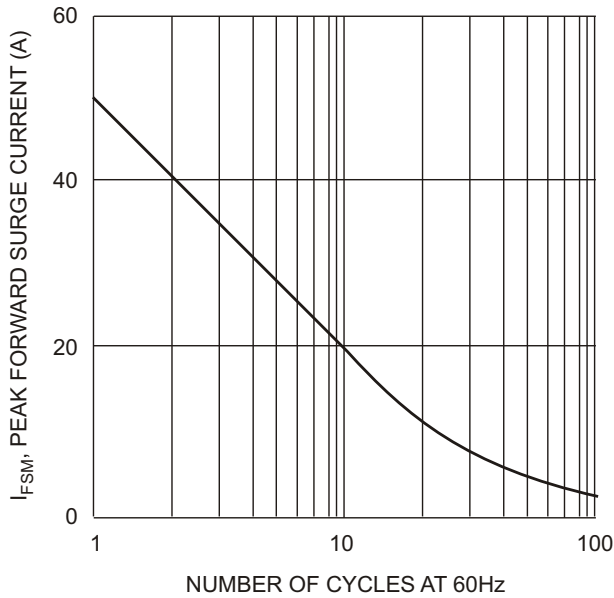


Fig. 3 Peak Forward Surge Current

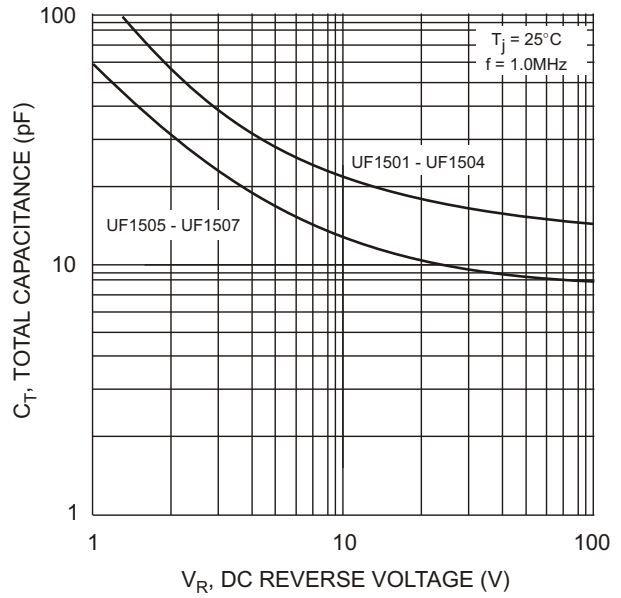
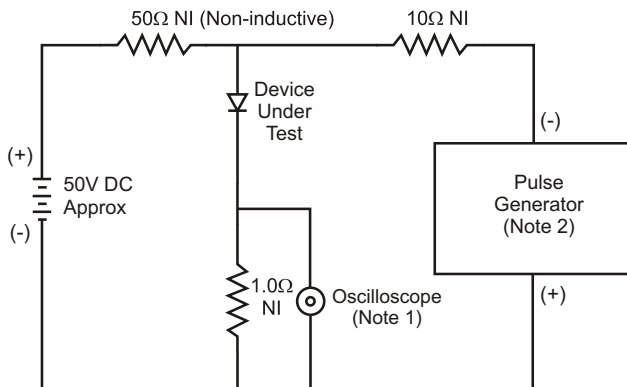
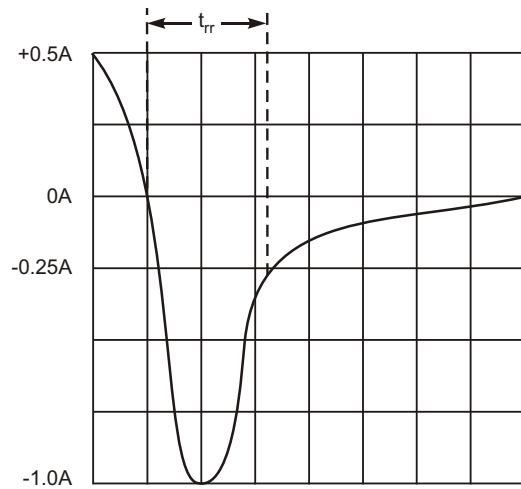


Fig. 4 Typical Total Capacitance



- Notes:  
 1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.  
 2. Rise Time = 10ns max. Input Impedance = 50Ω.



Set time base for 50/100 ns/cm

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

**Ordering Information** (Note 6)

| Device   | Packaging | Shipping                |
|----------|-----------|-------------------------|
| UF1501-B | DO-15     | 1K/Bulk                 |
| UF1501-T | DO-41     | 5K/Tape & Reel, 13-inch |
| UF1502-B | DO-15     | 1K/Bulk                 |
| UF1502-T | DO-41     | 5K/Tape & Reel, 13-inch |
| UF1503-B | DO-15     | 1K/Bulk                 |
| UF1503-T | DO-41     | 5K/Tape & Reel, 13-inch |
| UF1504-B | DO-15     | 1K/Bulk                 |
| UF1504-T | DO-41     | 5K/Tape & Reel, 13-inch |
| UF1505-B | DO-15     | 1K/Bulk                 |
| UF1505-T | DO-41     | 5K/Tape & Reel, 13-inch |
| UF1506-B | DO-15     | 1K/Bulk                 |
| UF1506-T | DO-41     | 5K/Tape & Reel, 13-inch |
| UF1507-B | DO-15     | 1K/Bulk                 |
| UF1507-T | DO-41     | 5K/Tape & Reel, 13-inch |

Notes: 6. For packaging details, visit our website at <http://www.diodes.com/datasheets/ap02008.pdf>.

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