

### ULTRA FAST RECTIFIERS

VOLTAGE RANGE: 50 --- 1000 V  
CURRENT: 1.0 A

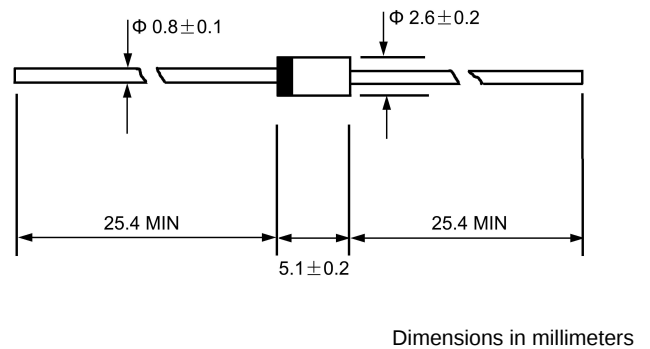
#### FEATURES

- ◇ Low cost
- ◇ Diffused junction
- ◇ Low leakage
- ◇ Low forward voltage drop
- ◇ High current capability
- ◇ Easily cleaned with freon, alcohol, Isopropanol and similar solvents
- ◇ The plastic material carries U/L recognition 94V-0

#### MECHANICAL DATA

- ◇ Case: JEDEC DO-41, molded plastic
- ◇ Terminals: Axial lead, solderable per MIL-STD-202, Method 208
- ◇ Polarity: Color band denotes cathode
- ◇ Weight: 0.012 ounces, 0.34 grams
- ◇ Mounting position: Any

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#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

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

|                                                                                                                   |                    | UF4001           | UF4002 | UF4003 | UF4004 | UF4005 | UF4006 | UF4007 | UNITS |
|-------------------------------------------------------------------------------------------------------------------|--------------------|------------------|--------|--------|--------|--------|--------|--------|-------|
| Maximum recurrent peak reverse voltage                                                                            | V <sub>RRM</sub>   | 50               | 100    | 200    | 400    | 600    | 800    | 1000   | V     |
| Maximum RMS voltage                                                                                               | V <sub>RMS</sub>   | 35               | 70     | 140    | 280    | 420    | 560    | 700    | V     |
| Maximum DC blocking voltage                                                                                       | V <sub>DC</sub>    | 50               | 100    | 200    | 400    | 600    | 800    | 1000   | V     |
| Maximum average forward rectified current<br>9.5mm lead length,      @T <sub>A</sub> =75°C                        | I <sub>F(AV)</sub> | 1.0              |        |        |        |        |        |        | A     |
| Peak forward surge current<br>8.3ms single half-sine-wave<br>superimposed on rated load    @T <sub>J</sub> =125°C | I <sub>FSM</sub>   | 30.0             |        |        |        |        |        |        | A     |
| Maximum instantaneous forward voltage<br>@ 1.0A                                                                   | V <sub>F</sub>     | 1.0              |        |        |        | 1.7    |        |        | V     |
| Maximum reverse current      @T <sub>A</sub> =25°C<br>at rated DC blocking voltage    @T <sub>A</sub> =100°C      | I <sub>R</sub>     | 10<br>100        |        |        |        |        |        |        | μ A   |
| Maximum reverse recovery time (Note1)                                                                             | t <sub>rr</sub>    | 50               |        |        |        | 75     |        |        | ns    |
| Typical junction capacitance (Note2)                                                                              | C <sub>J</sub>     | 17               |        |        |        |        |        |        | pF    |
| Typical thermal resistance (Note3)                                                                                | R <sub>θJA</sub>   | 60               |        |        |        |        |        |        | °C /W |
| Operating junction temperature range                                                                              | T <sub>J</sub>     | - 55 ----- + 125 |        |        |        |        |        |        | °C    |
| Storage temperature range                                                                                         | T <sub>STG</sub>   | - 55 ----- + 150 |        |        |        |        |        |        | °C    |

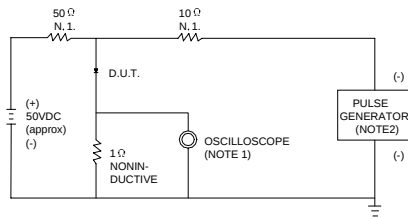
NOTE: 1. Measured with  $I_F=0.5\text{A}$ ,  $I_R=1\text{A}$ ,  $t_{rr}=0.25\text{A}$ .

2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

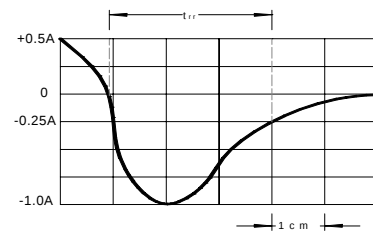
3. Thermal resistance junction to ambient

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**FIG.1 -- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC**

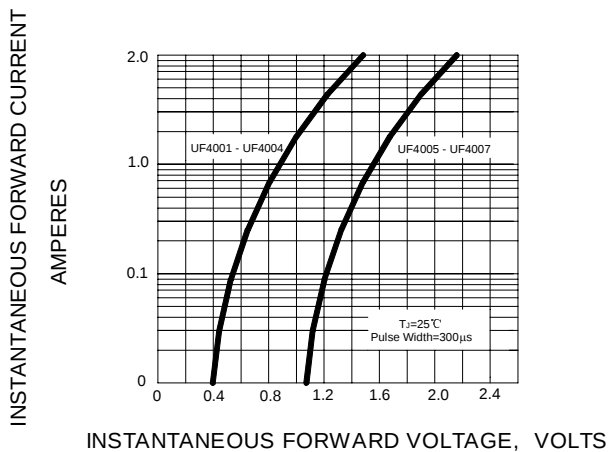


NOTES: 1. RISE TIME = 7ns MAX. INPUT IMPEDANCE = 1MΩ .22pF.  
2. RISE TIME = 10ns MAX. SOURCE IMPEDANCE = 50Ω .

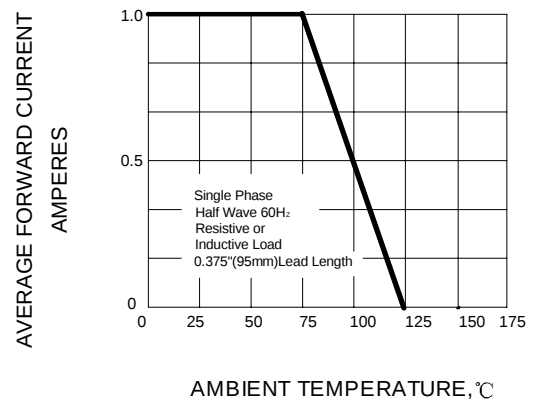


SET TIME BASE FOR 10/20 ns/cm

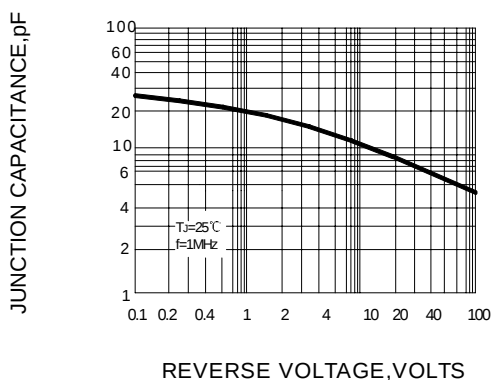
**FIG.2 -- TYPICAL FORWARD CHARACTERISTIC**



**FIG.3 -- FORWARD DERATING CURVE**



**FIG.4 -- TYPICAL JUNCTION CAPACITANCE**



**FIG.5 -- PEAK FORWARD SURGE CURRENT**

