

### SUPER FAST RECTIFIERS

VOLTAGE RANGE: 300 --- 400 V  
CURRENT: 1.5 A

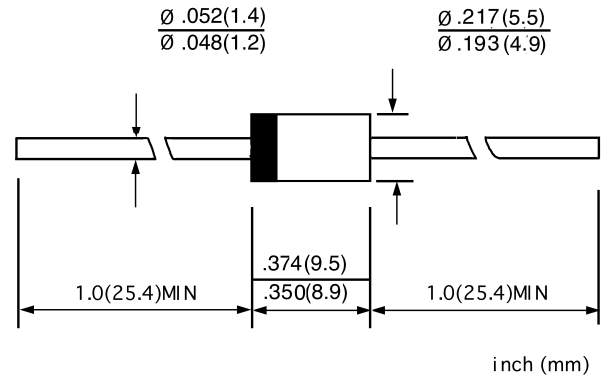
#### FEATURES

- ◇ Low cost
- ◇ Diffused junction
- ◇ Low leakage
- ◇ Low forward voltage drop
- ◇ High current capability
- ◇ Easily cleaned with alcohol, Isopropanol and similar solvents

#### MECHANICAL DATA

- ◇ Case: JEDEC DO-27, molded plastic
- ◇ Terminals: Axial lead, solderable per MIL-STD-202, Method 208
- ◇ Polarity: Color band denotes cathode
- ◇ Weight: 0.041 ounces, 1.15 grams
- ◇ Mounting position: Any

#### DO - 27



#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 50Hz, resistive or inductive load. For capacitive load, derate by 20%.

|   |                 | 31DF3            | 31DF4 | UNITS        |
|---|-----------------|------------------|-------|--------------|
| Maximum recurrent peak reverse voltage  | $V_{RRM}$       | 300              | 400   | V            |
| Maximum RMS voltage   | $V_{RMS}$       | 210              | 280   | V            |
| Maximum DC blocking voltage   | $V_{DC}$        | 300              | 400   | V            |
| Maximum average forward rectified current<br>9.5mm lead length, @ $T_A=75^\circ C$                          | $I_{F(AV)}$     | 1.5              |       | A            |
| Peak forward surge current<br>8.3ms single half-sine-wave<br>superimposed on rated load @ $T_J=125^\circ C$ | $I_{FSM}$       | 125.0            |       | A            |
| Maximum instantaneous forward voltage<br>@ $I_F=3A$   | $V_F$           | 1.25             |       | V            |
| Maximum reverse current @ $T_A=25^\circ C$<br>at rated DC blocking voltage @ $T_A=100^\circ C$              | $I_R$           | 5.0              | 50.0  | $\mu A$      |
| Maximum reverse recovery time (Note1)   | $t_{rr}$        | 30               |       | ns           |
| Typical junction capacitance (Note2)  | $C_J$           | 90               |       | pF           |
| Typical thermal resistance (Note3)  | $R_{\theta JA}$ | 34               |       | $^\circ C/W$ |
| Operating junction temperature range  | $T_J$           | - 55 ----- + 150 |       | $^\circ C$   |
| Storage temperature range   | $T_{STG}$       | - 55 ----- + 150 |       | $^\circ C$   |

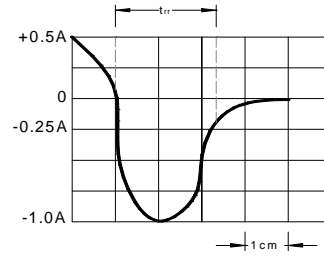
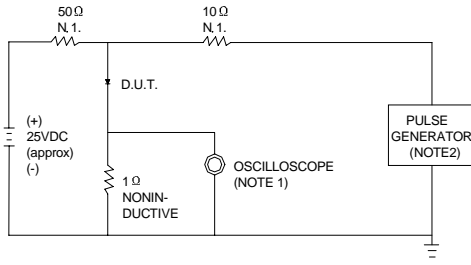
NOTE: 1. Measured with  $I_F=0.5A$ ,  $I_R=1A$ ,  $I_{rr}=0.25A$ .

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

3. Thermal resistance from junction to ambient.

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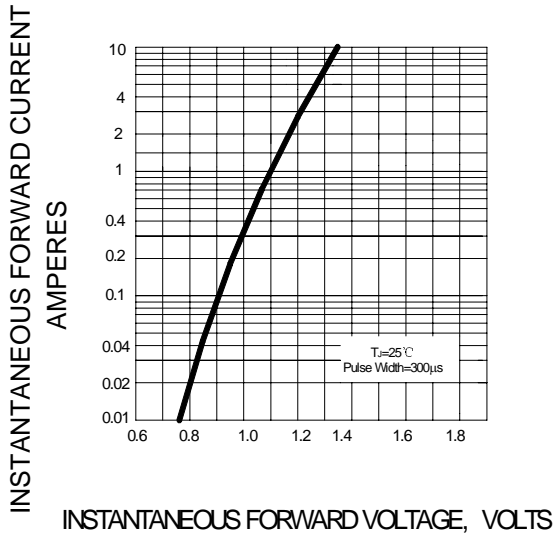
**FIG.1 – TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC**



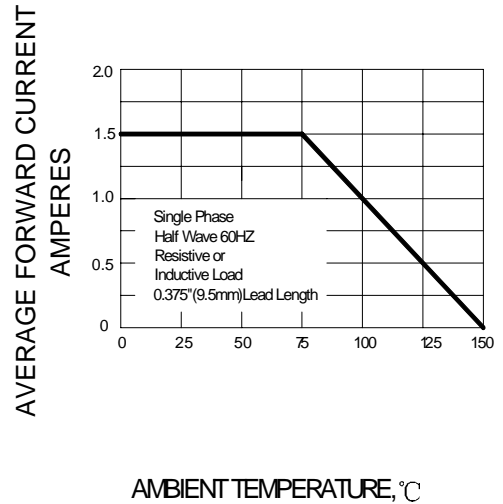
NOTES: 1. RISE TIME = 7ns MAX INPUT IMPEDANCE = 1MΩ, 22pF.  
 2. RISE TIME = 10ns MAX SOURCE IMPEDANCE = 50 Ω.

SET TIME BASE FOR 10 ns/cm

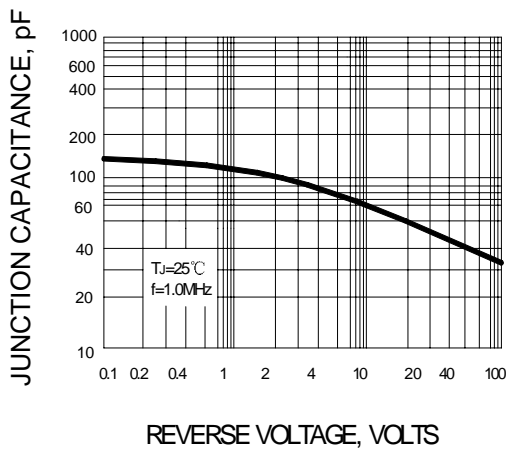
**FIG.2 – TYPICAL FORWARD CHARACTERISTIC**



**FIG.3 – FORWARD DERATING CURVE**



**FIG.4– TYPICAL JUNCTION CAPACITANCE**



**FIG.5– PEAK FORWARD SURGE CURRENT**

