

# FR301 – FR307

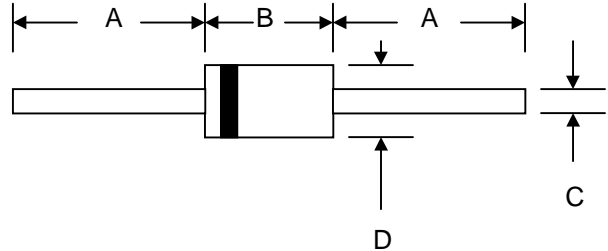
## 3.0A FAST RECOVERY RECTIFIER

### Features

- Diffused Junction
- Low Forward Voltage Drop
- High Current Capability
- High Reliability
- High Surge Current Capability

### Mechanical Data

- Case: Molded Plastic
- Terminals: Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 1.2 grams (approx.)
- Mounting Position: Any
- Marking: Type Number
- Epoxy: UL 94V-O rate flame retardant



| DO-201AD             |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 25.4 | —    |
| B                    | 8.50 | 9.50 |
| C                    | 1.20 | 1.30 |
| D                    | 5.0  | 5.60 |
| All Dimensions in mm |      |      |

### Maximum Ratings and Electrical Characteristics @ $T_A=25^\circ\text{C}$ unless otherwise specified

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

| Characteristic  | Symbol       | FR301       | FR302 | FR303 | FR304 | FR305 | FR306 | FR307 | Unit             |
|---|--------------|-------------|-------|-------|-------|-------|-------|-------|------------------|
| Peak Repetitive Reverse Voltage   | $V_{RRM}$    |             |       |       |       |       |       |       | V                |
| Working Peak Reverse Voltage  | $V_{RWM}$    | 50          | 100   | 200   | 400   | 600   | 800   | 1000  |                  |
| DC Blocking Voltage   | $V_R$        |             |       |       |       |       |       |       |                  |
| RMS Reverse Voltage   | $V_{R(RMS)}$ | 35          | 70    | 140   | 280   | 420   | 560   | 700   | V                |
| Average Rectified Output Current<br>(Note 1) @ $T_A = 55^\circ\text{C}$   | $I_o$        | 3.0         |       |       |       |       |       |       | A                |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave superimposed on<br>rated load (JEDEC Method) | $I_{FSM}$    | 150         |       |       |       |       |       |       | A                |
| Forward Voltage @ $I_F = 3.0\text{A}$   | $V_{FM}$     | 1.2         |       |       |       |       |       |       | V                |
| Peak Reverse Current @ $T_A = 25^\circ\text{C}$<br>At Rated DC Blocking Voltage @ $T_A = 100^\circ\text{C}$           | $I_{RM}$     | 10<br>150   |       |       |       |       |       |       | $\mu\text{A}$    |
| Reverse Recovery Time (Note 2)  | $t_{rr}$     | 150         |       |       |       | 250   | 500   |       | nS               |
| Typical Junction Capacitance (Note 3)   | $C_j$        | 60          |       |       |       |       |       |       | pF               |
| Operating Temperature Range   | $T_j$        | -65 to +125 |       |       |       |       |       |       | $^\circ\text{C}$ |
| Storage Temperature Range   | $T_{STG}$    | -65 to +150 |       |       |       |       |       |       | $^\circ\text{C}$ |

**\*Glass passivated forms are available upon request**

- Note: 1. Leads maintained at ambient temperature at a distance of 9.5mm from the case  
 2. Measured with  $I_F = 0.5\text{A}$ ,  $I_R = 1.0\text{A}$ ,  $IRR = 0.25\text{A}$ . See figure 5.  
 3. Measured at 1.0 MHz and applied reverse voltage of 4.0V D.C.

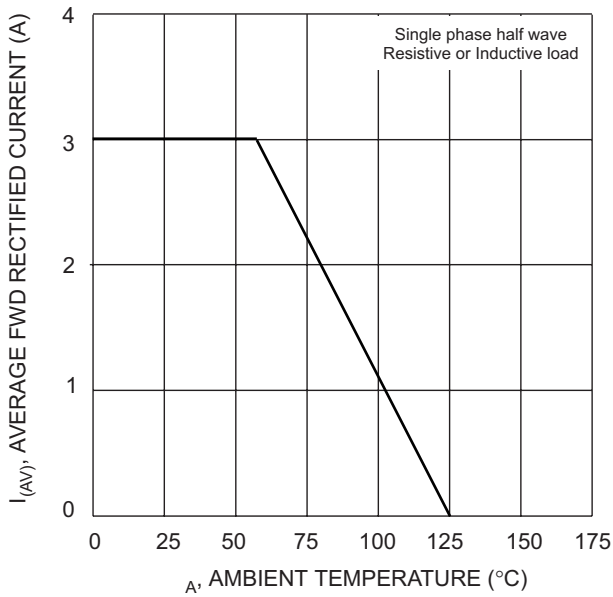


Fig. 1 Forward Derating Curve

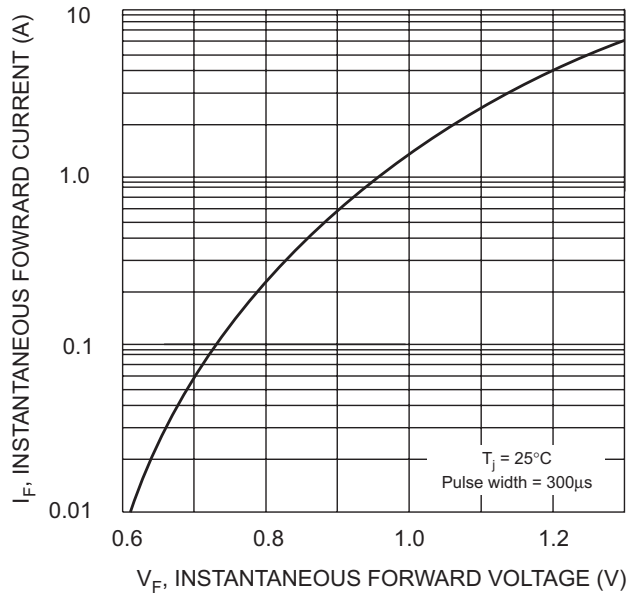


Fig. 2 Typical Forward Characteristics

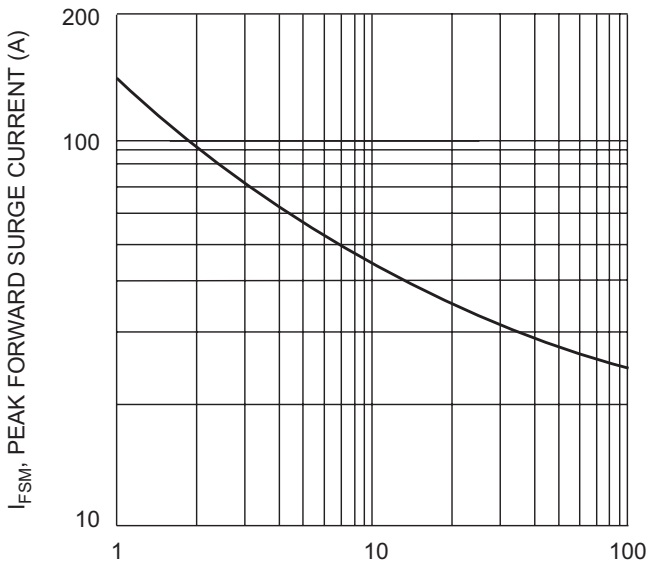


Fig. 3 Peak Forward Surge Current

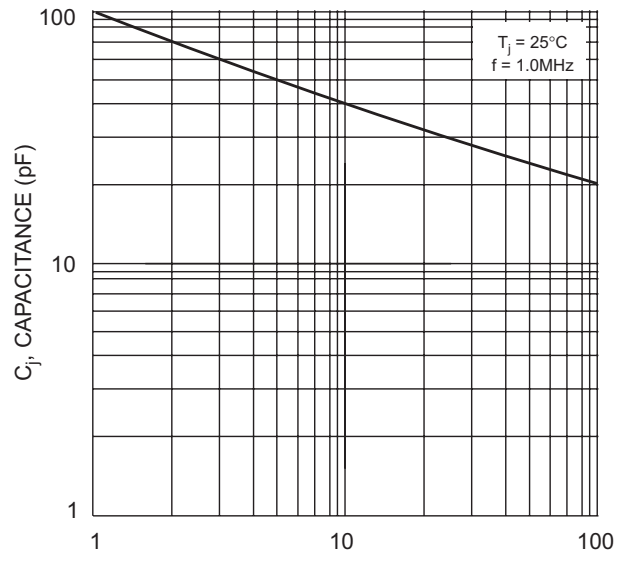
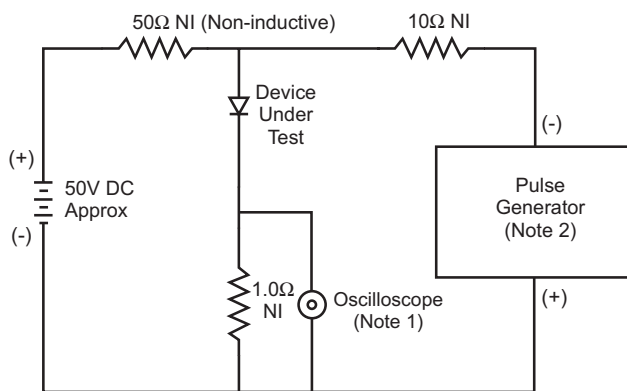
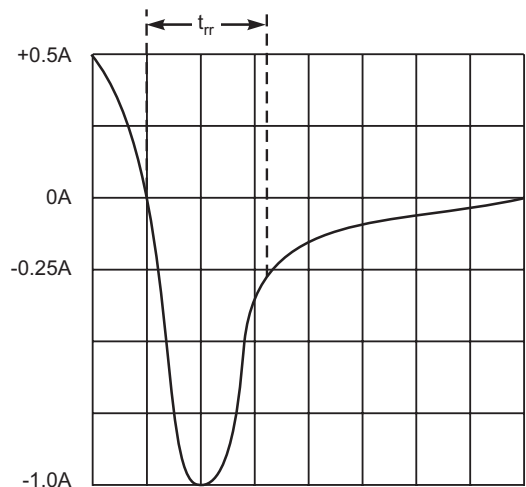


Fig. 4 Typical Junction Capacitance



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



Set time base for 5/10ns/cm

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit