



# FR301 thru FR307

Fast Recovery Rectifiers  
Reverse Voltage 50 to 1000 Volts Forward Current 3.0 Amperes

## Features

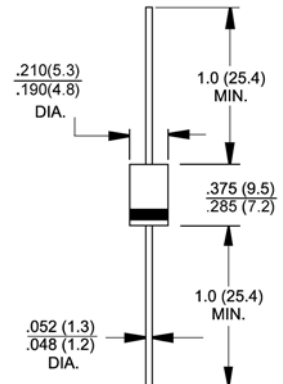
- ◆ Low forward voltage drop
- ◆ High current capability
- ◆ High reliability
- ◆ High surge current capability
- ◆  $T_J$  is 150°C (Max.) and  $T_{STG}$  is 175°C (Max.) with PI glue



DO-201AD

## Mechanical Data

- ◆ Case: Molded plastic DO-201AD
- ◆ Epoxy: UL 94V-O rate flame retardant
- ◆ Lead: Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- ◆ Polarity: Color band denotes cathode end
- ◆ High temperature soldering guaranteed:  
250°C/10 seconds .375" (9.5mm) lead lengths at 5 lbs., (2.3kg) tension
- ◆ Weight: 0.042 ounce, 1.195 grams



Dimensions in inches and (millimeters)

## Maximum Ratings and Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%

| Parameter   | Symbols    | FR301       | FR302 | FR303 | FR304 | FR305 | FR306 | FR307 | Units            |
|---|------------|-------------|-------|-------|-------|-------|-------|-------|------------------|
| Maximum repetitive peak reverse voltage   | $V_{RRM}$  | 50          | 100   | 200   | 400   | 600   | 800   | 1000  | Volts            |
| Maximum RMS voltage   | $V_{RMS}$  | 35          | 70    | 140   | 280   | 420   | 560   | 700   | Volts            |
| Maximum DC blocking voltage   | $V_{DC}$   | 50          | 100   | 200   | 400   | 600   | 800   | 1000  | Volts            |
| Maximum average forward rectified current<br>0.375" (9.5mm) lead length at $T_A=55^\circ\text{C}$                   | $I_{(AV)}$ | 3.0         |       |       |       |       |       |       | Amps             |
| Peak forward surge current, 8.3 ms single<br>half sine-wave superimposed on rated load<br>(JEDEC Method)            | $I_{FSM}$  | 150.0       |       |       |       |       |       |       | Amps             |
| Maximum instantaneous forward voltage @ 3.0A  | $V_F$      | 1.3         |       |       |       |       |       |       | Volts            |
| Maximum DC reverse current<br>at rated DC blocking voltage<br>@ $T_A=25^\circ\text{C}$<br>@ $T_A=100^\circ\text{C}$ | $I_R$      | 10.0<br>150 |       |       |       |       |       |       | $\mu\text{A}$    |
| Maximum reverse recovery time (Note 1)  | $t_{rr}$   | 150         |       |       |       | 250   | 500   |       | nS               |
| Typical junction capacitance (Note 2)   | $C_J$      | 55          |       |       |       |       |       |       | pF               |
| Operating temperature range   | $T_J$      | -55 to +125 |       |       |       |       |       |       | $^\circ\text{C}$ |
| Storage temperature range   | $T_{STG}$  | -55 to +150 |       |       |       |       |       |       | $^\circ\text{C}$ |

- Notes:**
1. Reverse Recovery Test Conditions:  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{RR}=0.25\text{A}$
  2. Measured at 1 MHz and Applied Reverse Voltage of 4.0 V D.C.

# RATINGS AND CHARACTERISTIC CURVES

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

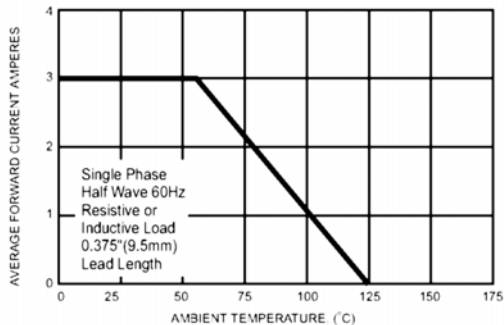


FIG.2- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

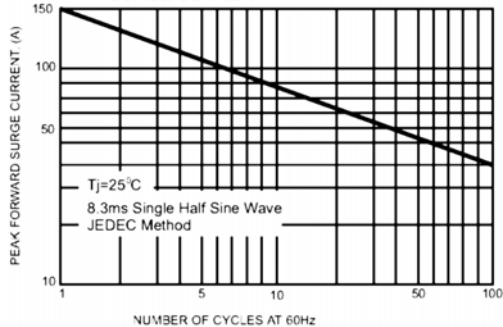


FIG.3- TYPICAL FORWARD CHARACTERISTICS

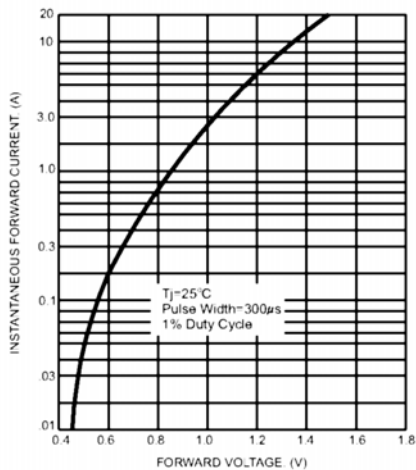


FIG.4- TYPICAL JUNCTION CAPACITANCE

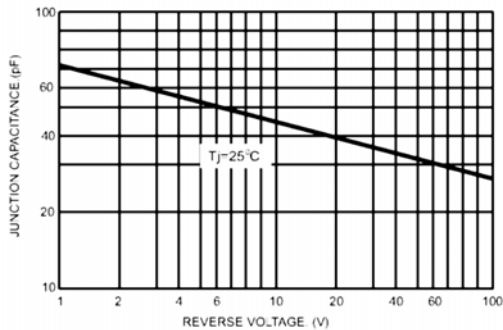


FIG.5- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

