

**FAST RECOVERY RECTIFIER**

**VOLTAGE RANGE 50 to 100 Volts CURRENT 3.0 Amperes**

**FEATURES**

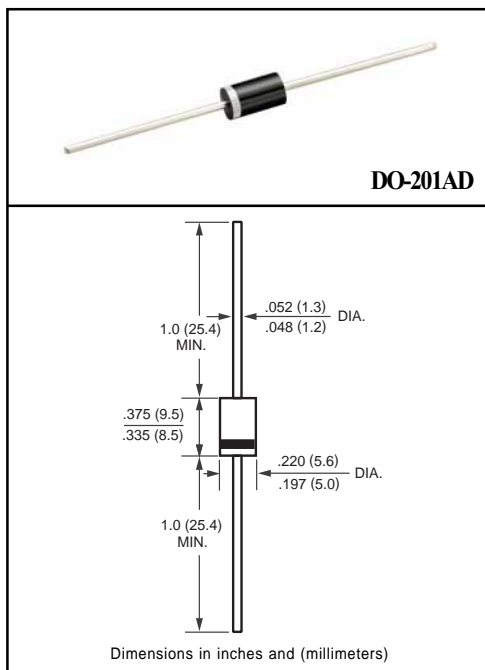
- \* Fast switching
- \* Low leakage
- \* Low forward voltage drop
- \* High current capability
- \* High current surge
- \* High reliability

**MECHANICAL DATA**

- \* Case: Molded plastic
- \* Epoxy: Device has UL flammability classification 94V-0
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 1.18 grams

**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 current by 20%.



**MAXIMUM RATINGS** (At TA = 25°C unless otherwise noted)

| RATINGS   | SYMBOL                            | FR301        | FR302 | FR303 | FR304 | FR305 | FR305P | FR306 | FR307 | FR307P | UNITS |      |
|---|-----------------------------------|--------------|-------|-------|-------|-------|--------|-------|-------|--------|-------|------|
| Maximum Recurrent Peak Reverse Voltage  | V <sub>RRM</sub>                  | 50           | 100   | 200   | 400   | 600   | 600    | 800   | 1000  | 1000   | Volts |      |
| Maximum RMS Voltage   | V <sub>RMS</sub>                  | 35           | 70    | 140   | 280   | 420   | 420    | 560   | 700   | 700    | Volts |      |
| Maximum DC Blocking Voltage   | V <sub>DC</sub>                   | 50           | 100   | 200   | 400   | 600   | 600    | 800   | 1000  | 1000   | Volts |      |
| Maximum Average Forward Rectified Current at TA= 75°C   | I <sub>O</sub>                    | 3.0          |       |       |       |       |        |       |       |        |       | Amps |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | I <sub>FSM</sub>                  | 200          |       |       |       |       |        |       |       |        |       | Amps |
| Typical Junction Capacitance (Note 2)   | C <sub>J</sub>                    | 65           |       |       |       |       |        |       |       |        |       | pF   |
| Operating and Storage Temperature Range   | T <sub>J</sub> , T <sub>STG</sub> | -55 to + 150 |       |       |       |       |        |       |       |        |       | °C   |

**ELECTRICAL CHARACTERISTICS** (At TA = 25°C unless otherwise noted)

| CHARACTERISTICS  | SYMBOL          | FR301 | FR302 | FR303 | FR304 | FR305 | FR305P | FR306 | FR307 | FR307P | UNITS |       |
|--|-----------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|-------|
| Maximum Instantaneous Forward Voltage at 3.0A DC   | V <sub>F</sub>  | 1.3   |       |       |       |       |        |       |       |        |       | Volts |
| Maximum DC Reverse Current at Rated DC Blocking Voltage TA = 25°C                            | I <sub>R</sub>  | 10    |       |       |       |       |        |       |       |        |       | uAmps |
| Maximum Full Load Reverse Current Average, Full Cycle .375" (9.5mm) lead length at TL = 55°C |                 | 150   |       |       |       |       |        |       |       |        |       | uAmps |
| Maximum Reverse Recovery Time (Note 1)   | t <sub>rr</sub> | 150   |       |       | 250   | 150   | 500    | 250   |       |        | nSec  |       |

NOTES : 1. Test Conditions: I<sub>F</sub> = 0.5A, I<sub>R</sub> = -1.0A, I<sub>RR</sub> = -0.25A

2. Measured at 1 MHz and applied reverse voltage of 4.0 volts

# RATING AND CHARACTERISTIC CURVES ( FR301 THRU FR307 )

FIG. 1 - TYPICAL FORWARD CURRENT DERATING CURVE

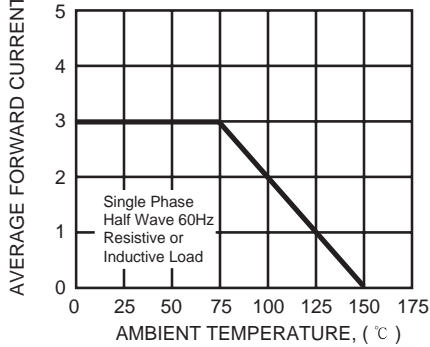


FIG. 2 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

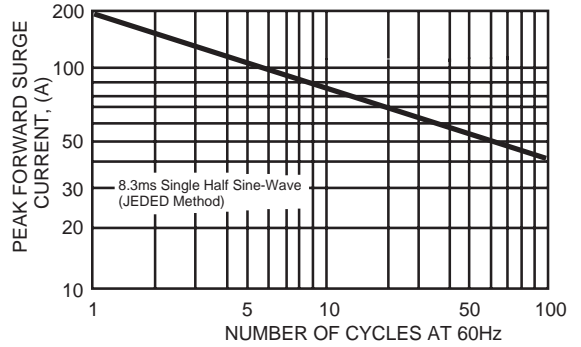


FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

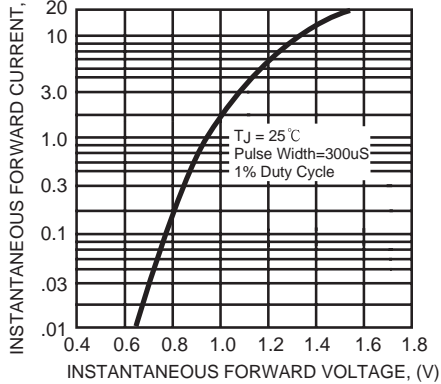


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

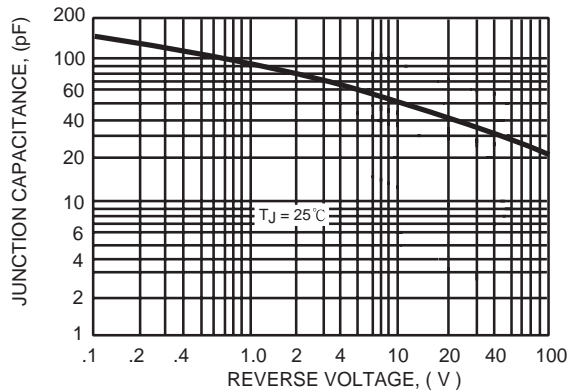
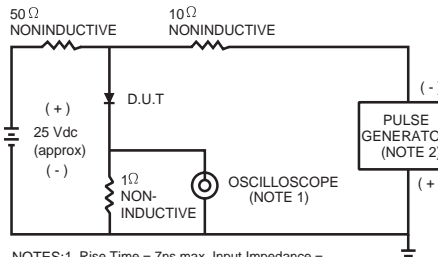


FIG. 5 - TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC



NOTES: 1. Rise Time = 7ns max. Input Impedance = 1 megohm. 22pF.  
2. Rise Time = 10ns max. Source Impedance = 50 ohms.

