RECTRON
SEMICONDUCTOR
TECHNICAL SPECIFICATION

# FR301G THRU FR307G

## *FAST RECOVERY GLASS PASSIVATED RECTIFIER*

***VOLTAGE RANGE 50 to 1000 Volts CURRENT 3.0 Amperes***

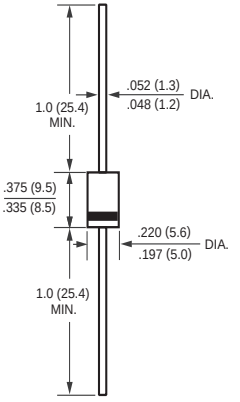
### FEATURES

* High reliability
* Low leakage
* Low forward voltage drop
* High current capability
* Glass passivated junction
* High switching capability

### MECHANICAL DATA

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

DO-201AD




Dimensions in inches and (millimeters)

### 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 $T_A$ = 25°C unless otherwise noted)

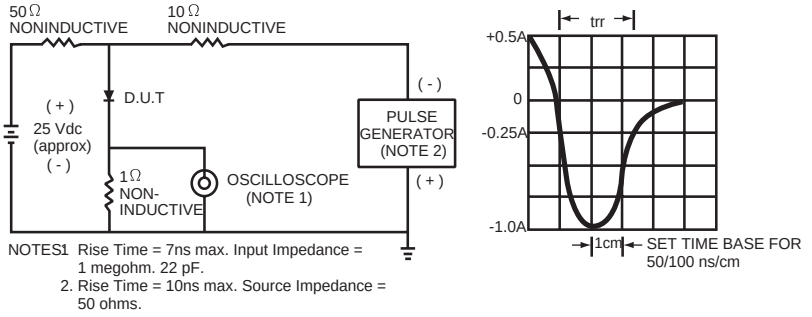
| RATINGS | SYMBOL | FR301G | FR302G | FR303G | FR304G | FR305G | FR306G | FR307G | UNITS |
|---|---|---|---|---|---|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | Volts |
| Maximum RMS Voltage | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | Volts |
| Maximum DC Blocking Voltage | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | Volts |
| Maximum Average Forward Rectified Current at $T_A$ = 55°C | $I_O$ | 3.0 | | | | | | | Amps |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | $I_{FSM}$ | 125 | | | | | | | Amps |
| Typical Junction Capacitance (Note 2) | $C_J$ | 50 | | | | | | | pF |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to + 150 | | | | | | | °C |

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

| CHARACTERISTICS | SYMBOL | FR301G | FR302G | FR303G | FR304G | FR305G | FR306G | FR307G | UNITS |
|---|---|---|---|---|---|---|---|---|---|
| Maximum Instantaneous Forward Voltage at 3.0A DC | $V_F$ | 1.3 | | | | | | | Volts |
| Maximum DC Reverse Current at Rated DC Blocking Voltage $T_A$ = 25°C | $I_R$ | 5.0 | | | | | | | uAmps |
| Maximum Full Load Reverse Current Average, Full Cycle .375" (9.5mm) lead length at $T_L$ = 55°C | | 100 | | | | | | | uAmps |
| Maximum Reverse Recovery Time (Note 1) | trr | 150 | | | | 250 | 500 | | nSec |

NOTES : 1. Test Conditions: $I_F$ = 0.5A, $I_R$ = -1.0A, $I_{RR}$ = -0.25A
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts

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




NOTES1 Rise Time = 7ns max. Input Impedance = 1 megohm. 22 pF.
2. Rise Time = 10ns max. Source Impedance = 50 ohms.

FIG. 2 - TYPICAL FORWARD CURRENT DERATING CURVE

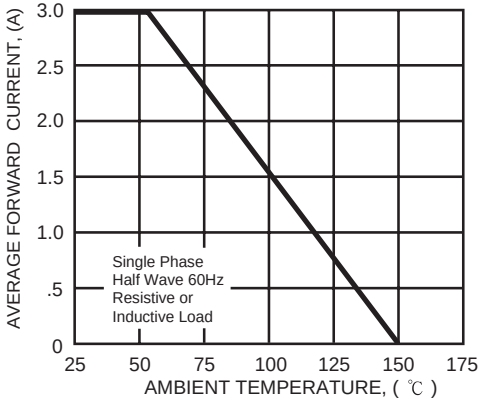



FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

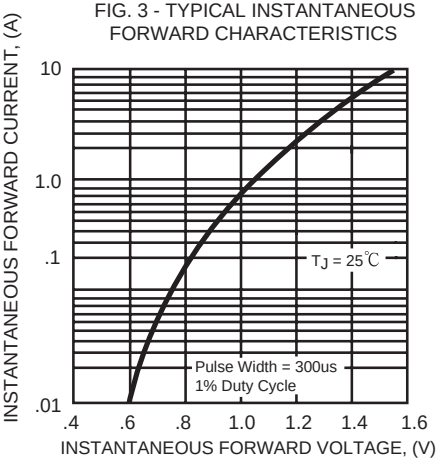



FIG. 4 - TYPICAL JUNCTION CAPACITANCE

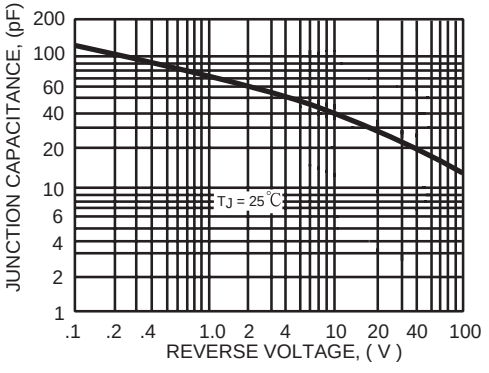



FIG. 5 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT