**RECTRON**
**SEMICONDUCTOR**
**TECHNICAL SPECIFICATION**

# FR101 THRU FR107

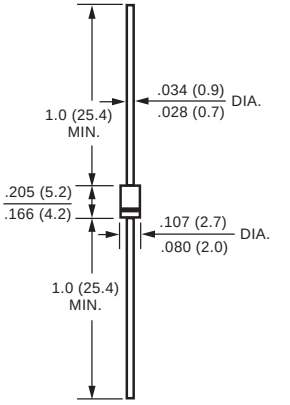
## *FAST RECOVERY RECTIFIER*

***VOLTAGE RANGE 50 to 1000 Volts CURRENT 1.0 Ampere***

### FEATURES
* Fast switching
* Low leakage
* Low forward voltage drop
* High current capability
* High surge capability
* High reliability

### MECHANICAL DATA
* Case: Molded plastic
* Epoxy: Device has UL flammability classification 94V-O
* Lead: MIL-STD-202E method 208C guaranteed
* Mounting position: Any
* Weight: 0.33 gram

**DO-41**




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 | FR101 | FR102 | FR103 | FR104 | FR105 | FR105P | FR106 | FR107 | FR107P | UNITS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 600 | 800 | 1000 | 1000 | Volts |
| Maximum RMS Voltage | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 400 | 560 | 700 | 700 | Volts |
| Maximum DC Blocking Voltage | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 600 | 800 | 1000 | 1000 | Volts |
| Maximum Average Forward Rectified Current at $T_A$ = 75°C | $I_O$ | 1.0 | | | | | | | | | Amps |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | $I_{FSM}$ | 30 | | | | | | | | | Amps |
| Typical Junction Capacitance (Note 2) | $C_J$ | 15 | | | | | | | | | 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 | FR101 | FR102 | FR103 | FR104 | FR105 | FR105P | FR106 | FR107 | FR107P | UNITS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum Instantaneous Forward Voltage at 1.0A 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 Full Cycle Average, .375" (9.5mm) lead length at $T_L$ = 55°C | $I_R$ | 100 | | | | | | | | | uAmps |
| Maximum Reverse Recovery Time (Note 1) | trr | 150 | | | | 250 | 150 | 500 | | 250 | 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

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# RATING AND CHARACTERISTIC CURVES ( FR101 THRU FR107 )

FIG. 1 - TYPICAL FORWARD CURRENT DERATING CURVE

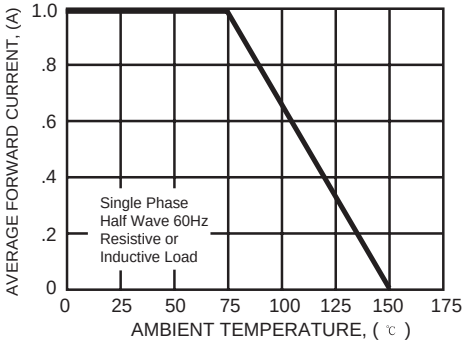



FIG. 2 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

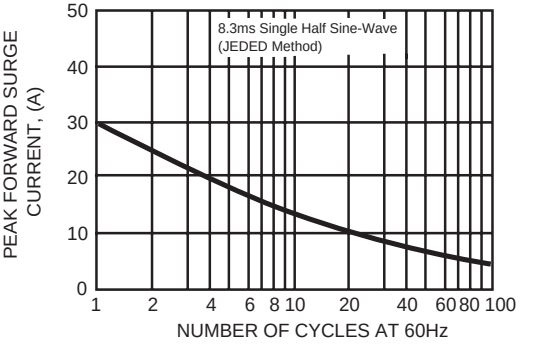



FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

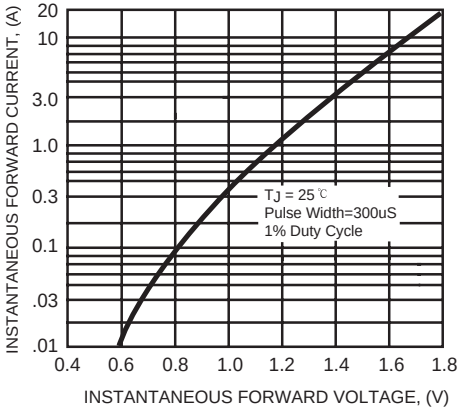



FIG. 4 - TYPICAL REVERSE CHARACTERISTICS

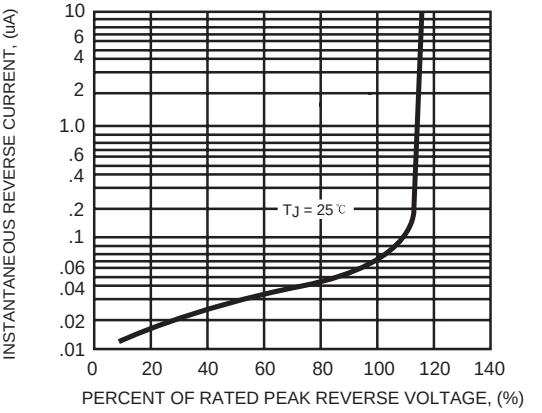



FIG. 5 - TYPICAL JUNCTION CAPACITANCE

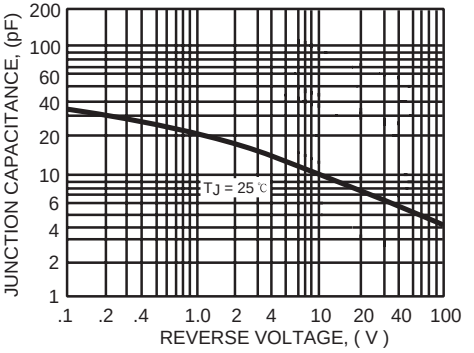
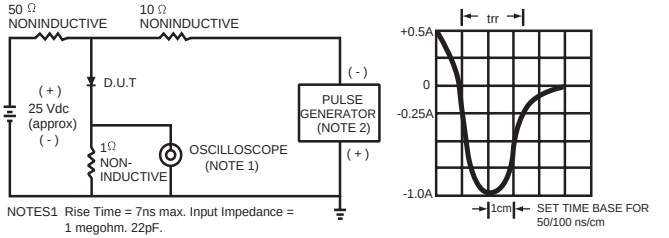



FIG. 6 - TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC




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