

# RECTRON

## SEMICONDUCTOR

### TECHNICAL SPECIFICATION

FR251

THRU

FR257

## FAST RECOVERY RECTIFIER

VOLTAGE RANGE 50 to 1000 Volts CURRENT 2.5 Amperes

### FEATURES

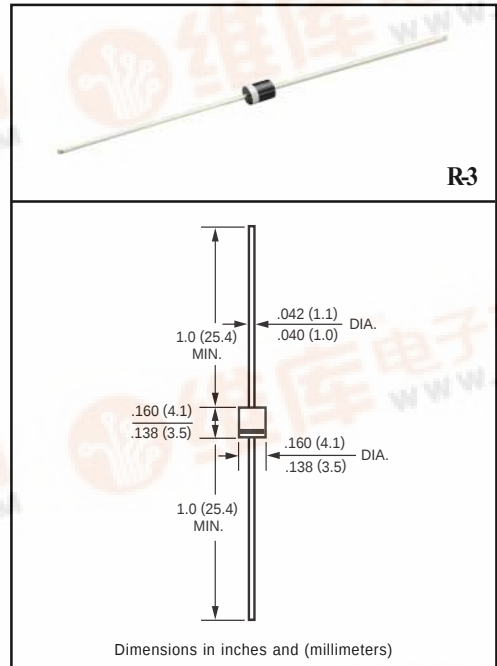
- \* Fast switching
- \* Low leakage
- \* Low forward voltage drop
- \* High current capability
- \* High current surge
- \* High reliability

### MECHANICAL DATA

- \* Case: Molded plastic
- \* Epoxy: Device has UL flammability classification 94V-O
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 0.54 gram

### 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   | FR251        | FR252 | FR253 | FR254 | FR255 | FR255P | FR256 | FR257 | FR257P | UNITS |
|---------------------------------------------------------------------------------------------------|----------|--------------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| Maximum Recurrent Peak Reverse Voltage                                                            | VRRM     | 50           | 100   | 200   | 400   | 600   | 600    | 800   | 1000  | 1000   | Volts |
| Maximum RMS Voltage                                                                               | VRMS     | 35           | 70    | 140   | 280   | 420   | 420    | 560   | 700   | 700    | Volts |
| Maximum DC Blocking Voltage                                                                       | VDC      | 50           | 100   | 200   | 400   | 600   | 600    | 800   | 1000  | 1000   | Volts |
| Maximum Average Forward Rectified Current at Ta= 75°C                                             | Io       | 2.5          |       |       |       |       |        |       |       |        | Amps  |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | IFSM     | 150          |       |       |       |       |        |       |       |        | Amps  |
| Typical Junction Capacitance (Note 2)                                                             | CJ       | 60           |       |       |       |       |        |       |       |        | pF    |
| Operating and Storage Temperature Range                                                           | TJ, TSTG | -65 to + 150 |       |       |       |       |        |       |       |        | °C    |

### ELECTRICAL CHARACTERISTICS (At Ta = 25°C unless otherwise noted)

| CHARACTERISTICS                                                                               | SYMBOL | FR251 | FR252 | FR253 | FR254 | FR255 | FR255P | FR256 | FR257 | FR257P | UNITS |
|-----------------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| Maximum Instantaneous Forward Voltage at 2.5A DC                                              | VF     | 1.3   |       |       |       |       |        |       |       |        | Volts |
| Maximum DC Reverse Current at Rated DC Blocking Voltage Ta = 25°C                             | IR     | 5.0   |       |       |       |       |        |       |       |        | uAmps |
| Maximum Full Load Reverse Current Average, Full Cycle, 3.75" (9.5mm) lead length at TL = 55°C |        | 100   |       |       |       |       |        |       |       |        | uAmps |
| Maximum Reverse Recovery Time (Note 1)                                                        | trr    | 150   |       |       | 250   |       |        | 150   | 500   | 250    | nSec  |

NOTES: 1. Test Conditions: IF = 0.5A, IR = -1.0A, IRR = -0.25A

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

## RATING AND CHARACTERISTIC CURVES ( FR251 THRU FR257 )

FIG. 1 - TYPICAL FORWARD CURRENT DERATING CURVE

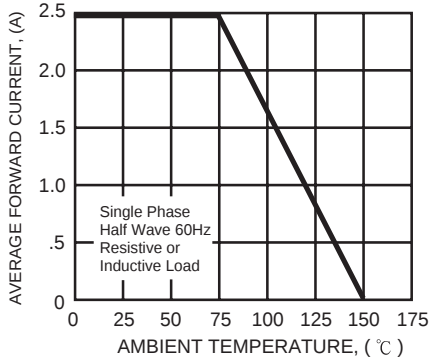


FIG. 3 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

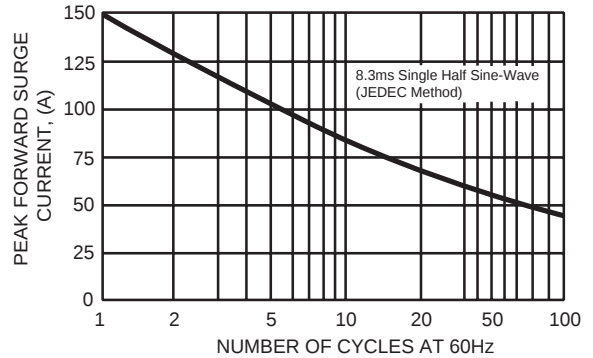


FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

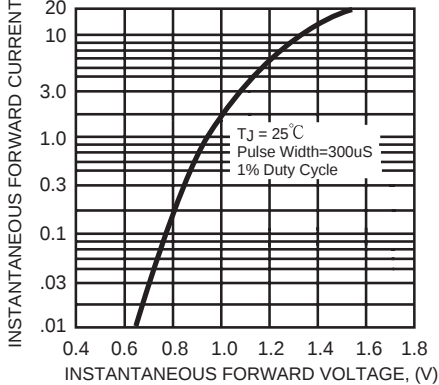


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

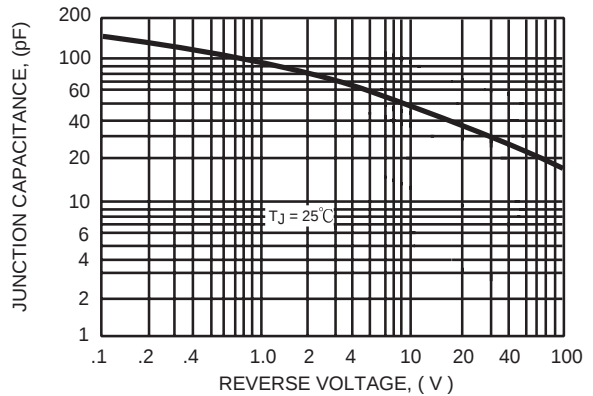


FIG. 5 - TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

