

**GLASS PASSIVATED SUPER FAST RECTIFIER**

**VOLTAGE RANGE 50 to 200 Volts CURRENT 8.0 Amperes**

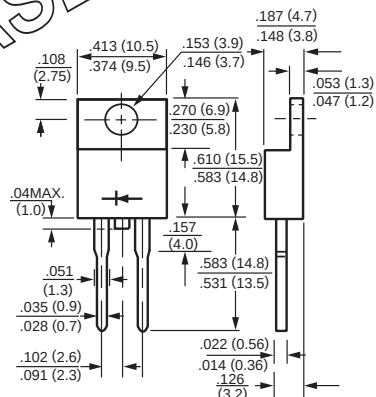
**FEATURES**

- \* High reliability
- \* Low leakage
- \* Low forward voltage
- \* High current capability
- \* Super fast switching speed
- \* High surge capability
- \* Good for switching mode circuit

**MECHANICAL DATA**

- \* Case: TO-220 Molded plastic
- \* Epoxy: Device has UL flammability classification 94V-0
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 2.24 grams

**TO-220A**



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 TA = 25°C unless otherwise noted)

| RATINGS                                                                                                          | SYMBOL   | USF81        | USF82 | USF83 | USF84 | UNITS |
|------------------------------------------------------------------------------------------------------------------|----------|--------------|-------|-------|-------|-------|
| Maximum Recurrent Peak Reverse Voltage                                                                           | VRRM     | 50           | 100   | 150   | 200   | Volts |
| Maximum RMS Volts                                                                                                | VRMS     | 35           | 70    | 105   | 140   | Volts |
| Maximum DC Blocking Voltage                                                                                      | VDC      | 50           | 100   | 150   | 200   | Volts |
| Maximum Average Forward Current<br>at Tc = 100°C                                                                 | Io       | 8.0          |       |       |       | Amps  |
| Peak Forward Surge Current IFM (surge):8.3 ms single half<br>sine-wave superimposed on rated load (JEDEC method) | IFSM     | 150          |       |       |       | Amps  |
| Typical Junction Capacitance (Note 2)                                                                            | Cj       | 45           |       |       |       | pF    |
| Operating and Storage Temperature Range                                                                          | TJ, TSTG | -55 to + 150 |       |       |       | °C    |

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

| CHARACTERISTICS                        |                        | SYMBOL         | USF81 | USF82 | USF83 | USF84 | UNITS |
|----------------------------------------|------------------------|----------------|-------|-------|-------|-------|-------|
| Maximum Forward Voltage at 8.0A DC     |                        | V <sub>F</sub> | 0.95  |       |       |       | Volts |
| Maximum DC Reverse Current             | @T <sub>A</sub> = 25°C | I <sub>R</sub> | 10    |       |       |       | uAmps |
| at Rated DC Blocking Voltage           | @T <sub>A</sub> =100°C |                | 500   |       |       |       |       |
| Maximum Reverse Recovery Time (Note 1) |                        | trr            | 20    |       |       |       | nSec  |

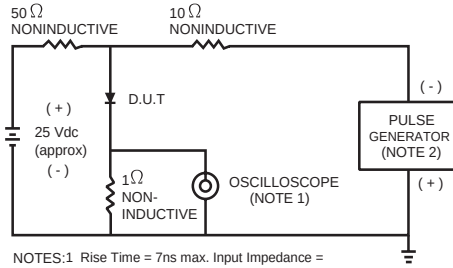
NOTES : 1. Test Conditions: IF=0.5A, IR=-1.0A, IRR=-0.25A.

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

2002-7

# RATING AND CHARACTERISTIC CURVES ( USF81 THRU USF84 )

FIG. 1 - 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.

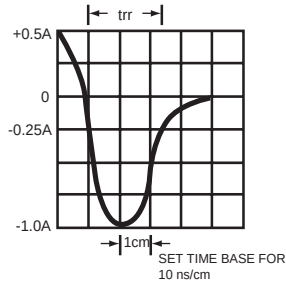


FIG. 2 - TYPICAL FORWARD CURRENT DERATING CURVE

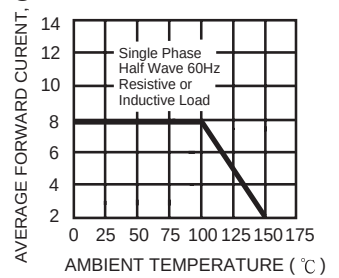


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

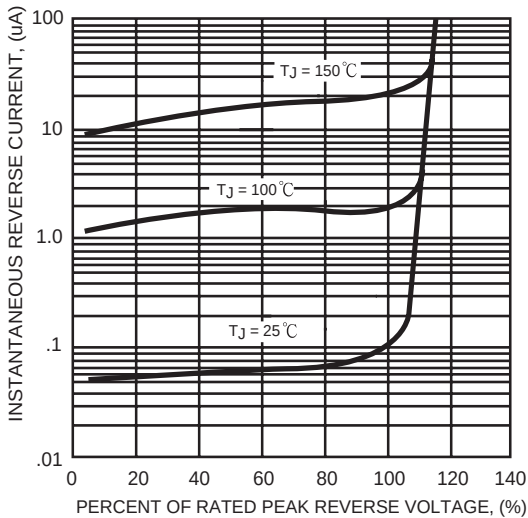


FIG. 4 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

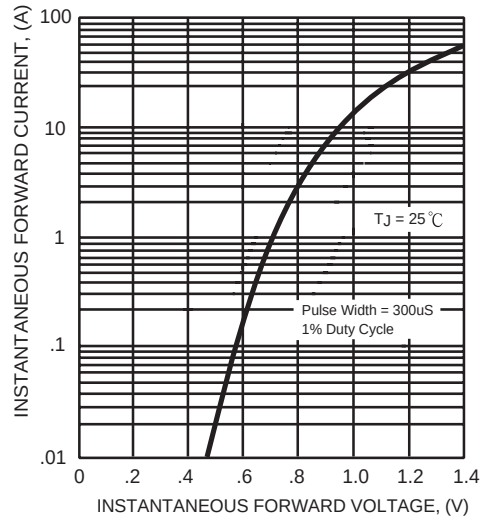


FIG. 5 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

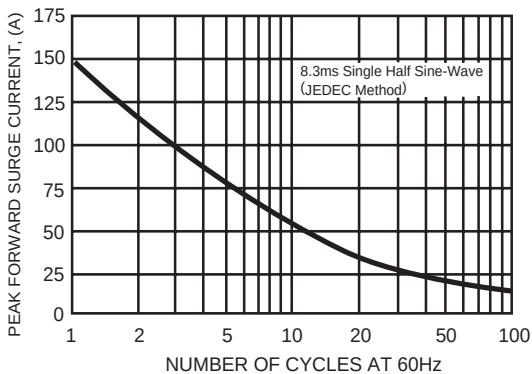
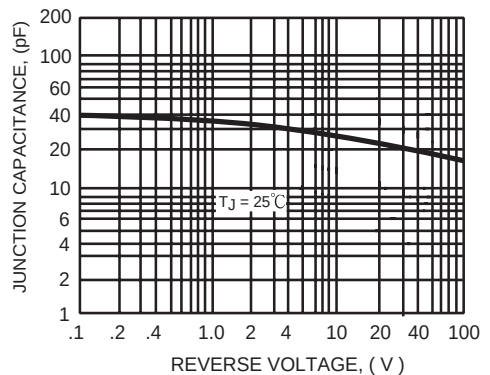


FIG. 6 - TYPICAL JUNCTION CAPACITANCE



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