

### SUPER FAST RECTIFIERS

VOLTAGE RANGE: 100 --- 600 V  
CURRENT: 5.0 A

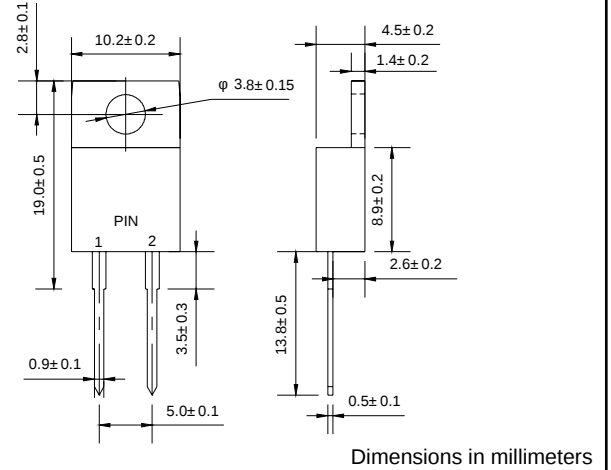
#### FEATURES

- ◇ Low cost
- ◇ Low leakage
- ◇ Low forward voltage drop
- ◇ High current capability
- ◇ Easily cleaned with alcohol, Isopropanol and similar solvents
- ◇ The plastic material carries U/L recognition 94V-0

#### MECHANICAL DATA

- ◇ Case: JEDEC TO-220AC, molded plastic
- ◇ Terminals: Solderable per MIL-STD-750, Method 2026
- ◇ Polarity: As marked
- ◇ Weight: 0.069 ounce, 1.96 grams
- ◇ Mounting position: Any

#### TO-220AC



#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

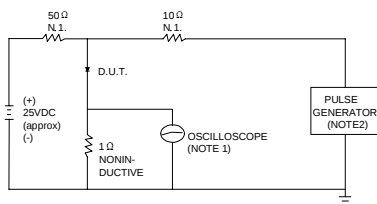
Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate by 20%.

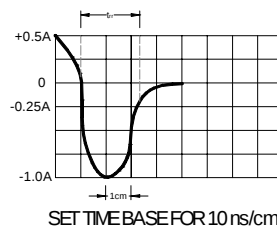
|                                                                                                                |                    | USF 510          | USF 520 | USF 530   | USF 540 | USF 550 | USF 560 | UNITS |
|----------------------------------------------------------------------------------------------------------------|--------------------|------------------|---------|-----------|---------|---------|---------|-------|
| Maximum recurrent peak reverse voltage                                                                         | V <sub>RRM</sub>   | 100              | 200     | 300       | 400     | 500     | 600     | V     |
| Maximum RMS voltage                                                                                            | V <sub>RMS</sub>   | 70               | 140     | 210       | 280     | 350     | 420     | V     |
| Maximum DC blocking voltage                                                                                    | V <sub>DC</sub>    | 100              | 200     | 300       | 400     | 500     | 600     | V     |
| Maximum average forward rectified current<br>@T <sub>C</sub> =100°C                                            | I <sub>F(AV)</sub> | 5.0              |         |           |         |         |         | A     |
| Peak forward surge current<br>8.3ms single half-sine-wave<br>superimposed on rated load @T <sub>J</sub> =125°C | I <sub>FSM</sub>   | 60               |         |           |         |         |         | A     |
| Maximum instantaneous forward voltage<br>@ 5.0A                                                                | V <sub>F</sub>     | 0.98             |         | 1.3       |         | 1.7     |         | V     |
| Maximum reverse current @T <sub>A</sub> =25°C<br>at rated DC blocking voltage @T <sub>A</sub> =150°C           | I <sub>R</sub>     | 5.0<br>250       |         | 10<br>500 |         |         |         | μ A   |
| Maximum reverse recovery time (Note1)                                                                          | t <sub>rr</sub>    | 25               |         |           |         |         |         | ns    |
| Operating junction temperature range                                                                           | T <sub>J</sub>     | - 55 ----- + 150 |         |           |         |         |         | °C    |
| Storage temperature range                                                                                      | T <sub>STG</sub>   | - 55 ----- + 150 |         |           |         |         |         | °C    |

NOTE: 1. Measured with  $I_F=0.5\text{A}$ ,  $I_R=1\text{A}$ ,  $t_{rr}=0.25\text{A}$ .

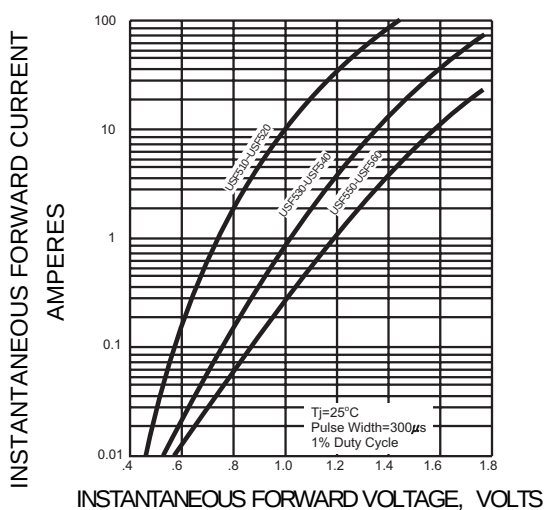
**FIG.1 – TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC**



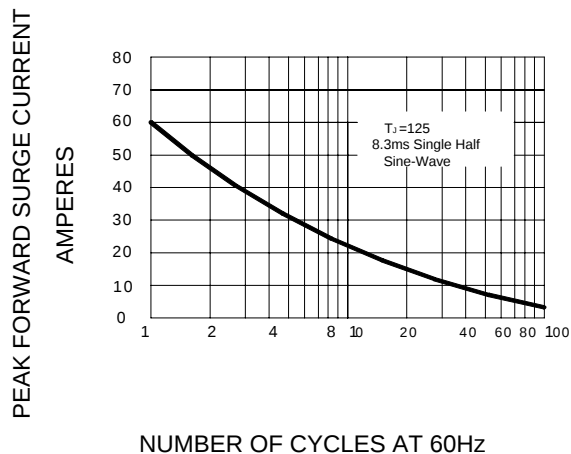
NOTES:1.RISE TIME = 7ns MAX.INPUT IMPEDANCE =1MΩ. 22pF.  
2.RISE TIME =10ns MAX.SOURCE IMPEDANCE=50 Ω.



**FIG.2 – TYPICAL FORWARD CHARACTERISTIC**



**FIG.3 – PEAK FORWARD SURGE CURRENT**



**FIG.4-FORWARD DERATING CURVE**

