



USF1010-USF1060

Super Fast Rectifiers



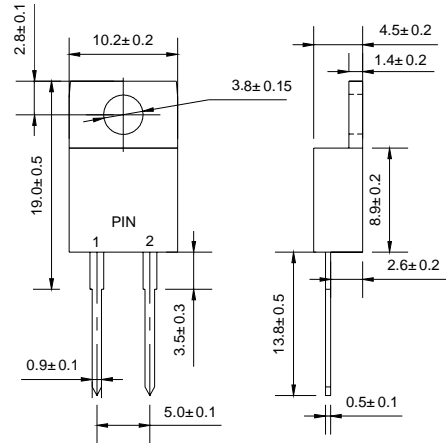
VOLTAGE RANGE: 100 --- 600 V
FORWARD CURRENT: 10 A
TO-220AC

Features

- ◇ Low cost
- ◇ Diffuse junction
- ◇ 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
- ◇ Polarity: As marked
- ◇ Weight: 0.064 ounces, 1.96 gram
- ◇ Mounting position: Any



Dimensions in 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 by 20%.

| Parameter | Symbol | USF 1010 | USF 1020 | USF 1030 | USF 1040 | USF 1050 | USF 1060 | UNITS |
|---|-----------------|------------------|----------|-----------|----------|----------|----------|--------------------|
| Maximum recurrent peak reverse voltage | V_{RRM} | 100 | 200 | 300 | 400 | 500 | 600 | V |
| Maximum RMS voltage | V_{RMS} | 70 | 140 | 210 | 280 | 350 | 420 | V |
| Maximum DC blocking voltage | V_{DC} | 100 | 200 | 300 | 400 | 500 | 600 | V |
| Maximum average forward rectified current @ $T_C=100^\circ\text{C}$ | $I_{F(AV)}$ | 10 | | | | | | A |
| Peak forward surge current 8.3ms single half-sine-wave superimposed on rated load @ $T_J=125^\circ\text{C}$ | I_{FSM} | 150 | | | | | | A |
| Maximum instantaneous forward voltage @ 10A | V_F | 0.98 | | 1.3 | | 1.7 | | V |
| Maximum reverse current @ $T_A=25^\circ\text{C}$ at rated DC blocking voltage @ $T_A=100^\circ\text{C}$ | I_R | 5 250 | | 10 400 | | | | μA |
| Maximum reverse recovery time (Note1) | t_{rr} | 25 | | | | | | ns |
| Typical junction capacitance (Note2) | C_J | 70 | | 50 | | | | pF |
| Typical thermal resistance (Note3) | $R_{\theta JA}$ | 3.0 | | | | | | $^\circ\text{C/W}$ |
| Operating junction temperature range | T_J | - 55 ----- + 150 | | | | | | $^\circ\text{C}$ |
| Storage temperature range | T_{STG} | - 55 ----- + 150 | | | | | | $^\circ\text{C}$ |

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

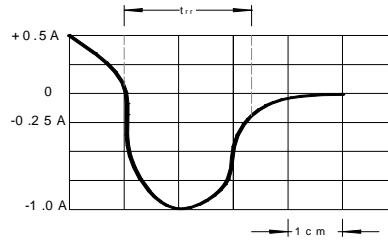
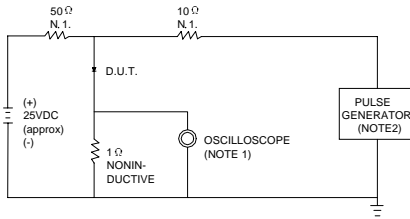
2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

3. Thermal resistance from junction to ambient.



Ratings AND Characteristic Curves

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 .

SET TIME BASE FOR 10 ns/cm

FIG.2 -- TYPICAL FORWARD CHARACTERISTIC

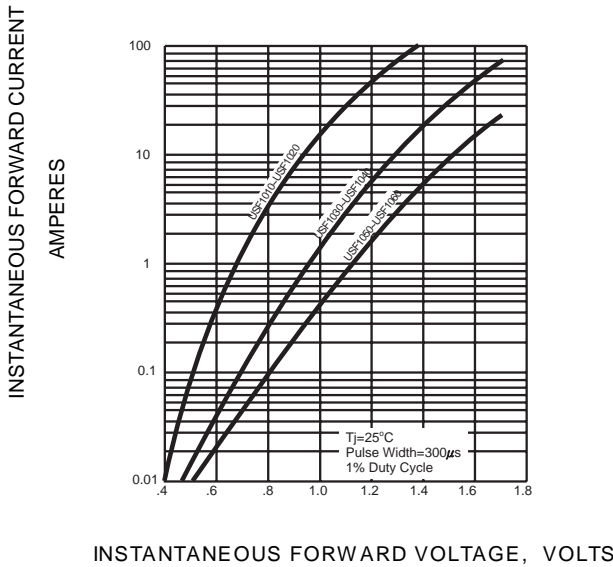


FIG.3 -- FORWARD DERATING CURVE

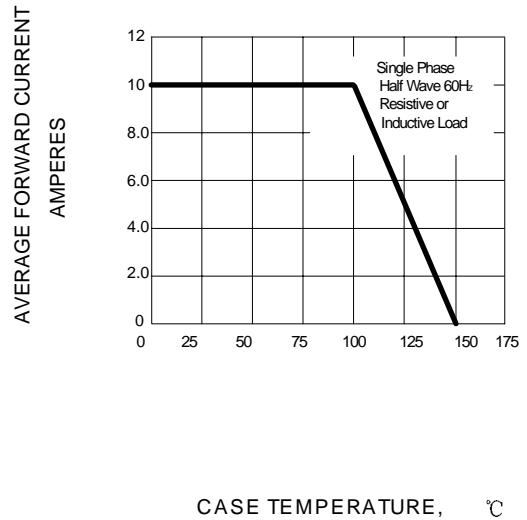


FIG.4 -- TYPICAL JUNCTION CAPACITANCE

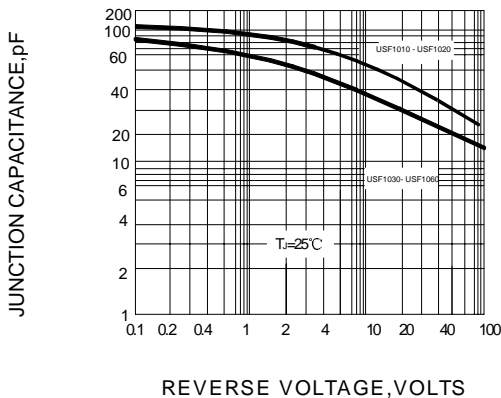
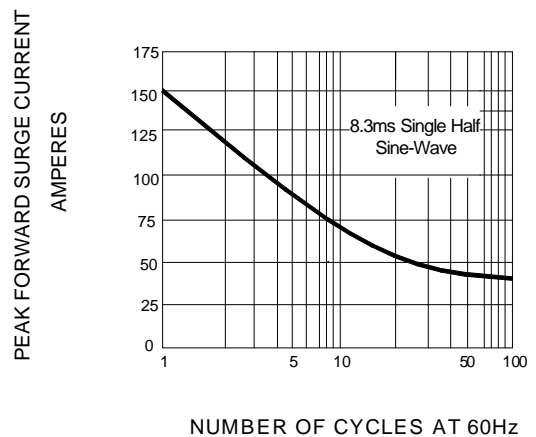


FIG.5 -- PEAK FORWARD SURGE CURRENT



| PACKAGE | PCS/TUBE | CARTON SPQ/PCS | CARTON SIZE/CM | CARTON GW/KG | CARTON NW/KG |
|---------|----------|-------------------|-------------------|-----------------|-----------------|
| TO-220 | 50 | 5000 | 57*22*18 | 13 | 9 |