



# USF1010-USF1060

Super Fast Rectifiers

**VOLTAGE RANGE: 100 --- 600 V**

**CURRENT: 10 A**

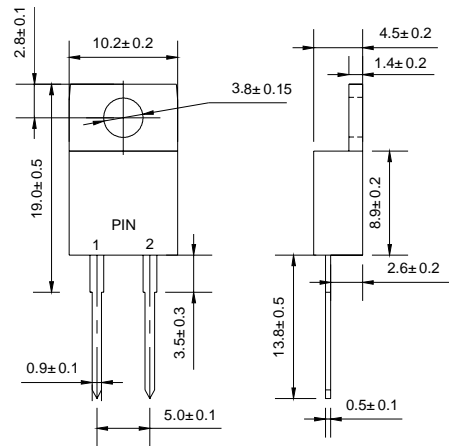
## Features

- ◇ 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

## TO-220AC



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%.

		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 @ $T_A=100^\circ\text{C}$	$I_R$	10 400						$\mu\text{A}$
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						$^\circ\text{C}/\text{W}$
Operating junction temperature range	$T_J$	- 55 ----- + 150						$^\circ\text{C}$
Storage temperature range	$T_{STG}$	- 55 ----- + 150						$^\circ\text{C}$

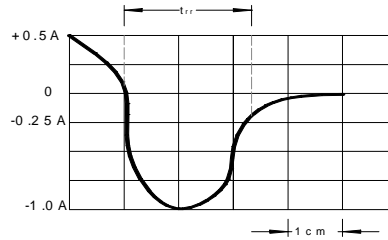
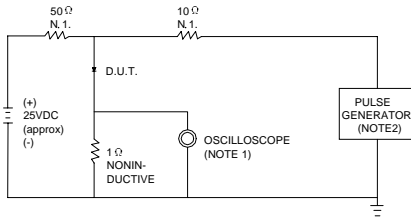
NOTE: 1. Measured with  $I_F=0.5\text{A}$ ,  $I_R=1\text{A}$ ,  $t_{rr}=0.25\text{A}$ .

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

3. Thermal resistance from junction to ambient.

### Ratings AND Characteristic Curves

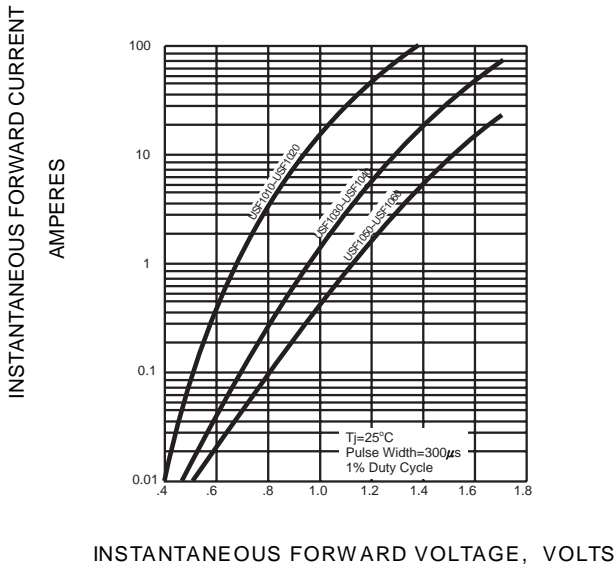
**FIG.1 -- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC**



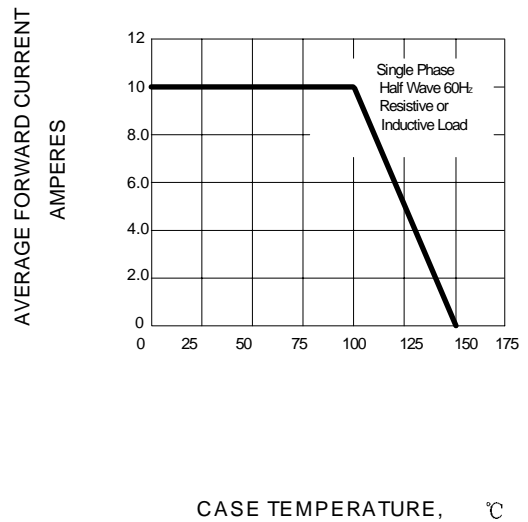
NOTES:1. RISE TIME = 7ns MAX.INPUT IMPEDANCE = 1MΩ .22pF.  
2. RISE TIME = 10ns MAX.SOURCE IMPEDANCE=50 Ω .

SET TIME BASE FOR 10 ns/cm

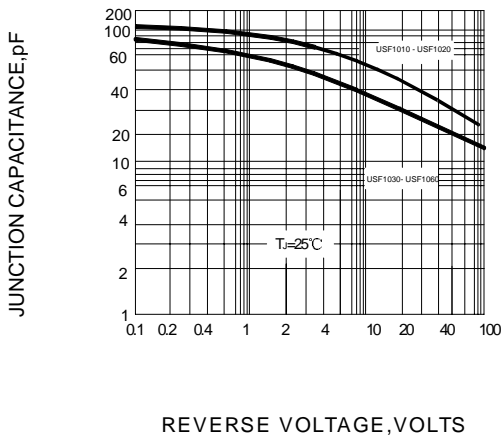
**FIG.2 -- TYPICAL FORWARD CHARACTERISTIC**



**FIG.3 -- FORWARD DERATING CURVE**



**FIG.4 -- TYPICAL JUNCTION CAPACITANCE**



**FIG.5 -- PEAK FORWARD SURGE CURRENT**

