

FR810-FR860

Fast Recovery Rectifiers

VOLTAGE RANGE: 10 --- 600 V

CURRENT: 8.0 A

TO-220AC

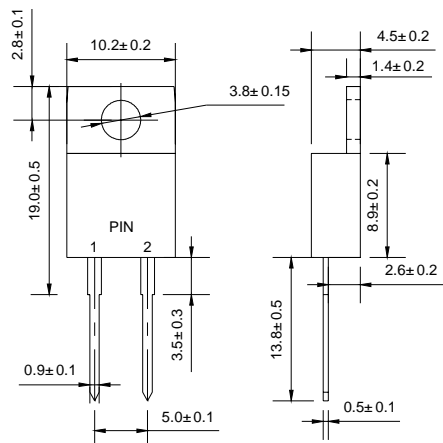


Features

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

Mechanical Data

- ◇ Case: JEDEC TO-220AC, molded plastic
- ◇ Weight: 0.064 ounces, 1.81 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%.

		FR 810	FR 820	FR 840	FR 860	UNITS
Maximum recurrent peak reverse voltage	V_{RRM}	100	200	400	600	V
Maximum RMS voltage	V_{RMS}	70	140	280	420	V
Maximum DC blocking voltage	V_{DC}	100	200	400	600	V
Maximum average forward rectified current @ $T_C=100^\circ\text{C}$	$I_{F(AV)}$	8.0				A
Peak forward surge current 8.3ms single half-sine-wave superimposed on rated load @ $T_J=125^\circ\text{C}$	I_{FSM}	200				A
Maximum instantaneous forward voltage @ 8.0 A	V_F	1.3				V
Maximum reverse current @ $T_A=25^\circ\text{C}$ at rated DC blocking voltage @ $T_A=100^\circ\text{C}$	I_R	10 150				μA
Maximum reverse recovery time (Note1)	t_{rr}	150			250	ns
Typical junction capacitance (Note2)	C_J	70				pF
Typical thermal resistance (Note3)	$R_{\theta JA}$	22				$^\circ\text{C/W}$
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 $I_F=0.5\text{A}$, $I_R=1\text{A}$, $t_{rr}=0.25\text{A}$.

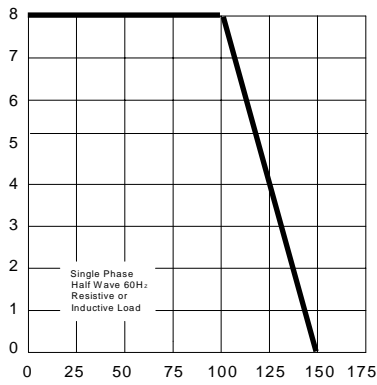
2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

3. Thermal resistance from junction to ambient.

Ratings AND Characteristic Curves

AVERAGE FORWARD RECTIFIED CURRENT
AMPERES

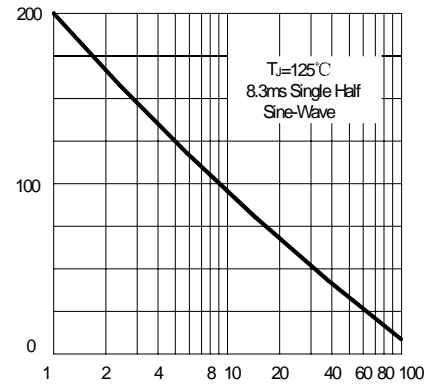
FIG.1 - FORWARD DERATING CURVE



CASE TEMPERATURE, °C

PEAK FORWARD SURGE CURRENT
AMPERES

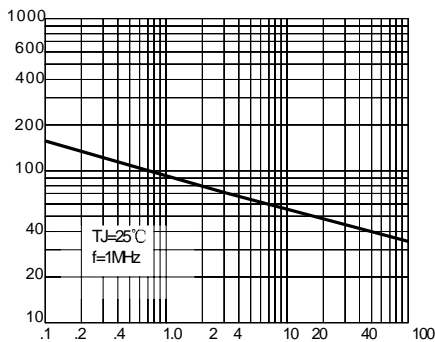
FIG.2-PEAK FORWARD SURGE CURRENT



NUMBER OF CYCLES AT 60 Hz

JUNCTION CAPACITANCE, pF

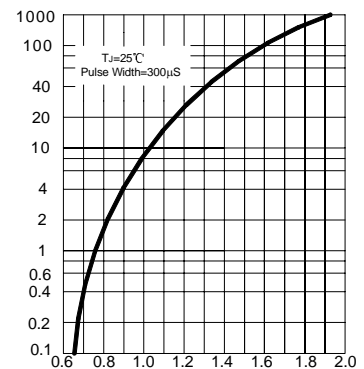
FIG.3-TYPICAL JUNCTION CAPACITANCE



REVERSE VOLTAGE, VOLTS

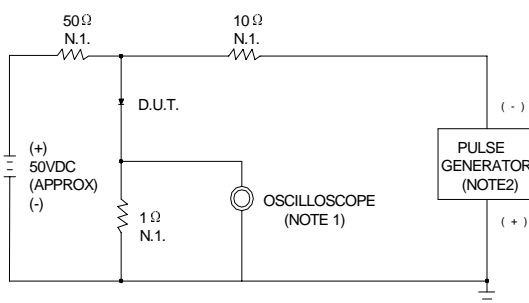
INSTANTANEOUS FORWARD CURRENT
AMPERES

FIG.4 -TYPICAL FORWARD CHARACTERISTIC



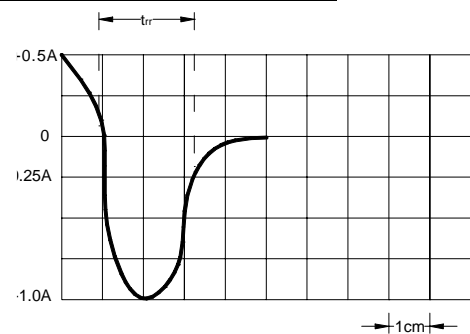
INSTANTANEOUS FORWARD VOLTAGE, VOLTS

FIG5 - REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. RISE TIME=7ns MAX. INPUT IMPEDANCE=1MΩ, 22pF

2. RISE TIME=10ns MAX. SOURCE IMPEDANCE=50Ω



SET TIME BASE FOR 50/100 ns/cm

1cm