TAIWAN SEMICONDUCTOR

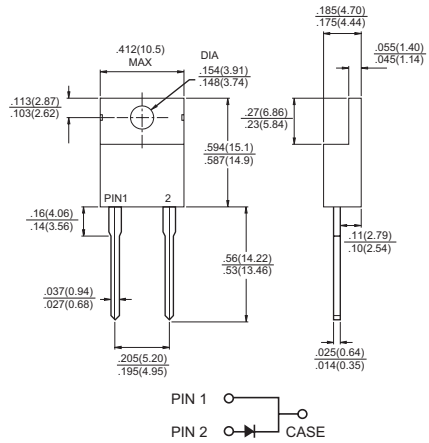
FRA1601G - FRA1607G

16.0 AMPS. Glass Passivated Fast Recovery Rectifiers

TO-220AC

RoHS COMPLIANCE





Dimensions in inches and (millimeters)

Features

- ✧ Glass passivated chip junction.
- ✧ High efficiency, Low VF
- ✧ High current capability
- ✧ High reliability
- ✧ High surge current capability
- ✧ Low power loss

Mechanical Data

- ✧ Cases: TO-220AC Molded plastic
- ✧ Epoxy: UL 94V-0 rate flame retardant
- ✧ Terminals: Pure tin plated, Lead free. Leads solderable per MIL-STD-202, Method 208 guaranteed
- ✧ Polarity: As marked
- ✧ High temperature soldering guaranteed: 260 °C /10 seconds, 0.16",(4.06mm) from case.
- ✧ Mounting position: Any
- ✧ Weight: 2.24 grams

Maximum Ratings and Electrical Characteristics

Rating 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%

Type Number	Symbol	FRA 1601G	FRA 1602G	FRA 1603G	FRA 1604G	FRA 1605G	FRA 1606G	FRA 1607G	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	V
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	16.0							A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	250							A
Maximum Instantaneous Forward Voltage @ 16.0A	V_F	1.3							V
Maximum DC Reverse Current @ T_C=25 °C at Rated DC Blocking Voltage @ T_C=125 °C	I_R	5.0 100							uA uA
Maximum Reverse Recovery Time (Note 1)	Trr	150				250	500		nS
Typical Junction Capacitance (Note 3)	Cj	70							pF
Typical Thermal resistance (Note 2)	$R_{\theta JC}$	2.5							°C/W
Operating and Storage Temperature Range	T_J ,T_{STG}	-65 to +150							°C

Notes: 1. Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A
2. Thermal Resistance from Junction to Case Per Leg Mounted on Heatsink Size 2" x 3" x 0.25" Al-Plate.
3. Measured at 1MHz and Applied Reverse Voltage of 4.0 Volts D.C.

RATINGS AND CHARACTERISTIC CURVES (FRA1601G THRU FRA1607G)

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

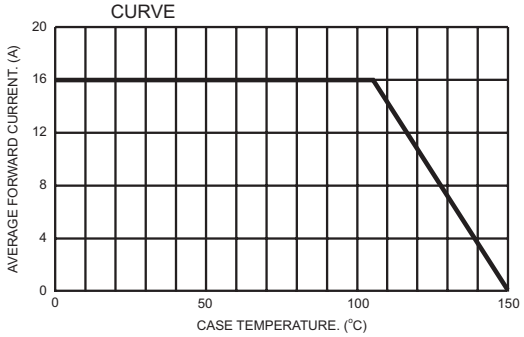


FIG.2- TYPICAL REVERSE CHARACTERISTICS PER LEG

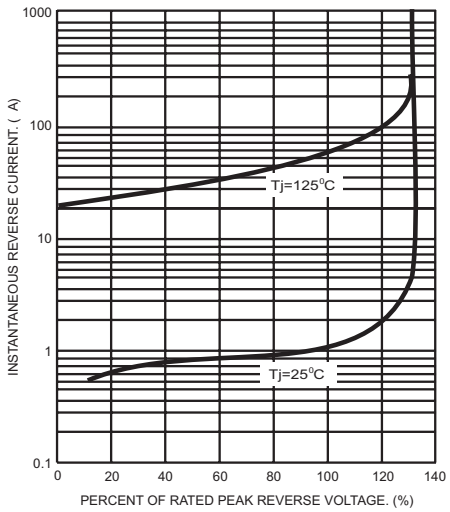


FIG.3- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

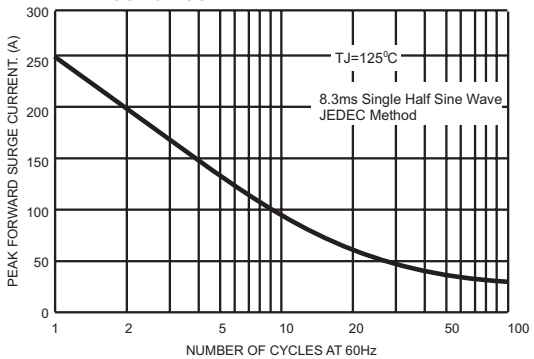


FIG.4- TYPICAL JUNCTION CAPACITANCE

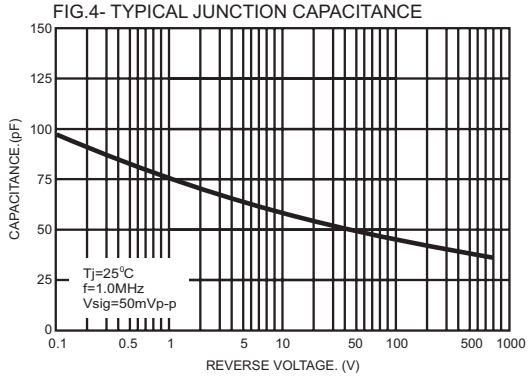


FIG.5- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

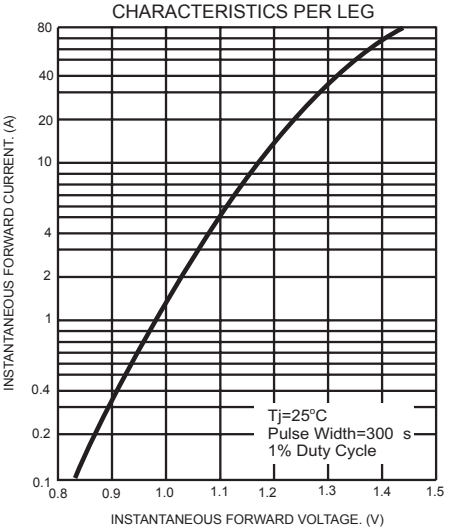
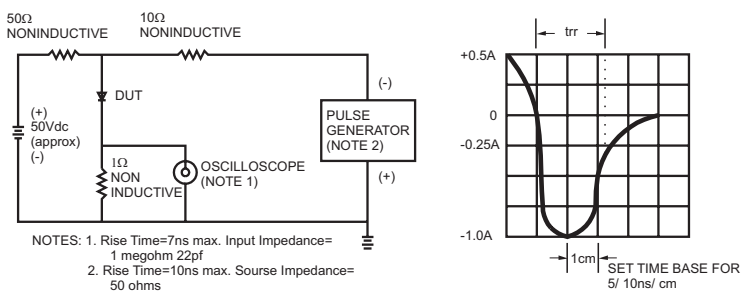


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time=7ns max. Input Impedance= 1 megohm 22pf
2. Rise Time=10ns max. Sourse Impedance= 50 ohms