TAIWAN SEMICONDUCTOR

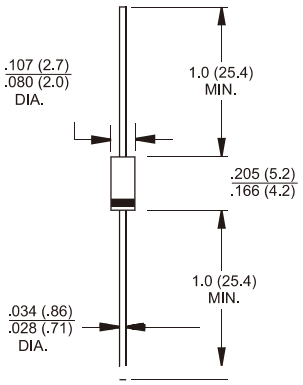
RoHS COMPLIANCE

FR151S - FR157S

1.5 AMPS. Fast Recovery Rectifiers

DO-41





Dimensions in inches and (millimeters)

Features

- ✧ High efficiency, Low VF
- ✧ High current capability
- ✧ High reliability
- ✧ High surge current capability
- ✧ Low power loss.
- ✧ Green compound with suffix “G” on packing code & prefix “G” on datecode.

Mechanical Data

- ✧ Cases: Molded plastic
- ✧ Epoxy: UL 94V-0 rate flame retardant
- ✧ Lead: Pure tin plated, Lead free., solderable per MIL-STD-202, Method 208 guaranteed
- ✧ Polarity: Color band denotes cathode end
- ✧ High temperature soldering guaranteed: 260 °C /10 seconds/.375”,(9.5mm) lead lengths at 5 lbs.,(2.3kg) tension
- ✧ Weight: 0.32 grams

Marking Diagram



FR15XS = Specific Device Code
G = Green Compound
Y = Year
WW = Work Week

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	FR 151S	FR 152S	FR 153S	FR 154S	FR 155S	FR 156S	FR 157S	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 .375”(9.5mm) Lead Length @T_A = 55 °C	$I_{F(AV)}$	1.5							A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	50							A
Maximum Instantaneous Forward Voltage @ 1.5A	V_F	1.2							V
Maximum DC Reverse Current at @ T_A=25 °C Rated DC Blocking Voltage (Note 1) @ T_A=125 °C	I_R	5.0 150							uA uA
Maximum Reverse Recovery Time (Note 4)	Trr	150				250	500		nS
Typical Junction Capacitance (Note 2)	Cj	30							pF
Typical thermal Resistance (Note 3)	$R_{\theta JA}$	60							°C/W
Operating Temperature Range T_J	T_J	-65 to +150							°C
Storage Temperature Range T_{STG}	T_{STG}	-65 to +150							°C

Notes: 1. Pulse Test with PW=300 usec,1% Duty Cycle
2. Measured at 1 MHz and Applied Reverse Voltage of 4.0 Volts D.C.
3. Mount on Cu-Pad Size 5mm x 5mm on P.C.B.
4. Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A

TAIWAN SEMICONDUCTOR

RATINGS AND CHARACTERISTIC CURVES (FR151S THRU FR157S)

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

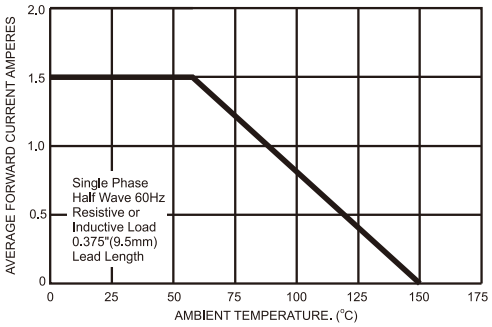


FIG.2- TYPICAL REVERSE CHARACTERISTICS PER LEG

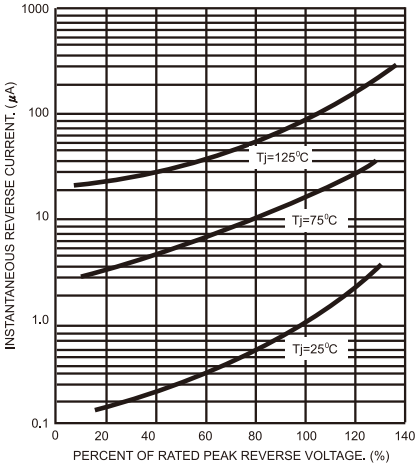


FIG.3- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

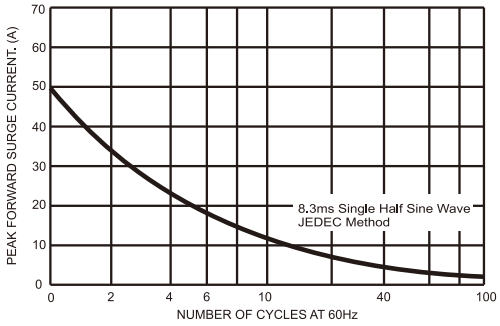


FIG.4- TYPICAL JUNCTION CAPACITANCE

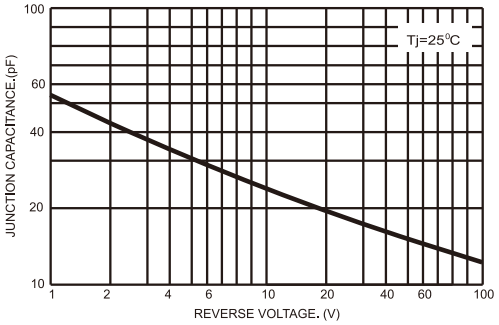


FIG.5- TYPICAL FORWARD CHARACTERISTICS

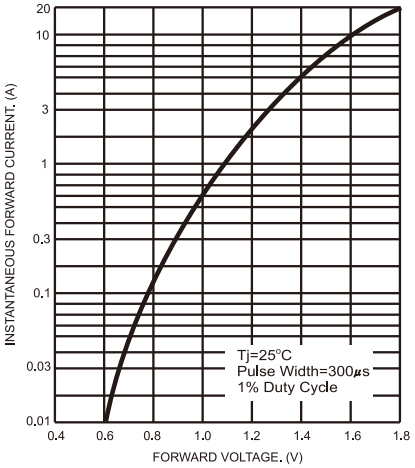
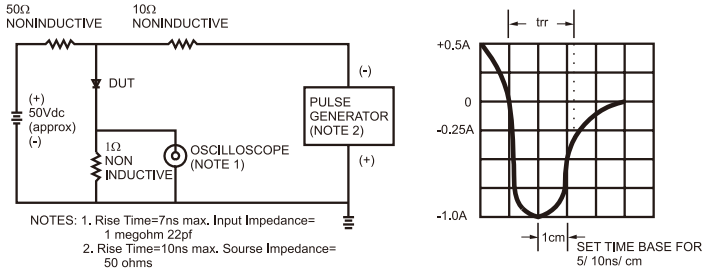


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



Version: D10