TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

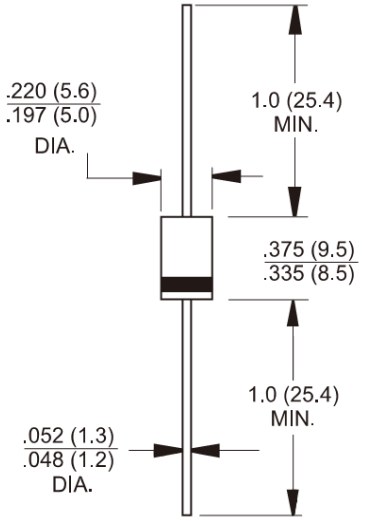
FR301 - FR307

3.0AMPS. Fast Recovery Rectifiers

DO-201AD

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



Dimensions in inches and (millimeters)

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℃/10s /.375", (9.5mm) lead lengths at 5 lbs, (2.3kg) tension
- ✧ Weight: 1.2 grams

Marking Diagram

FR30X	= Specific Device Code
G	= Green Compound
Y	= Year
WW	= Work Week

Maximum Ratings and Electrical Characteristics

Rating at 25 ℃ 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 301	FR 302	FR 303	FR 304	FR 305	FR 306	FR 307	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℃	$I_{F(AV)}$	3							A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	150							A
Maximum Instantaneous Forward Voltage (Note 1) @ 3 A	V_F	1.2							V
Maximum DC Reverse Current at @ T_A=25 ℃ Rated DC Blocking Voltage @ T_A=125 ℃	I_R	5 150							uA uA
Maximum Reverse Recovery Time (Note 2)	Trr	150				250	500		nS
Typical Junction Capacitance (Note 3)	Cj	60							pF
Typical Thermal Resistance (Note 4)	$R_{\theta JA}$	40							^{O}C/W
Operating Temperature Range	T_J	- 65 to + 150							^{O}C
Storage Temperature Range	T_{STG}	- 65 to + 150							^{O}C

Note 1: Pulse Test with PW=300 usec, 1% Duty Cycle

Note 2: Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A

Note 3: Measured at 1 MHz and Applied Reverse Voltage of 4.0V D.C.

Note 4: Mount on Cu-Pad Size 16mm x 16mm on PCB

RATINGS AND CHARACTERISTIC CURVES (FR301 THRU FR307)

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

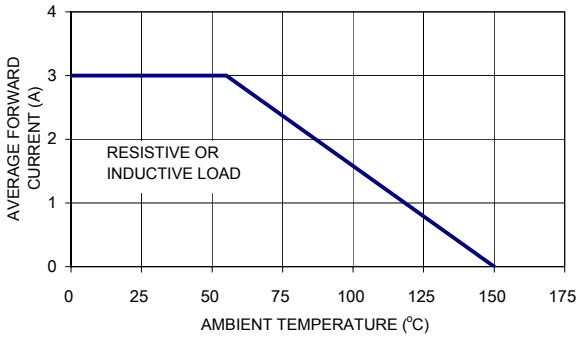


FIG. 2- TYPICAL REVERSE CHARACTERISTICS PER LEG

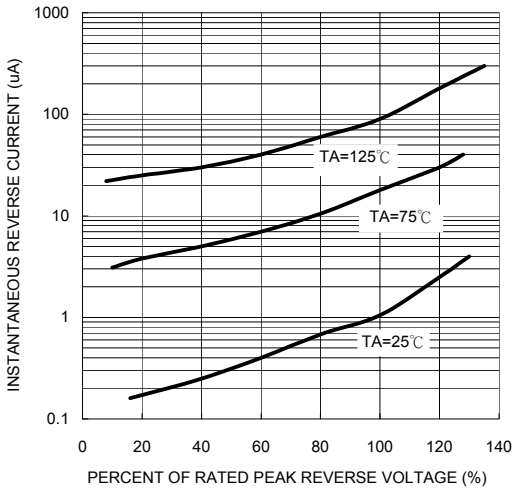


FIG. 3- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

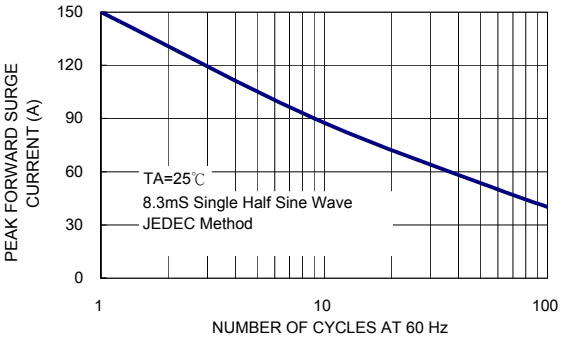


FIG. 5- TYPICAL FORWARD CHARACTERISRICS

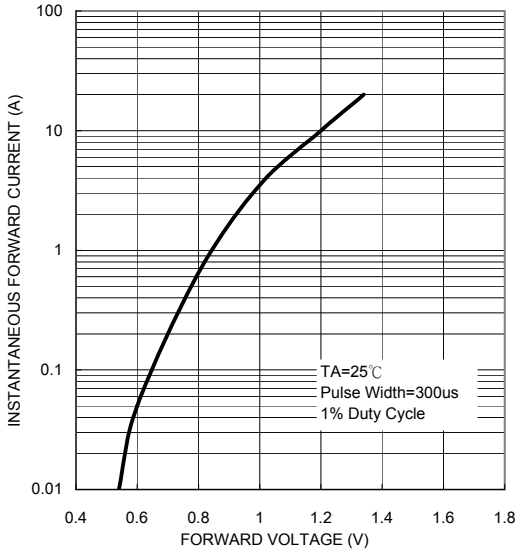


FIG. 4- TYPICAL JUNCTION CAPACITANCE

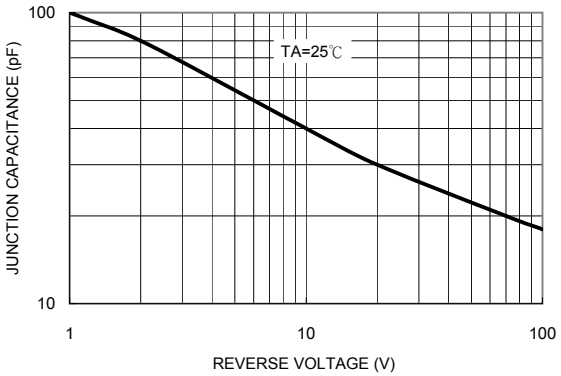


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM