TAIWAN SEMICONDUCTOR

The Smartest Choice

SFAF2001G - SFAF2008G

20.0AMPS. Isolated Glass Passivated Super Fast Rectifiers

ITO-220AC

AEC-Q101 Qualified

Pb-Free

RoHS COMPLIANT

Features

- ✧ UL Recognized File # E-326243
- ✧ High efficiency, low VF
- ✧ High current capavility
- ✧ High reliability
- ✧ High surge current capability
- ✧ Low power loss.
- ✧ For use in low voltage, high frequency inverter, free wheeling, and polarity protection application
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode.

Mechanical Data

- ✧ Cases: ITO-220AC molded plastic
- ✧ Epoxy: UL 94V-0 rate flame retardant
- ✧ Terminals: Pure tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- ✧ Polarity: As marked
- ✧ High temperature soldering guaranteed: 260°C/10 seconds 16".,(4.06mm) from case.
- ✧ Weight: 1.70 grams

Ordering Information(example)

Part No.	Package	Packing	Packing code	Packing code (Green)
SFAF2001G	ITO-220AC	50 / TUBE	D0	D0G

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	SFAF 2001G	SFAF 2002G	SFAF 2003G	SFAF 2004G	SFAF 2005G	SFAF 2006G	SFAF 2007G	SFAF 2008G	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	V
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	V
Maximum Average Forward Rectified Current	$I_{F(AV)}$	20								A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	200								A
Maximum Instantaneous Forward Voltage (Note 1) @ 20 A	V_F	0.975				1.3		1.7		V
Maximum DC Reverse Current @ T_A=25 ℃	I_R	10								uA
at Rated DC Blocking Voltage @ T_A=100 ℃		400								uA
Maximum Reverse Recovery Time (Note 2)	Trr	35								nS
Typical Junction Capacitance (Note 3)	Cj	170				150				pF
Typical Thermal Resistance	$R_{\theta JC}$	3								°C/W
Operating Temperature Range	T_J	- 65 to + 150								°C
Storage Temperature Range	T_{STG}	- 65 to + 150								°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.

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RATINGS AND CHARACTERISTIC CURVES (SFAF2001G THRU SFAF2008G)

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

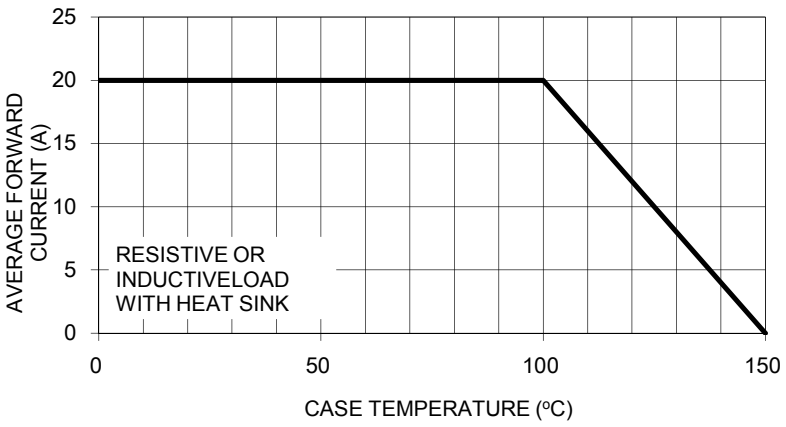


FIG. 2- TYPICAL REVERSE CHARACTERISTICS

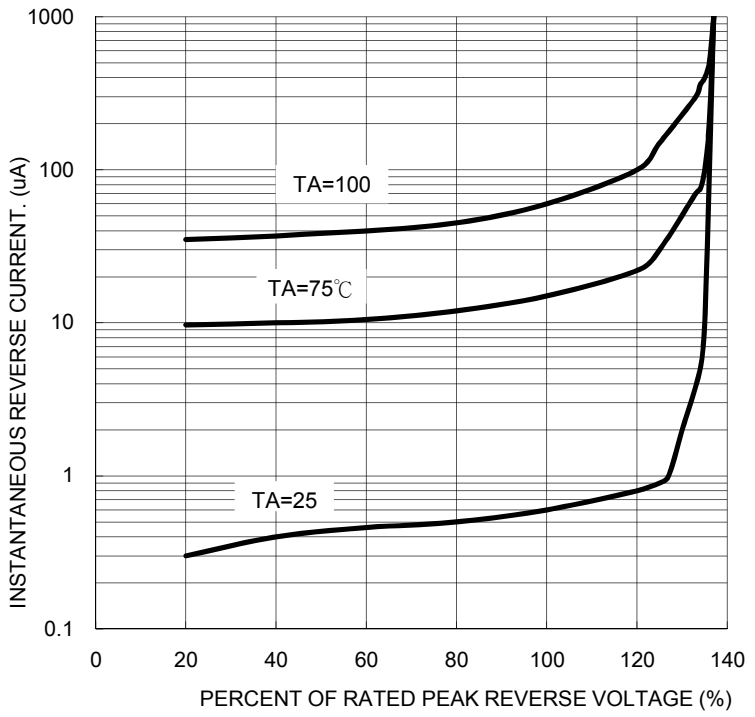


FIG. 3- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

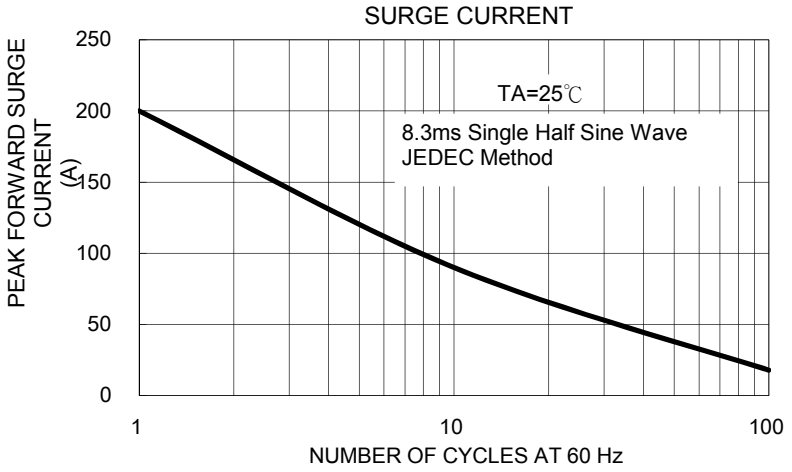


FIG. 4- TYPICAL JUNCTION CAPACITANCE

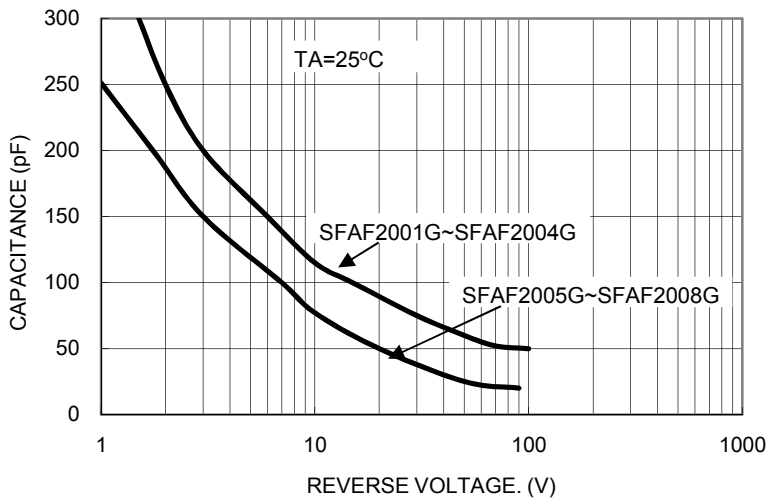


FIG. 5- TYPICAL FORWARD CHARACTERISTICS

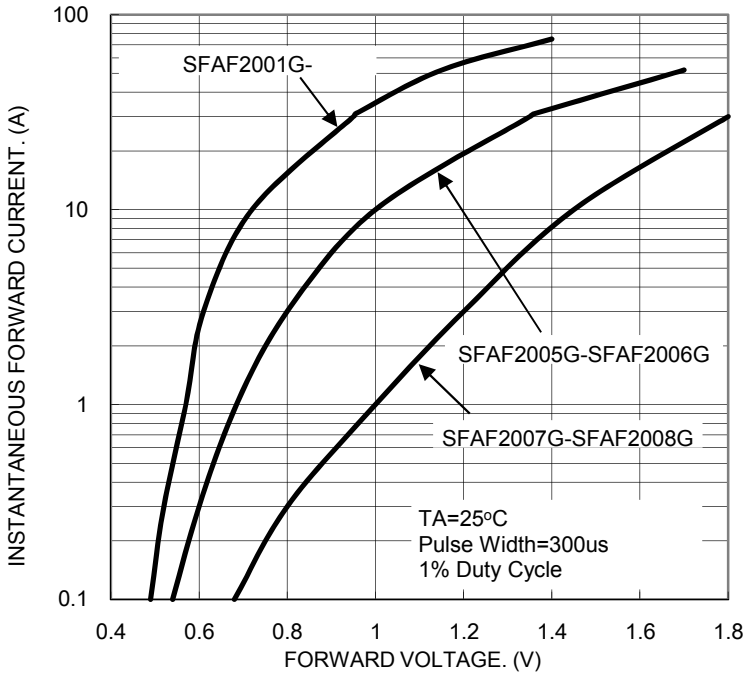
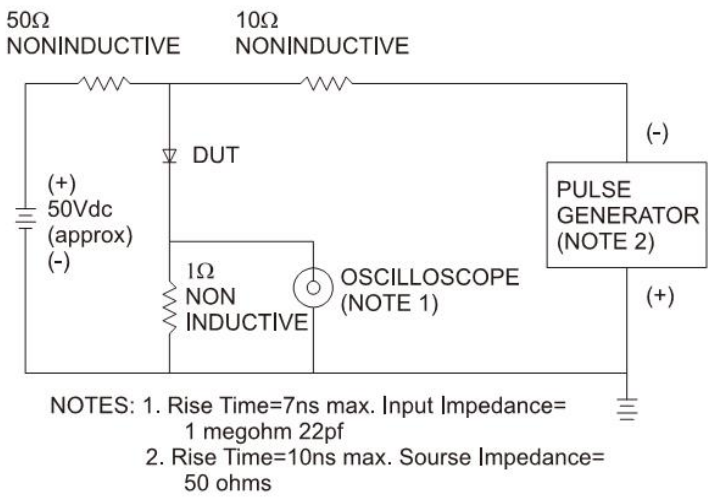
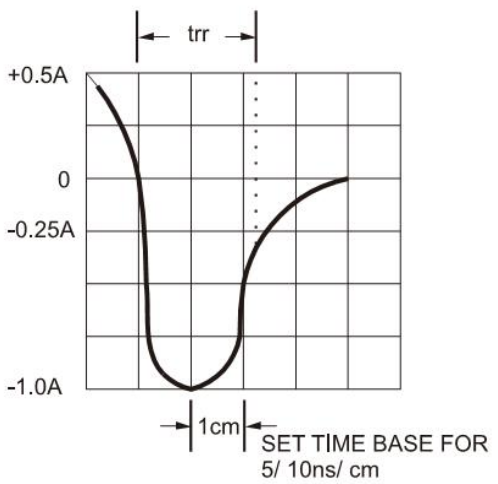


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



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



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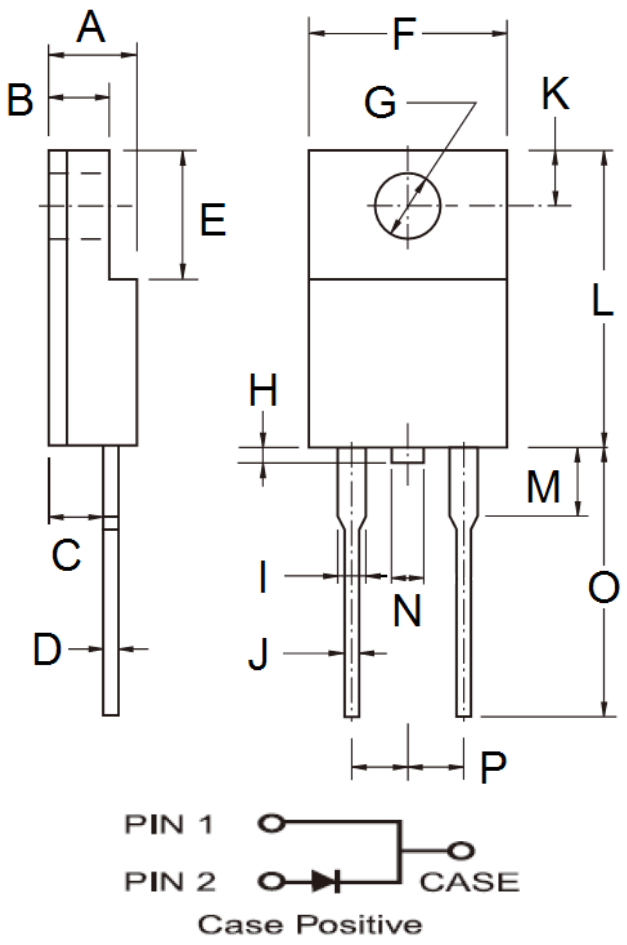
Ordering information

Part No.	Package	BULK Packing	Packing code	Packing code (Green)
SFAF200xG	ITO-220AC	50 / TUBE	C0	C0G
	ITO-220AC	50 / TUBE	D0	D0G

Note: "x" is Device Code from "1" thru "8".

Dimensions



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	4.30	4.70	0.169	0.185
B	2.50	3.10	0.098	0.122
C	2.30	2.90	0.091	0.114
D	0.46	0.76	0.018	0.030
E	6.30	6.90	0.248	0.272
F	9.60	10.30	0.378	0.406
G	3.00	3.40	0.118	0.134
H	-	1.60	-	0.063
I	0.95	1.45	0.037	0.057
J	0.50	0.90	0.020	0.035
K	2.40	3.20	0.094	0.126
L	14.80	15.50	0.583	0.610
M	-	4.10	-	0.161
N	-	1.80	-	0.071
O	12.60	13.80	0.496	0.543
P	4.95	5.20	0.195	0.205

Marking Diagram

P/N = Specific Device Code
G = Green Compound
YWW = Date Code