8A, 50V - 600V Super Fast Rectifier

FEATURES

- AEC-Q101 qualified available
- High efficiency, low V_F
- High current capability
- High reliability
- High surge current capability
- Low power loss
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

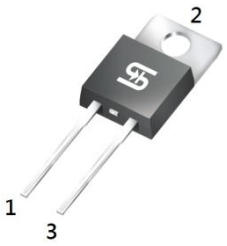
- DC to DC converter
- Switching mode converters and inverters
- Freewheeling application

MECHANICAL DATA

- Case: TO-220AC
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.80g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	8	A
V_{RRM}	50 - 600	V
I_{FSM}	125	A
$T_{J\,MAX}$	150	°C
Package	TO-220AC	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE



TO-220AC

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	SFA 801G	SFA 802G	SFA 803G	SFA 804G	SFA 805G	SFA 806G	SFA 807G	SFA 808G	UNIT
Marking code on the device		SFA 801G	SFA 802G	SFA 803G	SFA 804G	SFA 805G	SFA 806G	SFA 807G	SFA 808G	
Repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	105	140	210	280	350	420	V
Forward current	I_F	8								A
Surge peak forward current 8.3ms single half sine wave superimposed on rated load	I_{FSM}	125								A
Junction temperature	T_J	-55 to +150								°C
Storage temperature	T_{STG}	-55 to +150								°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case resistance	$R_{\Theta JC}$	4	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	SFA801G SFA802G SFA803G SFA804G	I_F = 8A, T_J = 25°C	V_F	-	0.975	V
	SFA805G SFA806G			-	1.300	V
	SFA807G SFA808G			-	1.700	V
Reverse current @ rated V_R[2]		T_J = 25°C	I_R	-	10	μA
		T_J = 125°C		-	400	μA
Junction capacitance	SFA801G SFA802G SFA803G SFA804G	1MHz, V_R = 4.0V	C_J	-	100	pF
	SFA805G SFA806G SFA807G SFA808G			-	60	pF
Reverse recovery time		I_F = 0.5A, I_R = 1.0A I_{rr} = 0.25A	t_{rr}	-	35	ns

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
SFA8xG	TO-220AC	50 / Tube
SFA8xGH	TO-220AC	50 / Tube

Notes:

1. “x” defines voltage from 50V(SFA801G) to 600V(SFA808G)
2. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

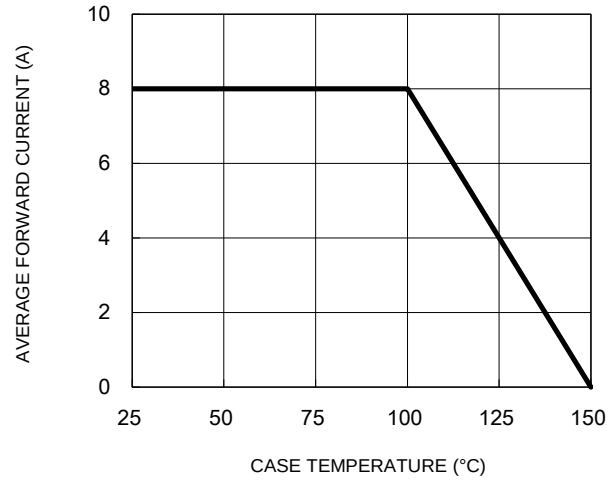


Fig.2 Typical Junction Capacitance

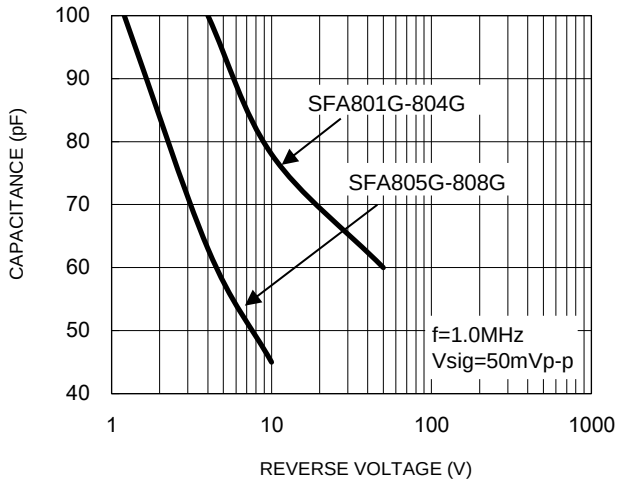


Fig.3 Typical Reverse Characteristics

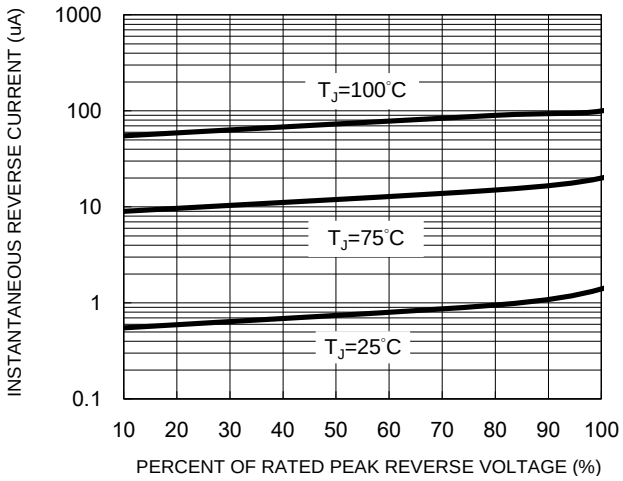


Fig.4 Typical Forward Characteristics

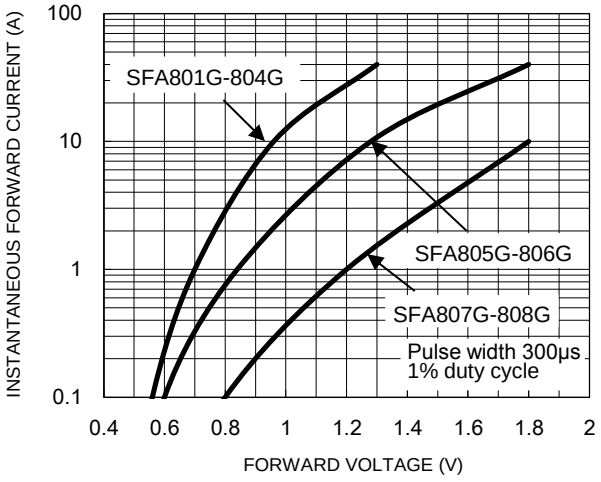
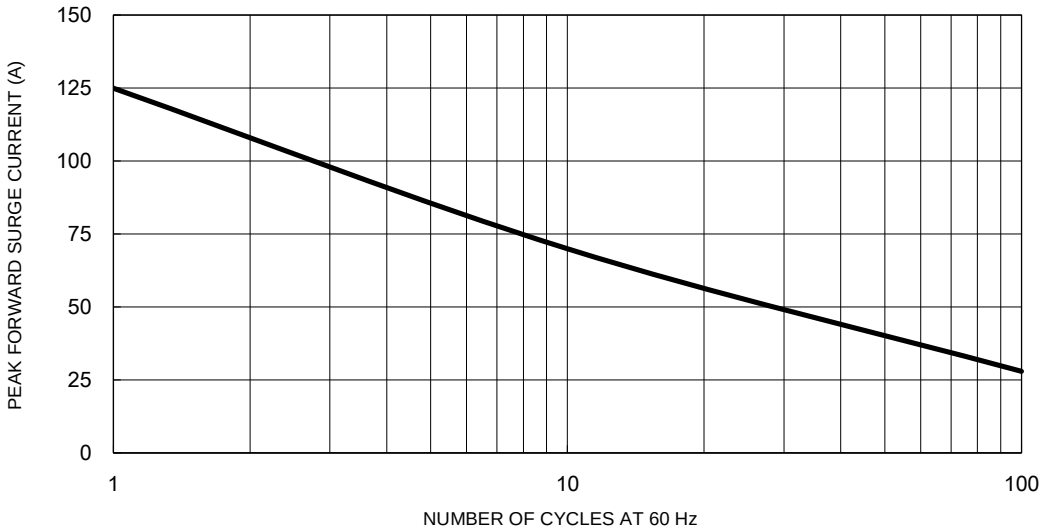


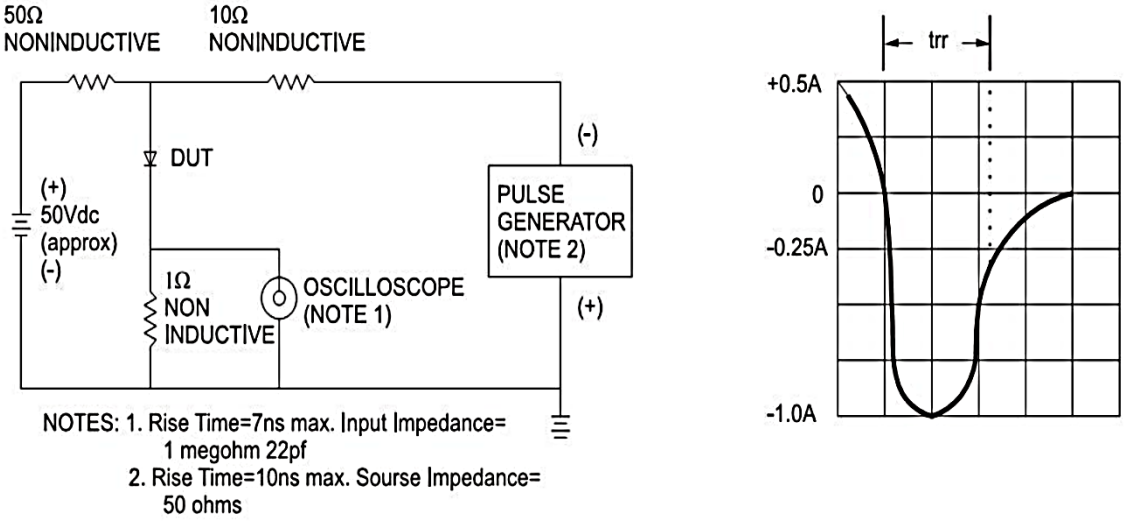
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

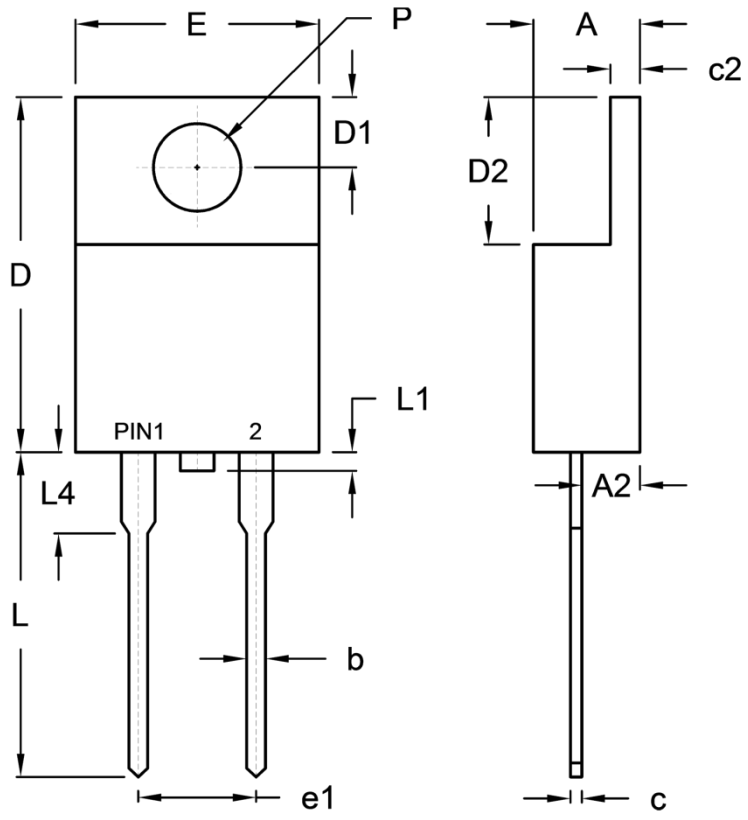
(T_A = 25°C unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS

TO-220AC



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.42	4.76	0.174	0.187
A2	2.20	2.80	0.087	0.110
b	0.68	0.94	0.027	0.037
c	0.35	0.64	0.014	0.025
c2	1.14	1.40	0.045	0.055
D	14.60	16.00	0.575	0.630
D1	2.62	3.44	0.103	0.135
D2	5.84	6.86	0.230	0.270
E	-	10.50	-	0.413
e1	4.95	5.20	0.195	0.205
L	13.19	14.79	0.519	0.582
L1	0.00	1.60	0.000	0.063
L4	2.80	4.20	0.110	0.165
P	3.54	4.00	0.139	0.157

MARKING DIAGRAM

P/N = Marking Code
G = Green Compound
YWW = Date Code
F = Factory Code

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