

10A, 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
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

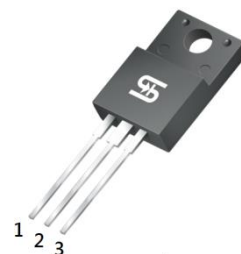
APPLICATIONS

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

MECHANICAL DATA

- Case: ITO-220AB
- 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: 1.70g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	10	A
V_{RRM}	50 - 600	V
I_{FSM}	125	A
T_{JMAX}	150	°C
Package	ITO-220AB	
Configuration	Dual dies	



ITO-220AB



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	SFF	SFF	SFF	SFF	SFF	SFF	SFF	SFF	UNIT
		1001G	1002G	1003G	1004G	1005G	1006G	1007G	1008G	
Marking code on the device		SFF 1001G	SFF 1002G	SFF 1003G	SFF 1004G	SFF 1005G	SFF 1006G	SFF 1007G	SFF 1008G	
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	10								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 thermal resistance	$R_{\theta JC}$	2	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	SFF1001G	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	V_F	-	0.975	V
	SFF1002G					
	SFF1003G					
	SFF1004G			-	1.300	V
	SFF1005G					
	SFF1006G					
SFF1007G	-	1.700	V			
SFF1008G						
Reverse current @ rated V_R per diode ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	10	μA
		$T_J = 125^\circ\text{C}$		-	400	μA
Junction capacitance per diode	SFF1001G	1MHz, $V_R = 4.0\text{V}$	C_J	70	-	pF
	SFF1002G					
	SFF1003G					
	SFF1004G			50	-	pF
	SFF1005G					
	SFF1006G					
SFF1007G	50	-	pF			
SFF1008G						
Reverse recovery time		$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	t_{rr}	-	35	ns

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾⁽²⁾	PACKAGE	PACKING
SFF10xG	ITO-220AB	50 / Tube
SFF10xGH	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 50V(SFF1001G) to 600V(SFF1008G)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

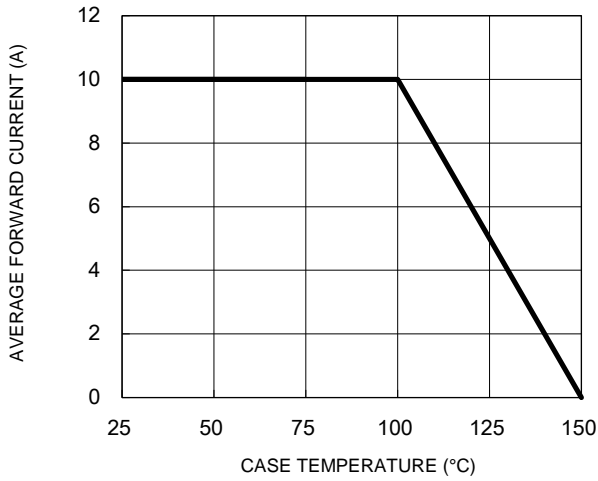


Fig.2 Typical Junction Capacitance

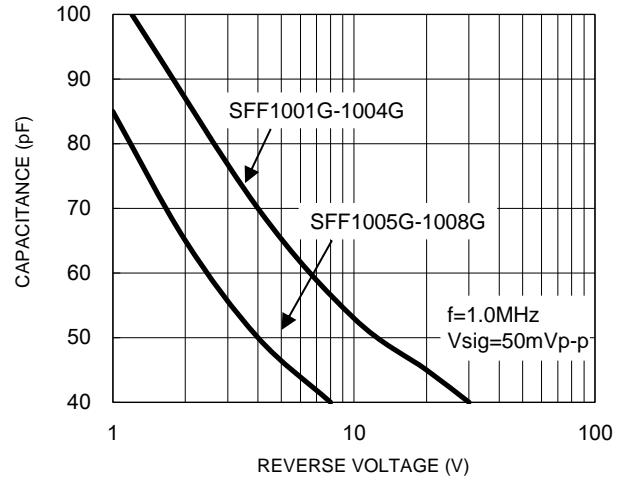


Fig.3 Typical Reverse Characteristics

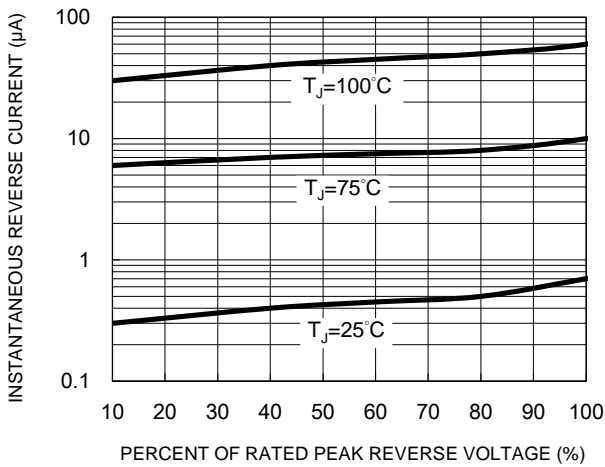


Fig.4 Typical Forward Characteristics

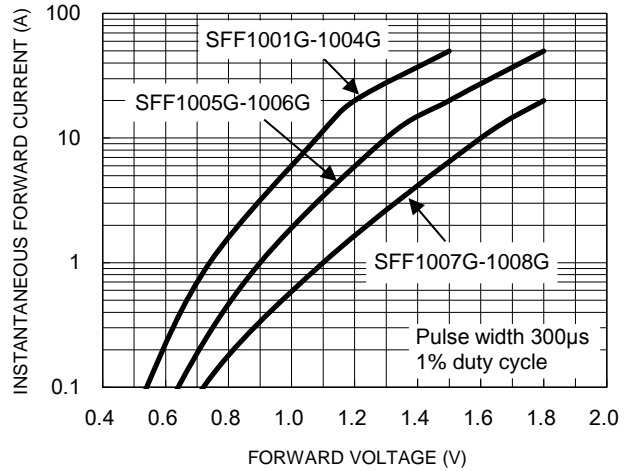
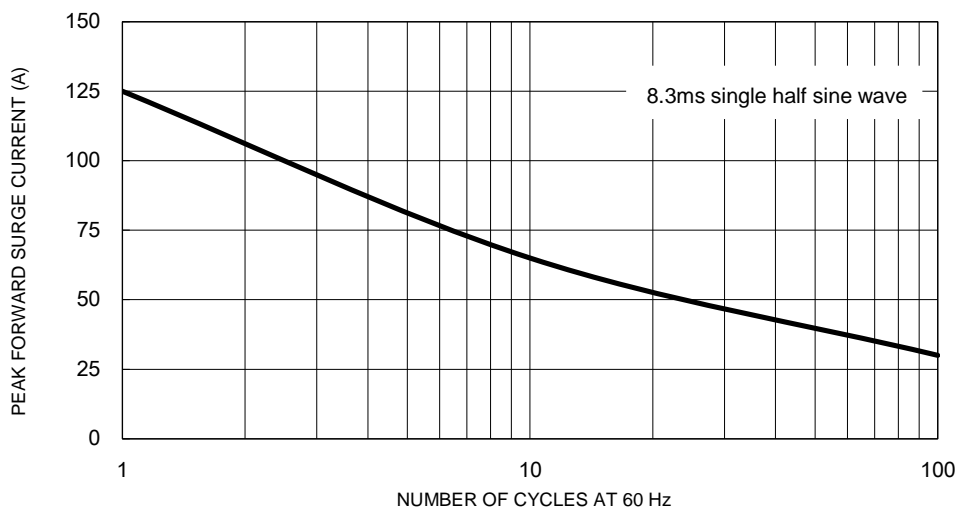


Fig.5 Maximum Non-Repetitive Forward Surge Current



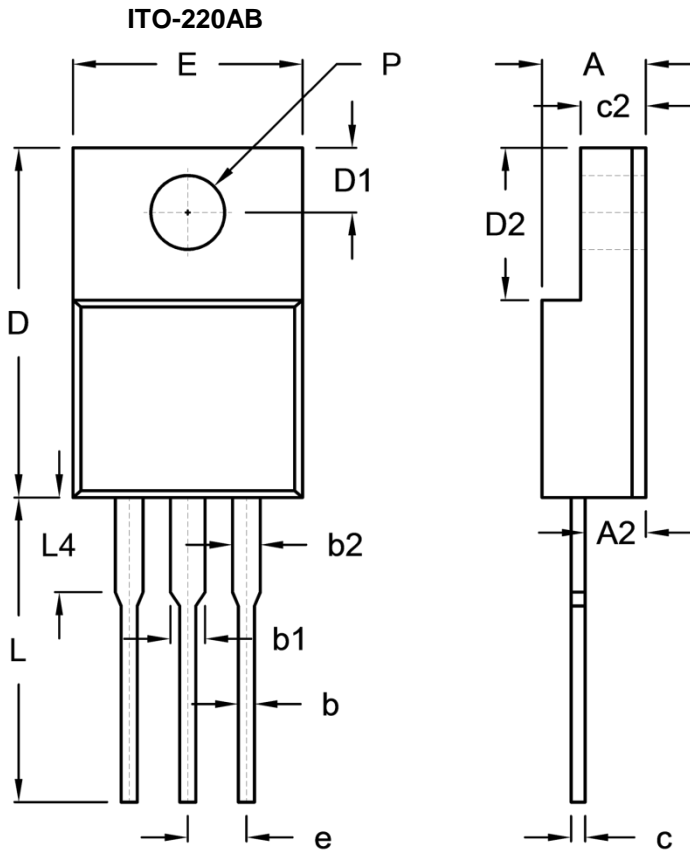
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A2	2.30	2.96	0.091	0.117
b	0.50	0.90	0.020	0.035
b1	-	1.80	-	0.071
b2	0.95	1.45	0.037	0.057
c	0.46	0.76	0.018	0.030
c2	2.50	3.16	0.098	0.124
D	14.80	15.50	0.583	0.610
D1	2.40	3.20	0.094	0.126
D2	6.30	6.90	0.248	0.272
E	9.60	10.30	0.378	0.406
e	2.41	2.67	0.095	0.105
L	12.60	13.80	0.496	0.543
L4	-	4.10	-	0.161
P	3.00	3.40	0.118	0.134

MARKING DIAGRAM



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

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.