10A, 50V - 600V Super Fast Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Low forward voltage drop
- Ideal for automated placement
- High current capability
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	10	A
V_{RRM}	50 - 600	V
I_{FSM}	125	A
$T_{J\ MAX}$	150	°C
Package	TO-263AB (D^2PAK)	
Configuration	Dual dies	

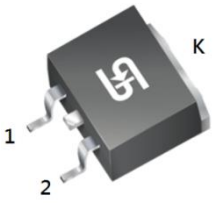
Pb-Free RoHS COMPLIANT HALOGEN FREE

APPLICATIONS

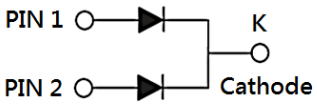
- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- Freewheeling application

MECHANICAL DATA

- Case: TO-263AB (D^2PAK)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.37g (approximately)



TO-263AB (D^2PAK)



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

PARAMETER	SYMBOL	SFS 1001 GH	SFS 1002 GH	SFS 1003 GH	SFS 1004 GH	SFS 1005 GH	SFS 1006 GH	SFS 1007 GH	SFS 1008 GH	UNIT
Marking code on the device		SFS 1001G	SFS 1002G	SFS 1003G	SFS 1004G	SFS 1005G	SFS 1006G	SFS 1007G	SFS 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°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode[1]	SFS1001GH SFS1002GH SFS1003GH SFS1004GH	I_F = 5A, T_J = 25°C	V_F	-	0.975	V
	SFS1005GH SFS1006GH			-	1.300	V
	SFS1007GH SFS1008GH			-	1.700	V
Reverse current @ rated V_R per diode[2]		T_J = 25°C	I_R	-	1	μA
		T_J = 125°C		-	200	μA
Junction capacitance	SFS1001GH SFS1002GH SFS1003GH SFS1004GH	1MHz, V_R = 4.0V	C_J	70	-	pF
	SFS1005GH SFS1006GH SFS1007GH SFS1008GH			50	-	pF
Reverse recovery time per diode		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]	PACKAGE	PACKING
SFS10xGH	TO-263AB (D^2PAK)	800 / Tape & Reel

Notes:

1. "x" defines voltage from 50V(SFS1001GH) to 600V(SFS1008GH)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

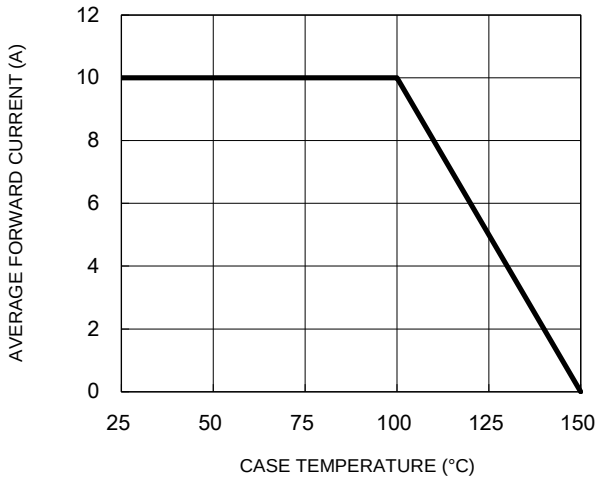


Fig.2 Typical Junction Capacitance

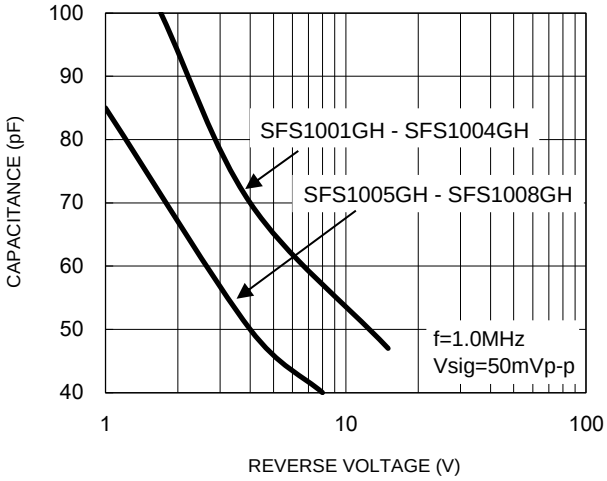


Fig.3 Typical Reverse Characteristics

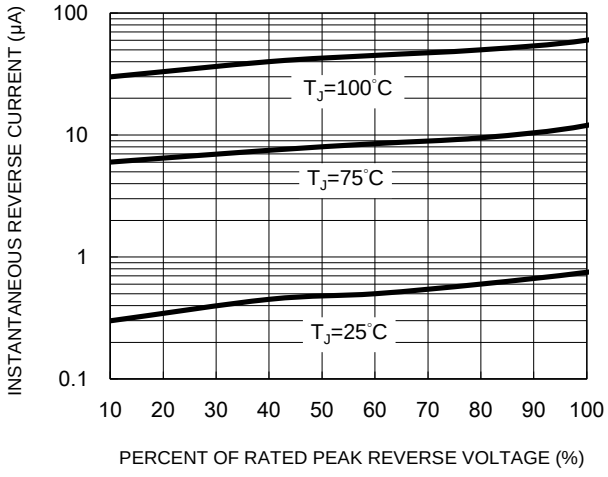


Fig.4 Typical Forward Characteristics

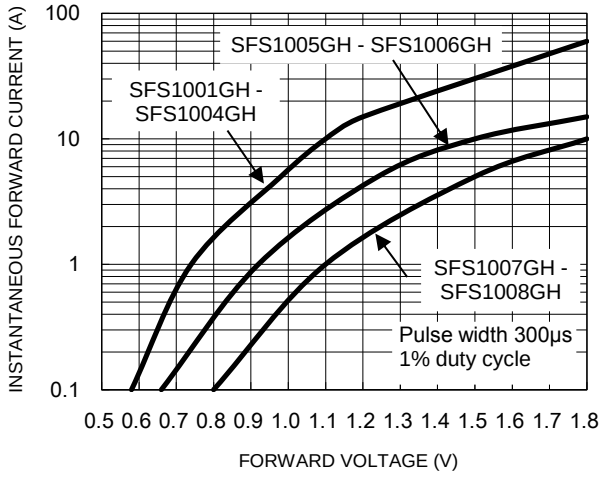
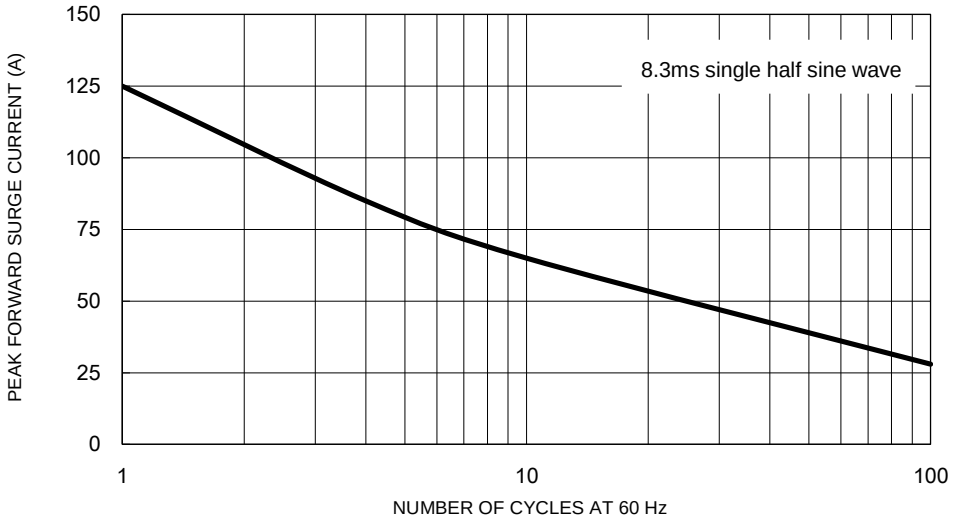


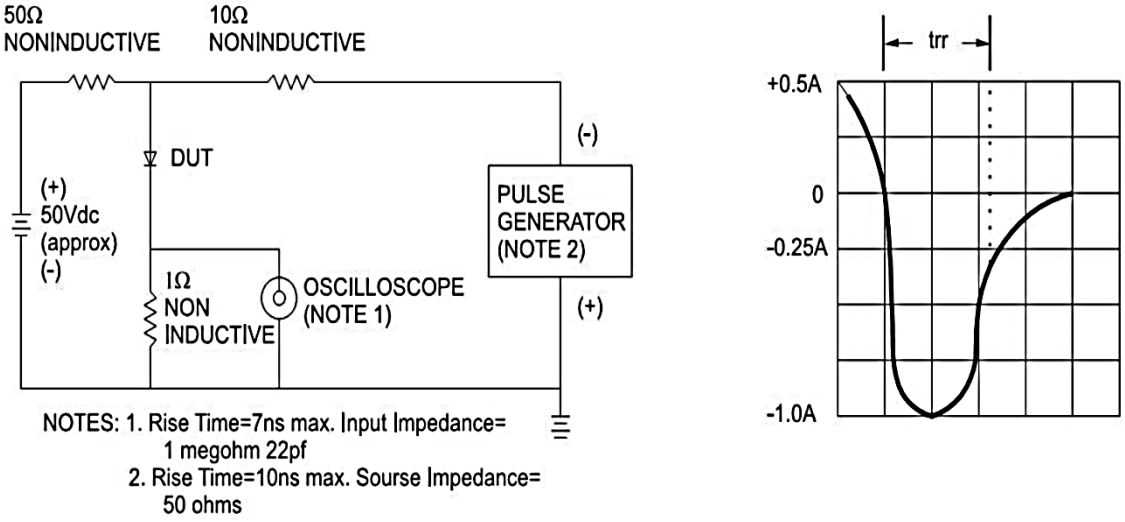
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

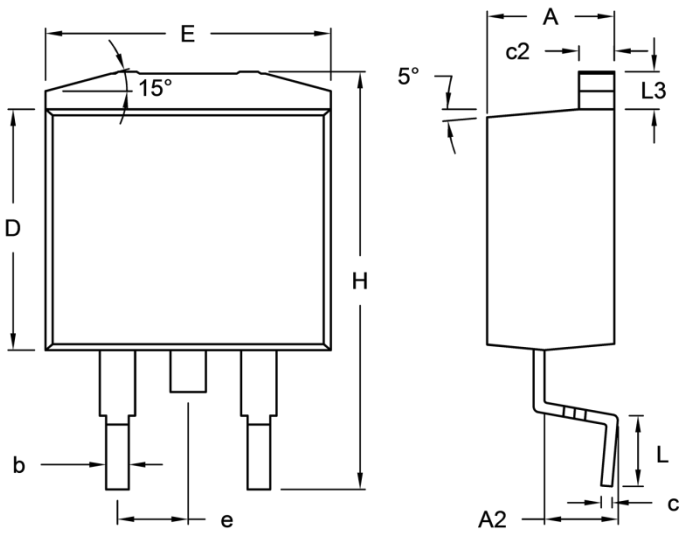
(T_A = 25°C unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



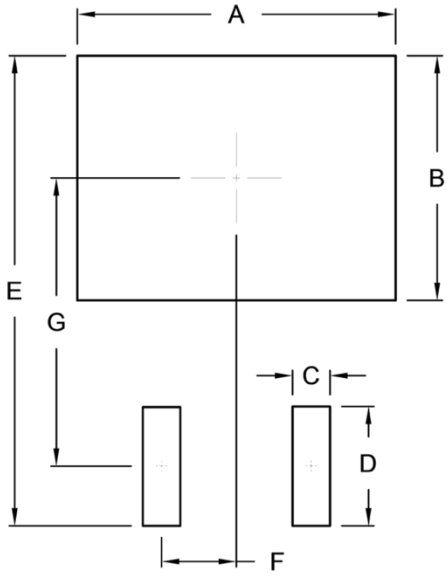
PACKAGE OUTLINE DIMENSIONS

TO-263AB (D^2PAK)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.44	4.70	0.175	0.185
A2	2.03	2.79	0.080	0.110
b	0.68	0.94	0.027	0.037
c	0.36	0.53	0.014	0.021
c2	1.14	1.40	0.045	0.055
D	8.25	9.25	0.325	0.364
E	-	10.50	-	0.413
e	2.41	2.67	0.095	0.105
H	14.60	15.88	0.575	0.625
L	2.29	2.79	0.090	0.110
L3	1.14	1.40	0.045	0.055

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	10.80	0.425
B	8.30	0.327
C	1.27	0.050
D	4.05	0.159
E	15.95	0.628
F	2.54	0.100
G	9.775	0.385

MARKING DIAGRAM



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

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