

## 2A, 200V - 600V Super Fast Rectifier

### FEATURES

- AEC-Q101 qualified available
- Glass passivated chip junction
- High efficiency, Low  $V_F$
- High current capability
- High surge current capability
- Low power loss
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	2	A
$V_{RRM}$	200 - 600	V
$I_{FSM}$	40, 50	A
$T_{J MAX}$	150	°C
Package	DO-204AC (DO-15)	
Configuration	Single die	

### APPLICATIONS

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



### MECHANICAL DATA

- Case: DO-204AC (DO-15)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.400g (approximately)



DO-204AC (DO-15)



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ unless otherwise noted)					
PARAMETER	SYMBOL	SF2L4G	SF2L6G	SF2L8G	UNIT
Marking code on the device		SF2L4G	SF2L6G	SF2L8G	
Repetitive peak reverse voltage	$V_{RRM}$	200	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	V
Forward current	$I_F$	2			A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	50		40	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-lead thermal resistance	$R_{\Theta JL}$	17	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	65	°C/W

**ELECTRICAL SPECIFICATIONS** ( $T_A = 25^\circ C$  unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT	
Forward voltage <sup>(1)</sup>	SF2L4G	$I_F = 2A, T_J = 25^\circ C$	$V_F$	-	0.95	V
	SF2L6G			-	1.30	V
	SF2L8G			-	1.70	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ C$	$I_R$	-	1	$\mu A$	
	$T_J = 125^\circ C$		-	100	$\mu A$	
Junction capacitance	SF2L4G	1MHz, $V_R = 4.0V$	$C_J$	40	-	pF
	SF2L6G SF2L8G			20	-	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 <sup>(1)(2)</sup>	PACKAGE	PACKING
SF2LxG	DO-204AC (DO-15)	3,500 / Tape & Reel
SF2LxG A0G	DO-204AC (DO-15)	1,500 / Ammo box
SF2LxGH	DO-204AC (DO-15)	3,500 / Tape & Reel
SF2LxGHA0G	DO-204AC (DO-15)	1,500 / Ammo box

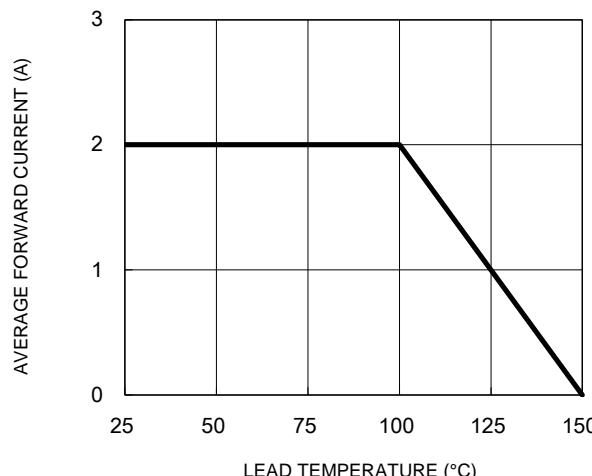
**Notes:**

1. "x" defines voltage from 200V (SF2L4G) to 600V (SF2L8G)
2. "H" means AEC-Q101 qualified

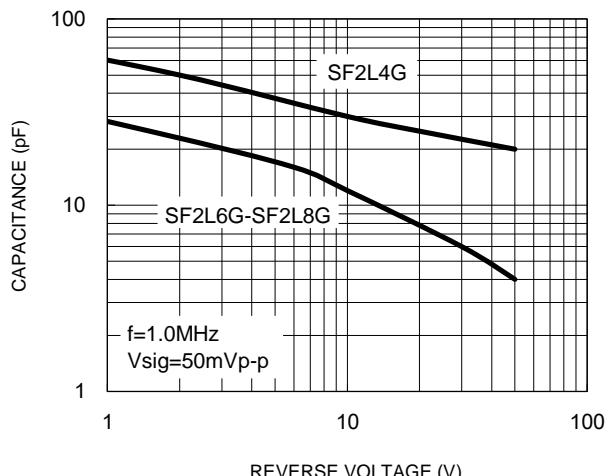
## CHARACTERISTICS CURVES

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

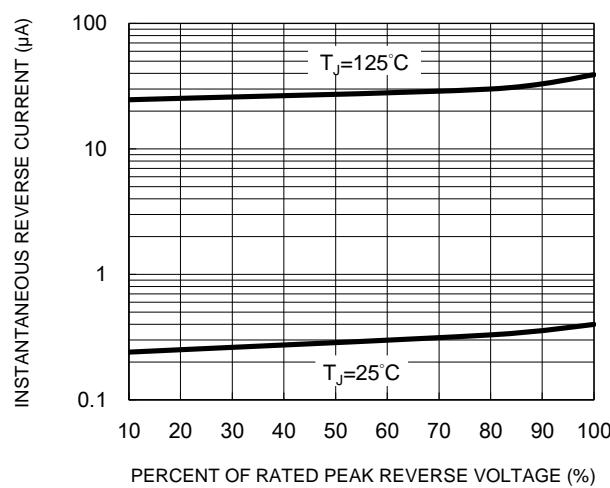
**Fig.1 Forward Current Derating Curve**



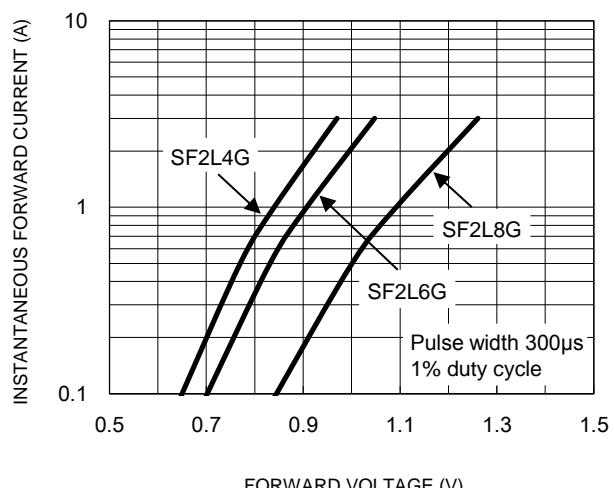
**Fig.2 Typical Junction Capacitance**



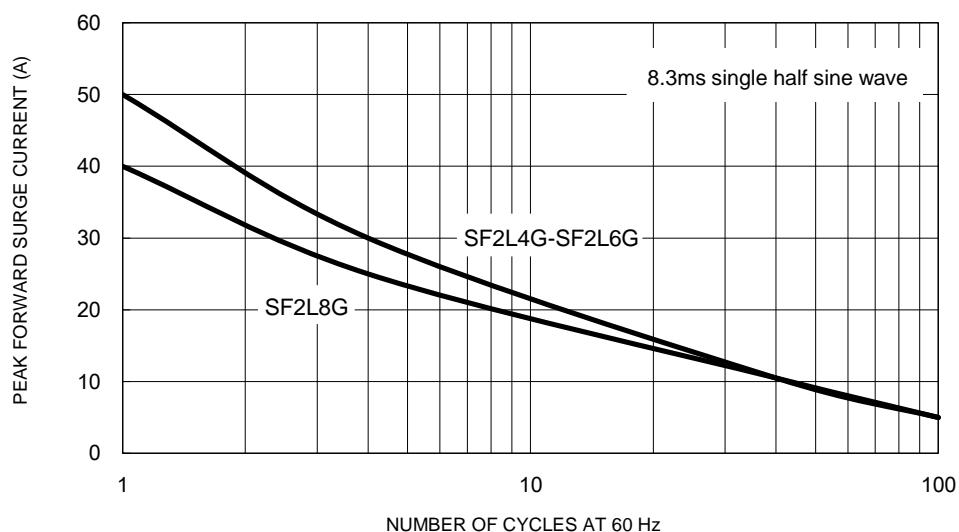
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



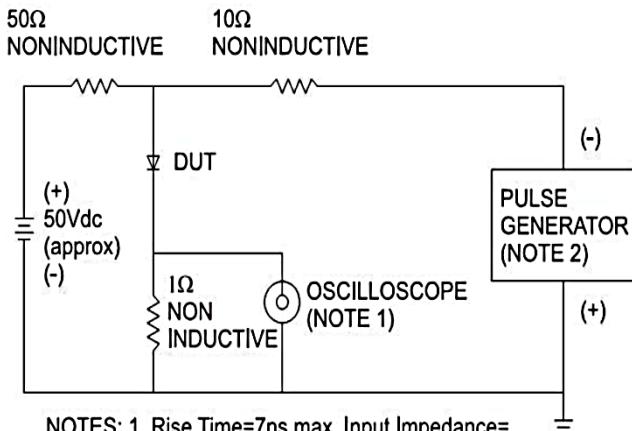
**Fig.5 Maximum Non-Repetitive Forward Surge Current**



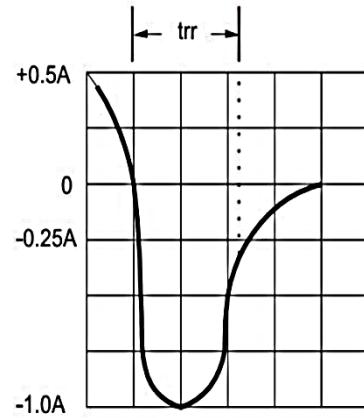
## CHARACTERISTICS CURVES

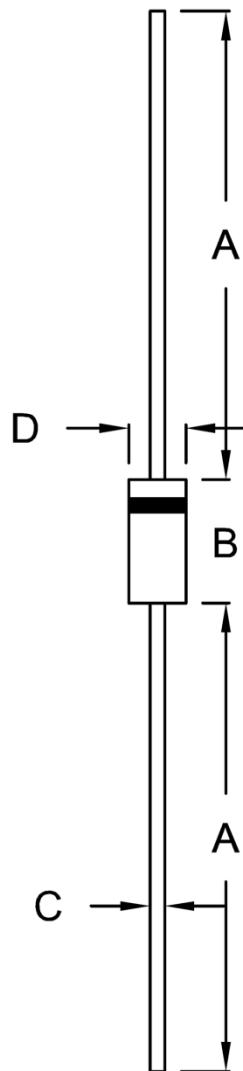
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram**



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



**PACKAGE OUTLINE DIMENSIONS**
**DO-204AC (DO-15)**


DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	5.80	7.60	0.228	0.299
C	0.70	0.90	0.028	0.035
D	2.60	3.60	0.102	0.142

**MARKING DIAGRAM**


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

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