

## 2A, 50V - 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

### 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)

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



DO-204AC (DO-15)



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	SF 21G	SF 22G	SF 23F	SF 24G	SF 25G	SF 26G	SF 27G	SF 28G	UNIT
Marking code on the device		SF21G	SF22G	SF23F	SF24G	SF25G	SF26G	SF27G	SF28G	
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	$I_F$	2								A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	50								A
Junction temperature	$T_J$	-55 to +150								°C
Storage temperature	$T_{STG}$	-55 to +150								°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-ambient thermal resistance	$R_{\theta JA}$	65	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	16	°C/W

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
<b>PARAMETER</b>		<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage <sup>(1)</sup>	SF21G SF22G SF23G SF24G	$I_F = 2\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.95	V
	SF25G SF26G			-	1.30	V
	SF27G SF28G			-	1.70	V
Reverse current @ rated $V_R$ <sup>(2)</sup>		$T_J = 25^\circ\text{C}$	$I_R$	-	5	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$		-	100	$\mu\text{A}$
Junction capacitance	SF21G SF22G SF23G SF24G	1MHz, $V_R = 4.0\text{V}$	$C_J$	40	-	pF
	SF25G SF26G SF27G SF28G			20	-	pF
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 = 0.3ms
2. Pulse test with PW = 30ms

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b> <sup>(1)(2)</sup>	<b>PACKAGE</b>	<b>PACKING</b>
SF2xG	DO-204AC (DO-15)	3,500 / Tape & Reel
SF2xG A0G	DO-204AC (DO-15)	1,500 / Ammo box
SF2xGH	DO-204AC (DO-15)	3,500 / Tape & Reel
SF2xGHA0G	DO-204AC (DO-15)	1,500 / Ammo box

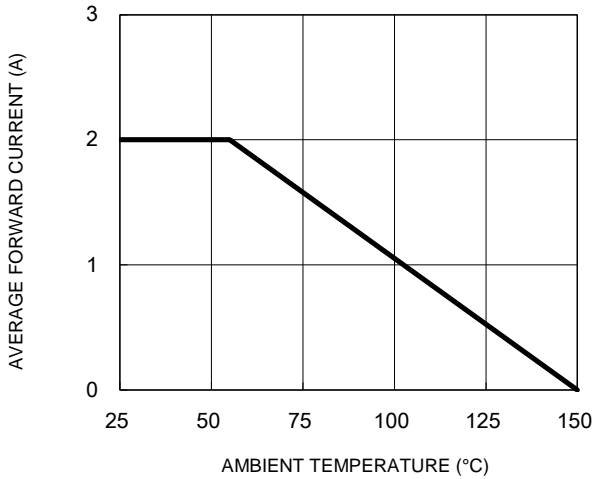
**Notes:**

1. "x" defines voltage from 50V (SF21G) to 600V (SF28G)
2. "H" means AEC-Q101 qualified

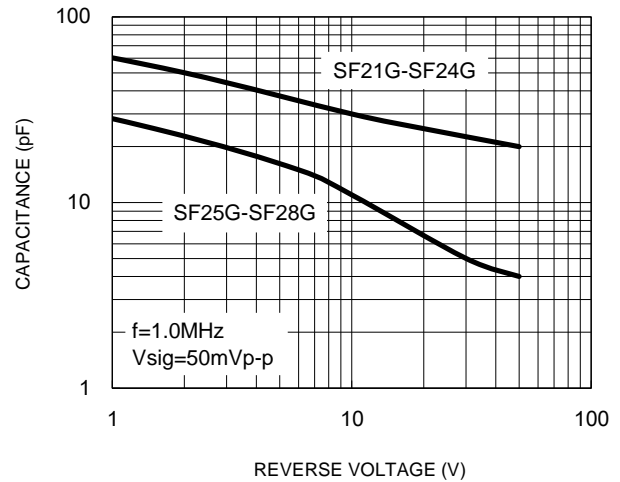
**CHARACTERISTICS CURVES**

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

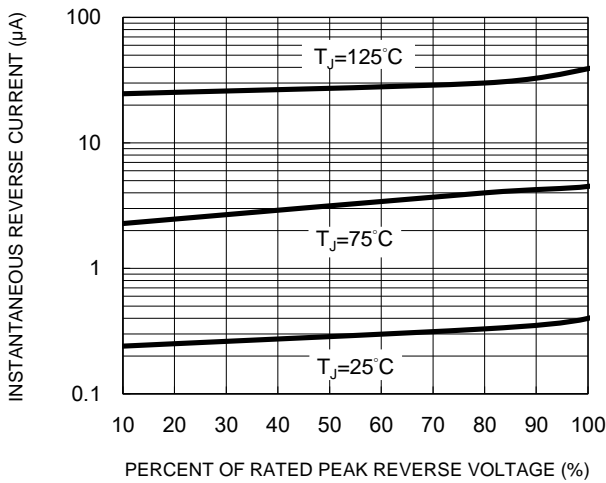
**Fig.1 Forward Current Derating Curve**



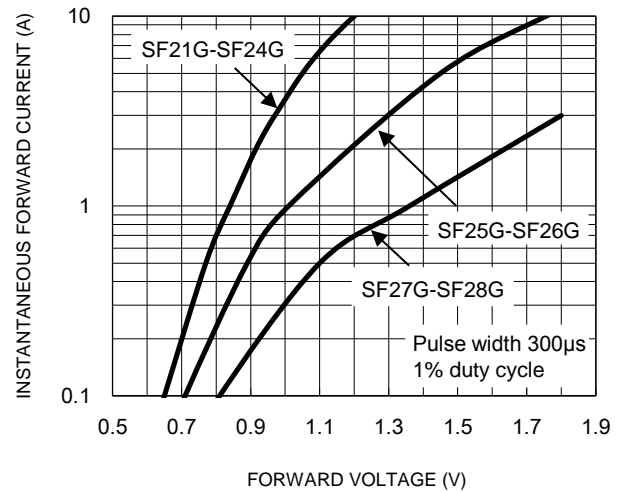
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



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



**CHARACTERISTICS CURVES**

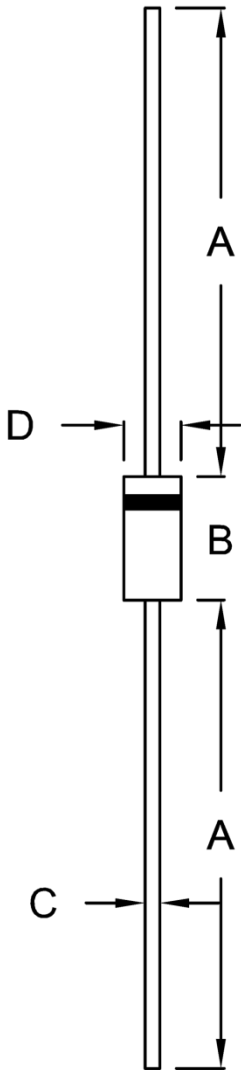
(T<sub>A</sub> = 25°C unless otherwise noted)

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



**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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