

## 2A, 50V - 600V Glass Passivated Super Fast Rectifier

### FEATURES

- Glass passivated chip junction
- High efficiency, Low  $V_F$
- High current capability
- High surge current capability
- Low power loss
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer and telecommunication.

### MECHANICAL DATA

- Case: DO-204AC (DO-15)
- Molding compound meets UL 94V-0 flammability rating
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 0.4 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	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	SF21 G-T	SF22 G-T	SF23 G-T	SF24 G-T	SF25 G-T	SF26 G-T	SF27 G-T	SF28 G-T	UNIT
Marking code on the device		SF21G	SF22G	SF23G	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
Maximum DC blocking voltage	$V_{DC}$	50	100	150	200	300	400	500	600	V
Forward current	$I_{F(AV)}$	2								A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	50								A
Junction temperature	$T_J$	- 55 to +150								°C
Storage temperature	$T_{STG}$	- 55 to +150								°C

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	65	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	16	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode <sup>(1)</sup>	$I_F = 2\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.95	V
			-	1.30	V
			-	1.70	V
			-	-	-
			-	-	-
			-	-	-
Reverse current @ rated $V_R$ per diode <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	1 MHz, $V_R = 4.0\text{V}$	$C_J$	40	-	pF
			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  $PW = 0.3\text{ ms}$
2. Pulse test with  $PW = 30\text{ ms}$

**ORDERING INFORMATION**

PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
SF2xG-T (Note 1, 2)	A0	G	DO-15	1,500 / Ammo box
	R0		DO-15	3,500 / 13" Paper reel
	B0		DO-15	1,000 / Bulk packing

**Notes:**

1. "x" defines voltage from 50V (SF21G-T) to 600V (SF28G-T)
2. Whole series with green compound (halogen-free)

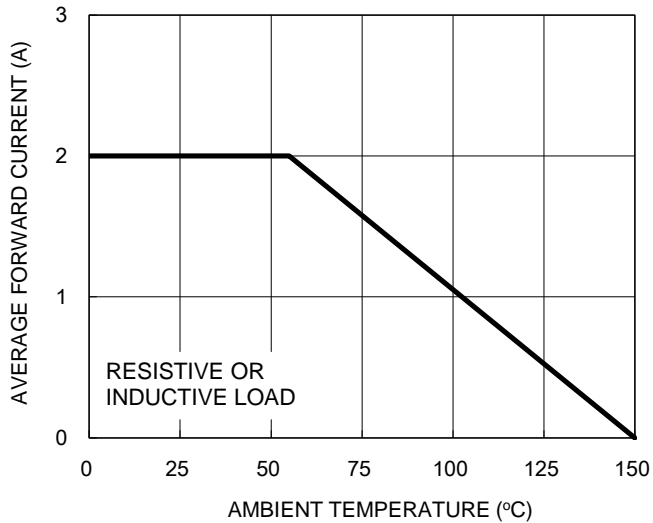
**EXAMPLE P/N**

EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
SF21G-T A0G	SF21G-T	A0	G	Green compound

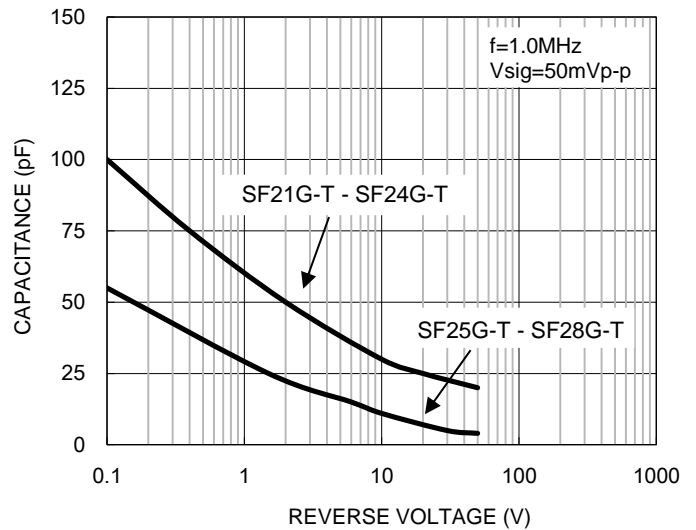
**CHARACTERISTICS CURVES**

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

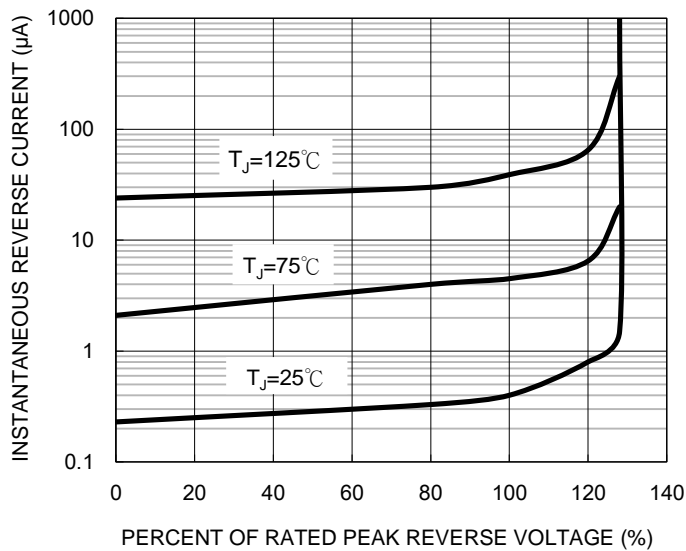
**Fig.1 Forward Current Derating Curve**



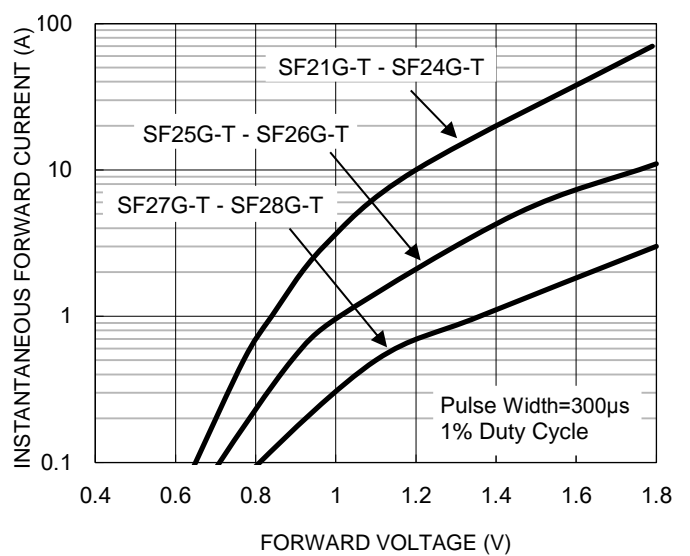
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



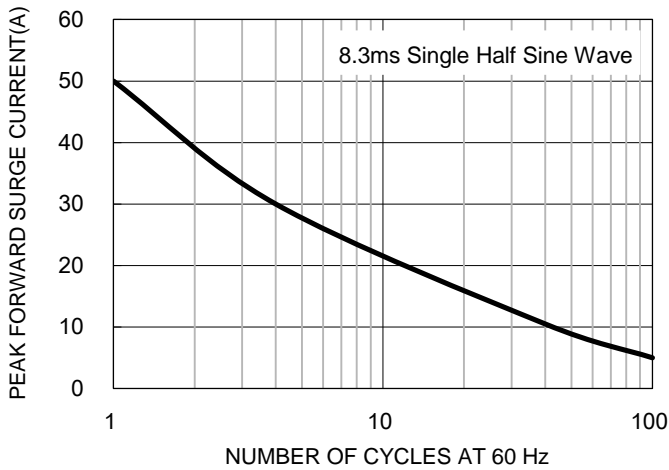
**Fig.4 Typical Forward Characteristics**



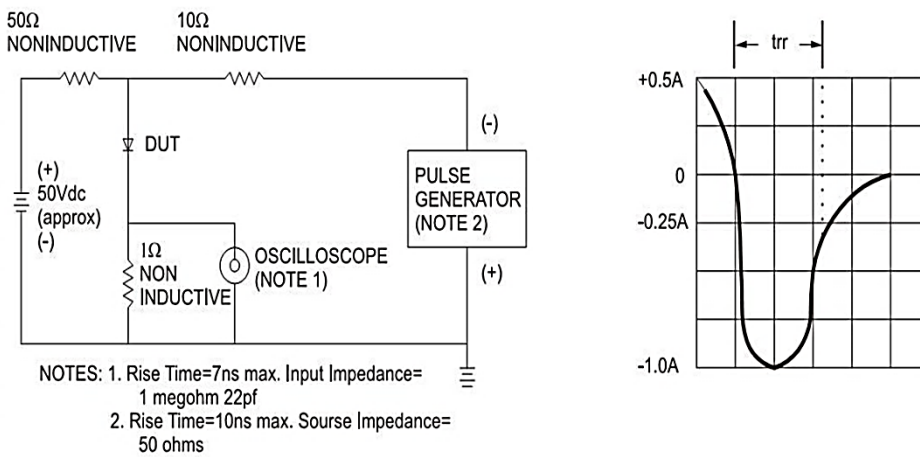
**CHARACTERISTICS CURVES**

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

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



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



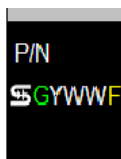
**PACKAGE OUTLINE DIMENSIONS**

DO-204AC (DO-15)



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

**MARKING DIAGRAM**



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

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