

## 1.5A, 50V - 1000V Glass Passivated Fast Recovery Rectifier

### FEATURES

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

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- TV
- Monitor

### 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
$I_{F(AV)}$	1.5	A
$V_{RRM}$	50 - 1000	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	FR151 G-T	FR152 G-T	FR153 G-T	FR154 G-T	FR155 G-T	FR156 G-T	FR157 G-T	UNIT
Marking code on the device		FR151G	FR152G	FR153G	FR154G	FR155G	FR156G	FR157G	
Repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Forward current	$I_{F(AV)}$	1.5							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

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>LIMIT</b>	<b>UNIT</b>
Junction-to- ambient thermal resistance	$R_{\theta JA}$	60	°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 per diode <sup>(1)</sup>	$I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	1.3	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, $V_R = 4.0\text{V}$	$C_J$	20	-	pF	
Reverse recovery time	FR151G-T	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$	$t_{rr}$	-	150	ns
	FR152G-T					
	FR153G-T					
	FR154G-T			-	250	ns
	FR155G-T			-	500	ns
	FR156G-T					
FR157G-T						

**Notes:**

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

<b>ORDERING INFORMATION</b>				
<b>PART NO.</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>PACKAGE</b>	<b>PACKING</b>
FR15xG-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:**

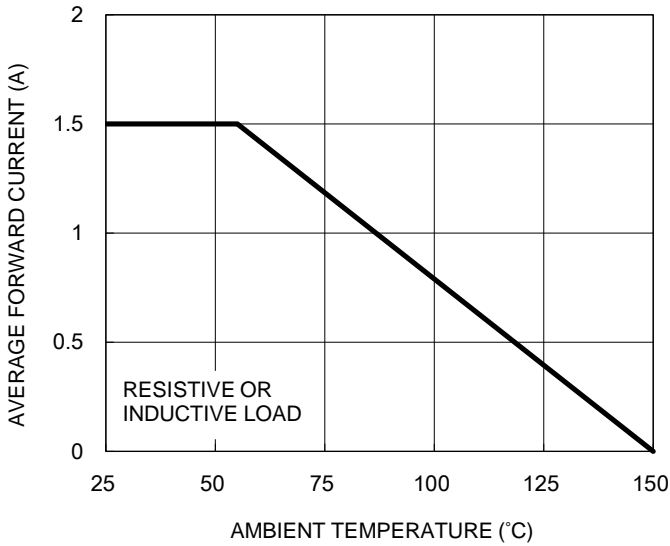
1. "x" defines voltage from 50V (FR151G-T) to 1000V (FR157G-T)
2. Whole series with green compound (halogen-free)

<b>EXAMPLE P/N</b>				
<b>EXAMPLE P/N</b>	<b>PART NO.</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>DESCRIPTION</b>
FR151G-T A0G	FR151G-T	A0	G	Green compound

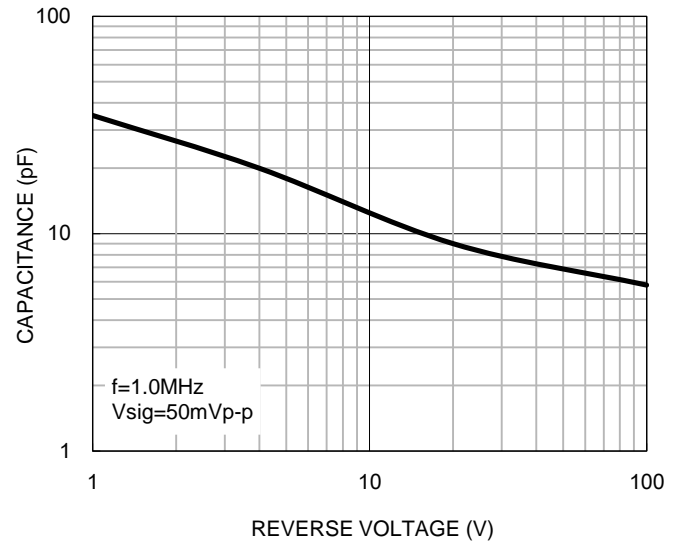
**CHARACTERISTICS CURVES**

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

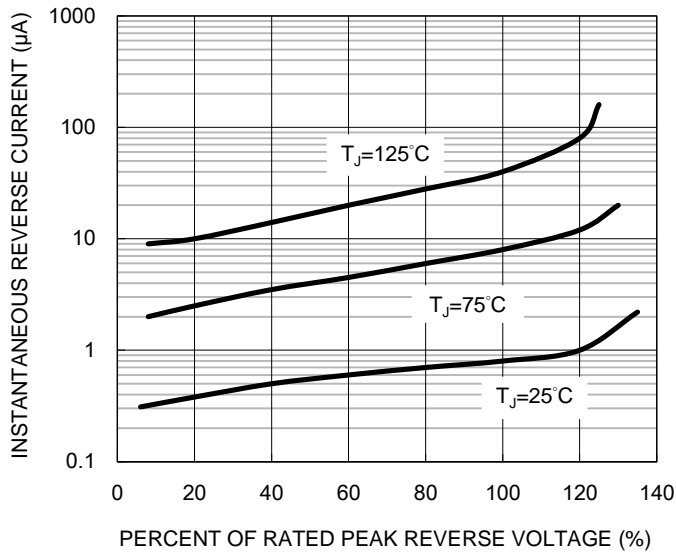
**Fig.1 Forward Current Derating Curve**



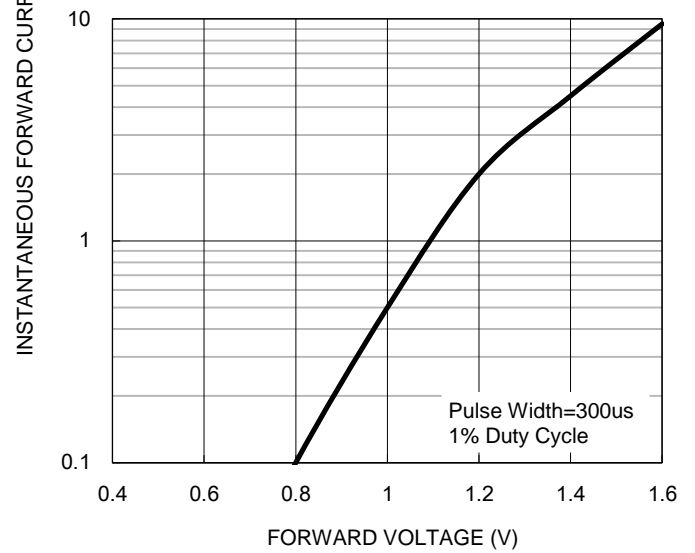
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



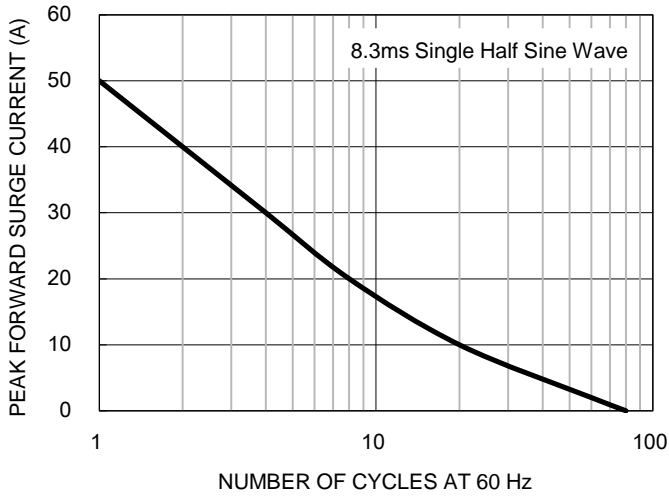
**Fig.4 Typical Forward Characteristics**



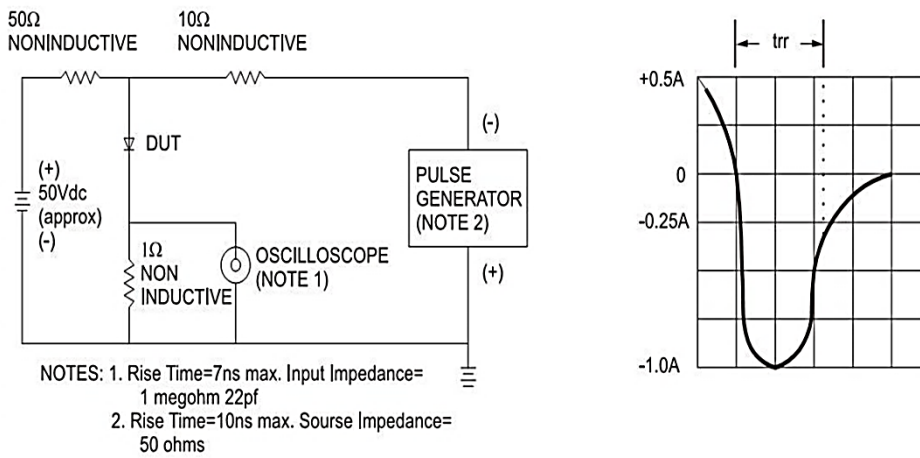
**CHARACTERISTICS CURVES**

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

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

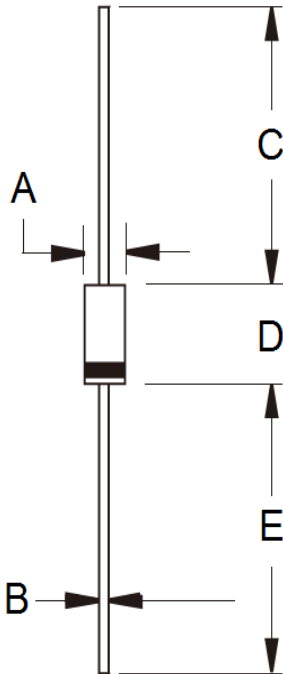


**Fig.6 Reverse Recovery Time Characteristic And Test Circuit Diagram**



**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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