

## 1.5A, 50V - 1000V Glass Passivated 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

- 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    |
| $T_{J\ MAX}$   | 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       | 1N5391<br>G-T | 1N5392<br>G-T | 1N5393<br>G-T | 1N5395<br>G-T | 1N5397<br>G-T | 1N5398<br>G-T | 1N5399<br>G-T | UNIT |
|-----------------------------------------------------------------------------------------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------|
| Marking code on the device                                                                    |              | 1N5391G       | 1N5392G       | 1N5393G       | 1N5395G       | 1N5397G       | 1N5398G       | 1N5399G       |      |
| 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   |

**THERMAL PERFORMANCE**

| PARAMETER                               | SYMBOL          | LIMIT | UNIT |
|-----------------------------------------|-----------------|-------|------|
| Junction-to- ambient thermal resistance | $R_{\theta JA}$ | 65    | °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>               | 1N5391G-T                 | $V_F$  | -   | 1.1 | V             |
|                                                        | 1N5392G-T                 |        | -   | 1.0 | V             |
|                                                        | 1N5393G-T                 |        | -   | 1.0 | V             |
|                                                        | 1N5395G-T                 |        | -   | 1.0 | V             |
|                                                        | 1N5397G-T                 |        | -   | 1.0 | V             |
|                                                        | 1N5398G-T                 |        | -   | 1.0 | V             |
|                                                        | 1N5399G-T                 |        | -   | 1.0 | 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, $V_R=4.0\text{V}$  | $C_J$  | 15  | -   | pF            |

**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                |
|--------------------------|--------------|---------------------|---------|------------------------|
| 1N539xG-T<br>(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 (1N5391G-T) to 1000V (1N5399G-T)
2. Whole series with green compound (halogen-free)

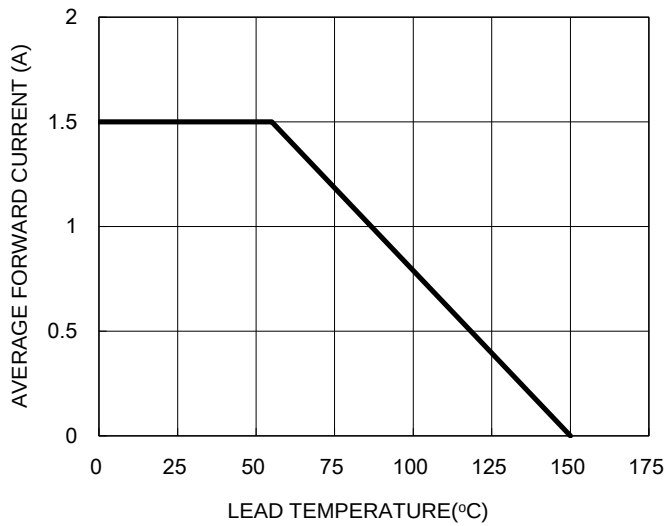
**EXAMPLE P/N**

| EXAMPLE P/N   | PART NO.  | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|---------------|-----------|--------------|---------------------|----------------|
| 1N5391G-T A0G | 1N5391G-T | A0           | G                   | Green compound |

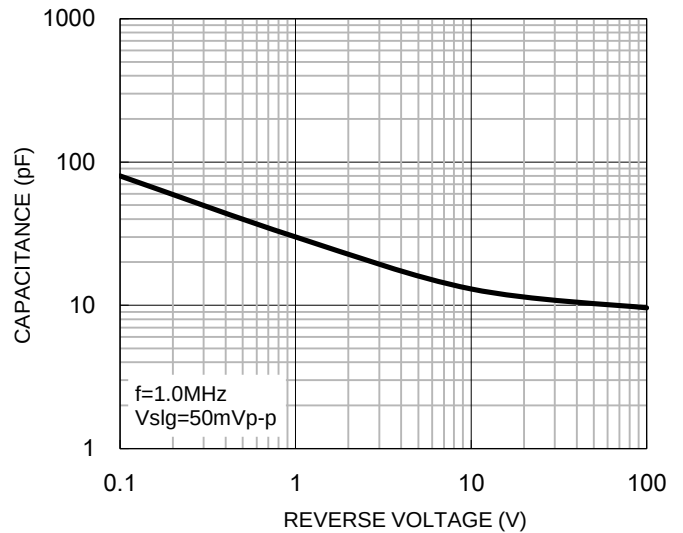
## CHARACTERISTICS CURVES

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

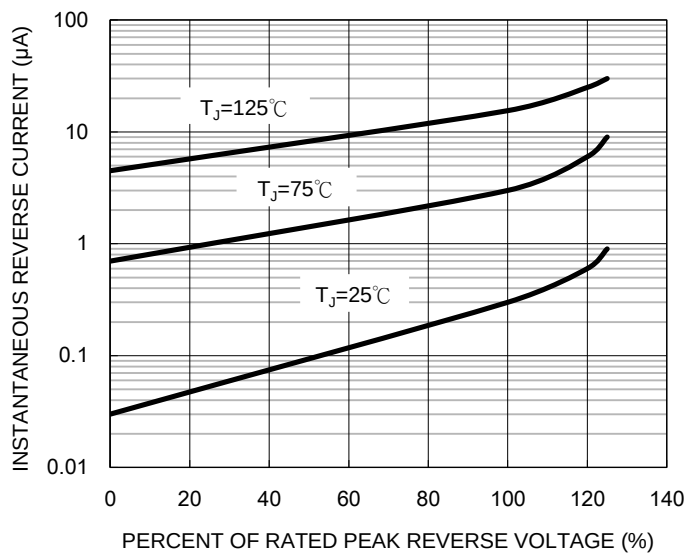
**Fig.1 Forward Current Derating Curve**



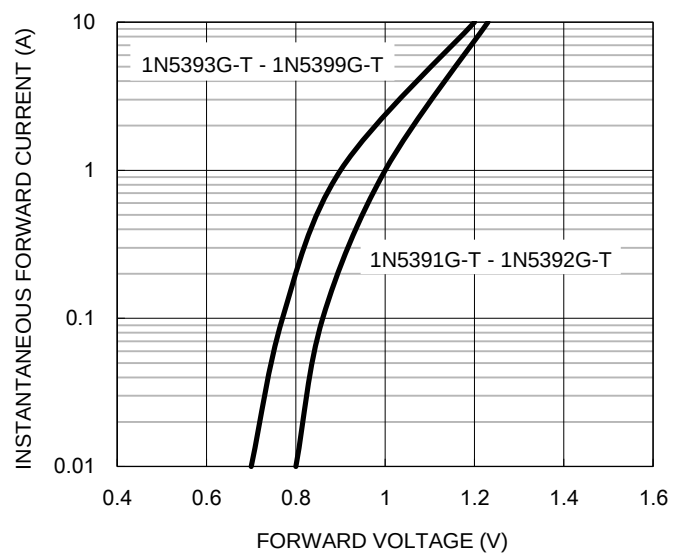
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



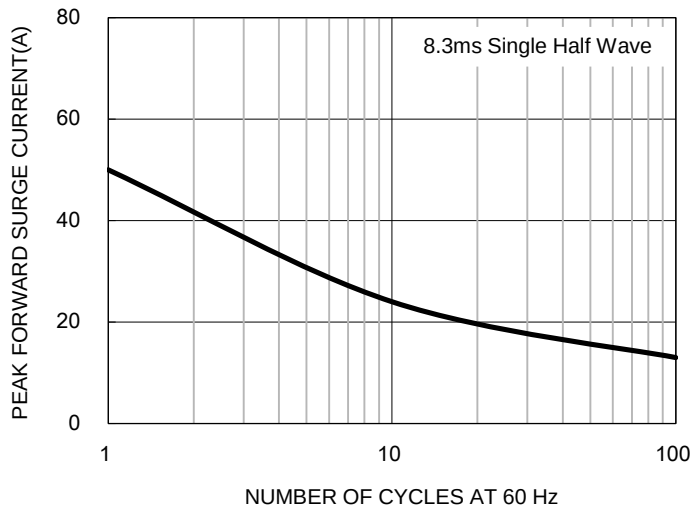
**Fig.4 Typical Forward Characteristics**



## CHARACTERISTICS CURVES

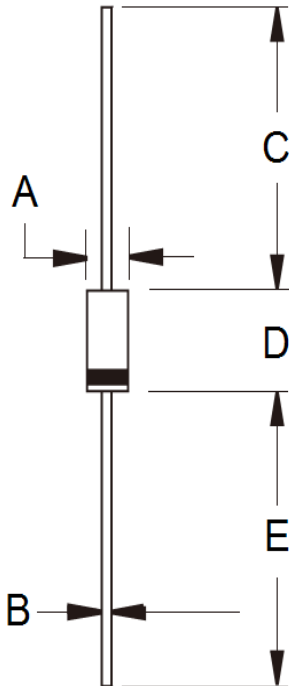
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig5. Maximum Non-repetitive Forward Surge Current**



## 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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