

## 3A, 50V - 1000V Glass Passivated 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

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

### MECHANICAL DATA

- Case: DO-201AD
- 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: 1.2 g (approximately)



DO-201AD

| KEY PARAMETERS |            |      |
|----------------|------------|------|
| PARAMETER      | VALUE      | UNIT |
| $I_{F(AV)}$    | 3          | A    |
| $V_{RRM}$      | 50 - 1000  | V    |
| $I_{FSM}$      | 125        | A    |
| $T_{J\ MAX}$   | 150        | °C   |
| Package        | DO-201AD   |      |
| Configuration  | Single Die |      |

| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)                   |              |               |               |               |               |               |               |               |      |
|-----------------------------------------------------------------------------------------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------|
| PARAMETER                                                                                     | SYMBOL       | 1N5400<br>G-K | 1N5401<br>G-K | 1N5402<br>G-K | 1N5404<br>G-K | 1N5406<br>G-K | 1N5407<br>G-K | 1N5408<br>G-K | UNIT |
| Marking code on the device                                                                    |              | 1N5400G       | 1N5401G       | 1N5402G       | 1N5404G       | 1N5406G       | 1N5407G       | 1N5408G       |      |
| 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    |
| Maximum DC blocking voltage                                                                   | $V_{DC}$     | 50            | 100           | 200           | 400           | 600           | 800           | 1000          | V    |
| Forward current                                                                               | $I_{F(AV)}$  | 3             |               |               |               |               |               |               | A    |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$    | 125           |               |               |               |               |               |               | 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 | $R_{\theta JA}$ | 45    | °C/W |
| Junction-to-case thermal resistance    | $R_{\theta JC}$ | 15    | °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>               | 1N5400G-K                 | $V_F$  | -   | 1.1 | V             |
|                                                        | 1N5401G-K                 |        | -   | 1.1 | V             |
|                                                        | 1N5402G-K                 |        | -   | 1.0 | V             |
|                                                        | 1N5404G-K                 |        | -   | 1.0 | V             |
|                                                        | 1N5406G-K                 |        | -   | 1.0 | V             |
|                                                        | 1N5407G-K                 |        | -   | 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, $V_R=4.0\text{V}$  | $C_J$  | 25  | -   | 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                |
|--------------------------|--------------|---------------------|----------|------------------------|
| 1N540xG-K<br>(Note 1, 2) | A0           | G                   | DO-201AD | 500 / Ammo box         |
|                          | R0           |                     | DO-201AD | 1,250 / 13" Paper reel |
|                          | B0           |                     | DO-201AD | 500 / Bulk packing     |

**Notes:**

1. "x" defines voltage from 50V (1N5400G-K) to 1000V (1N5408G-K)
2. Whole series with green compound (halogen-free)

**EXAMPLE P/N**

| EXAMPLE P/N   | PART NO.  | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|---------------|-----------|--------------|---------------------|----------------|
| 1N5400G-K A0G | 1N5400G-K | A0           | G                   | Green compound |

## CHARACTERISTICS CURVES

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

**Fig.1 Forward Current Derating Curve**

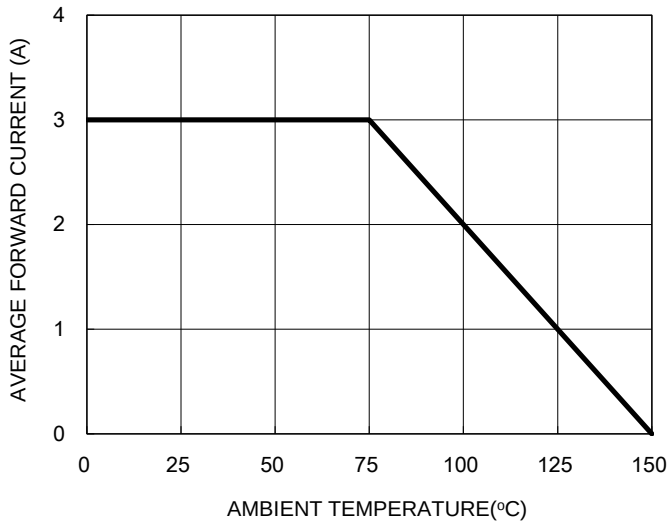


**Fig.2 Typical Junction Capacitance**

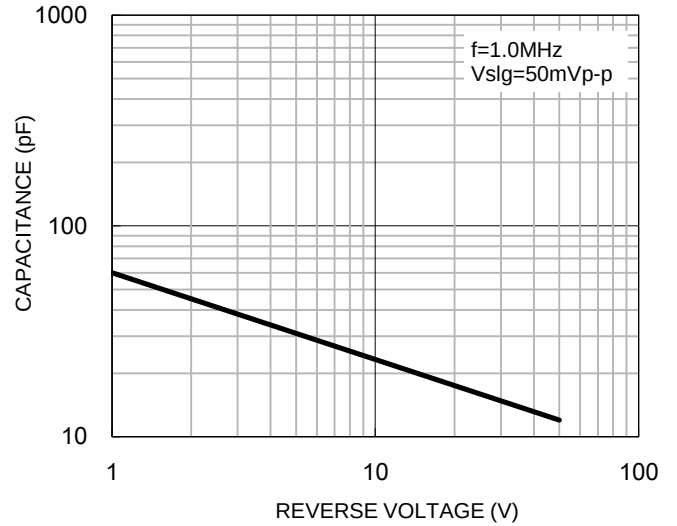


**Fig.3 Typical Reverse Characteristics**

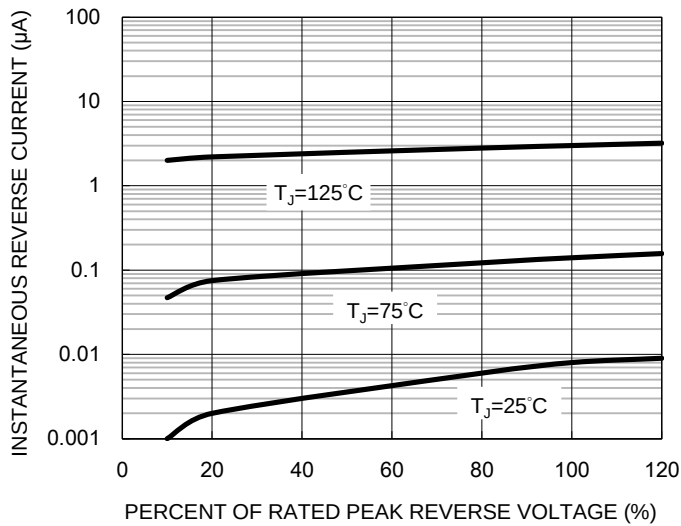
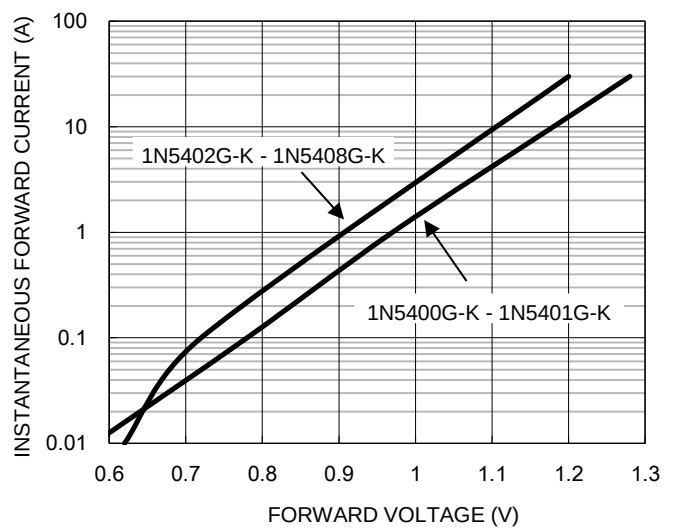


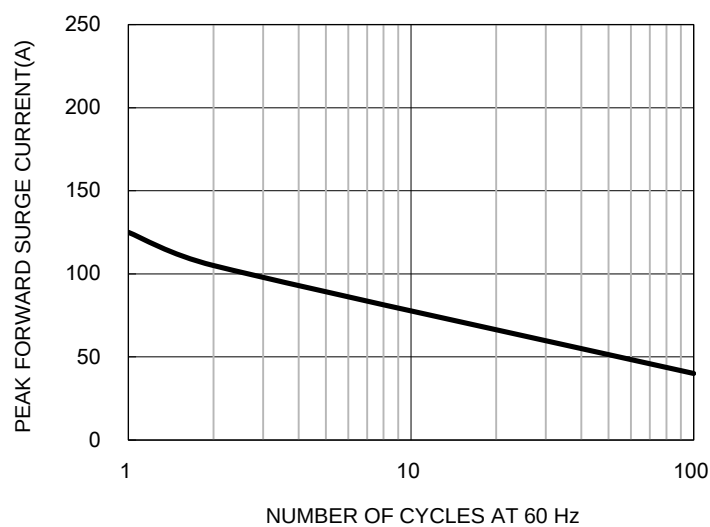
**Fig.4 Typical Forward Characteristics**



## CHARACTERISTICS CURVES

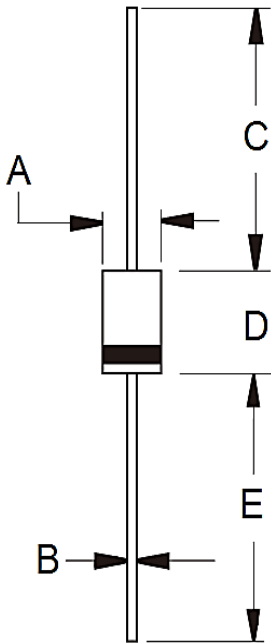
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

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



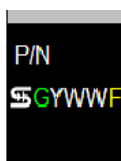
## PACKAGE OUTLINE DIMENSIONS

DO-201AD



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 5.00      | 5.60 | 0.197       | 0.220 |
| B    | 1.20      | 1.30 | 0.048       | 0.052 |
| C    | 25.40     | -    | 1.000       | -     |
| D    | 8.50      | 9.50 | 0.335       | 0.375 |
| E    | 25.40     | -    | 1.000       | -     |

## MARKING DIAGRAM



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

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#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.