

## 3A, 50V - 1000V Standard Rectifier

### FEATURES

- AEC-Q101 qualified available
- Glass passivated chip junction
- High current capability, Low  $V_F$
- High reliability
- High surge current capability
- Low power loss, high efficiency
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- General purpose

### MECHANICAL DATA

- Case: DO-201AD
- 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: 1.20g (approximately)

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



DO-201AD



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

| PARAMETER                                                                          | SYMBOL       | 1N<br>5400G | 1N<br>5401G | 1N<br>5402G | 1N<br>5404G | 1N<br>5406G | 1N<br>5407G | 1N<br>5408G | UNIT |
|------------------------------------------------------------------------------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| Marking code on the device                                                         |              | 1N<br>5400G | 1N<br>5401G | 1N<br>5402G | 1N<br>5404G | 1N<br>5406G | 1N<br>5407G | 1N<br>5408G |      |
| 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                                                                    | $I_F$        | 3           |             |             |             |             |             |             | A    |
| Surge peak forward current, 8.3ms single half sine wave superimposed on rated load | $I_{FSM}$    | 125         |             |             |             |             |             |             | A    |
| Junction temperature                                                               | $T_J$        | -55 to +150 |             |             |             |             |             |             | °C   |
| Storage temperature                                                                | $T_{STG}$    | -55 to +150 |             |             |             |             |             |             | °C   |

**THERMAL PERFORMANCE**

| PARAMETER                              | SYMBOL          | TYP | 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 <sup>(1)</sup>               | 1N5400G                   | $V_F$  | -   | 1.1 | V             |
|                                              | 1N5401G                   |        | -   | 1.1 | V             |
|                                              | 1N5402G                   |        | -   | 1.0 | V             |
|                                              | 1N5404G                   |        | -   | 1.0 | V             |
|                                              | 1N5405G                   |        | -   | 1.0 | V             |
|                                              | 1N5406G                   |        | -   | 1.0 | V             |
|                                              | 1N5407G<br>1N5408G        |        | -   | 1.0 | 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                         | 1MHz, $V_R = 4.0\text{V}$ | $C_J$  | 25  | -   | pF            |

**Notes:**

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

**ORDERING INFORMATION**

| ORDERING CODE <sup>(1)(2)</sup> | PACKAGE  | PACKING             |
|---------------------------------|----------|---------------------|
| 1N54xG                          | DO-201AD | 1,250 / Tape & Reel |
| 1N54xG A0G                      | DO-201AD | 500 / Ammo box      |
| 1N54xGH                         | DO-201AD | 1,250 / Tape & Reel |
| 1N54xGHA0G                      | DO-201AD | 500 / Ammo box      |

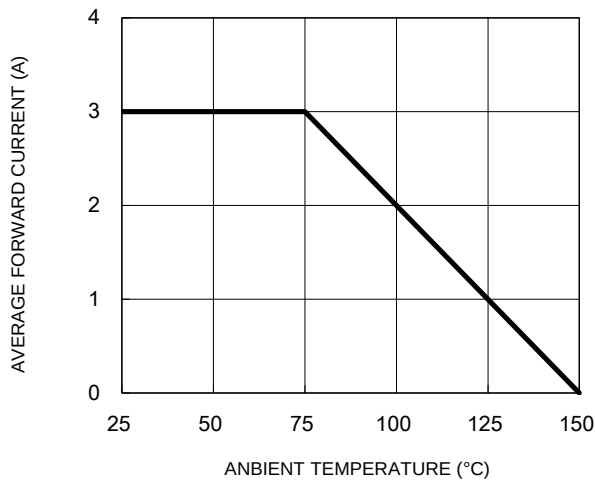
**Notes:**

1. "x" defines voltage from 50V (1N5400G) to 1000V (1N5408G)
2. "H" means AEC-Q101 qualified

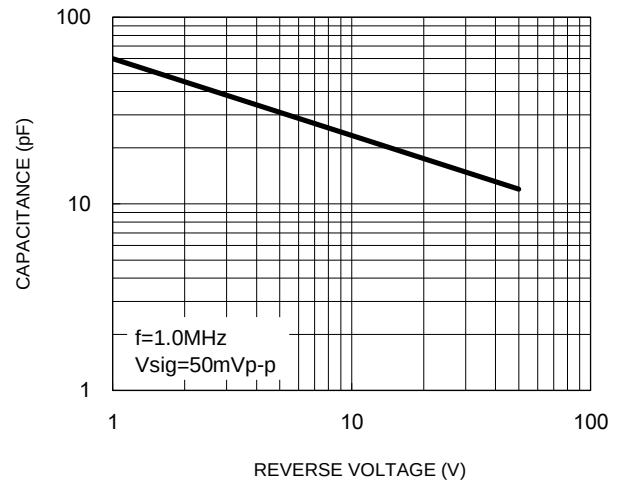
## CHARACTERISTICS CURVES

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

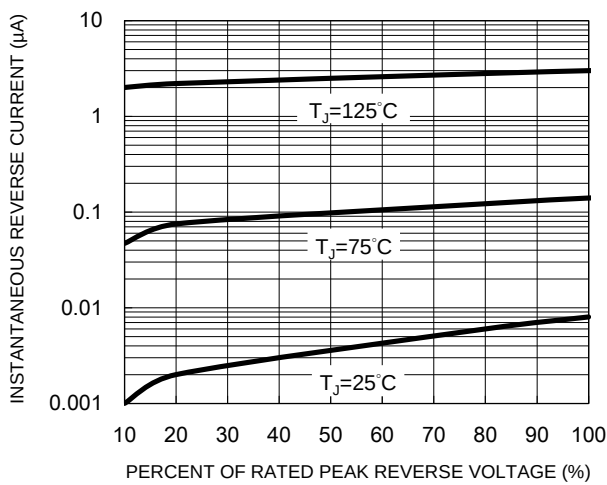
**Fig.1 Forward Current Derating Curve**



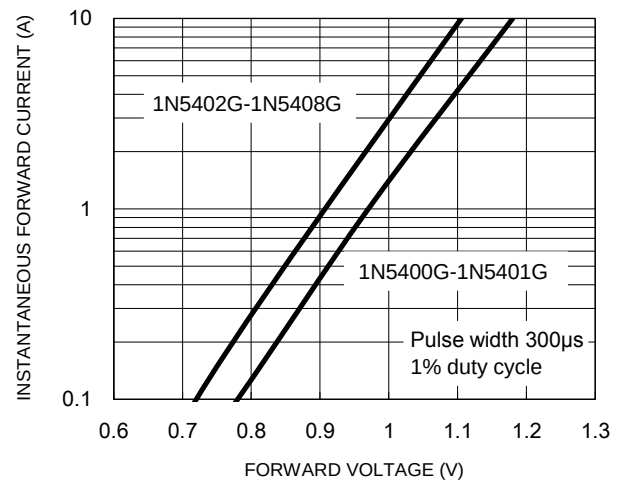
**Fig.2 Typical Junction Capacitance**



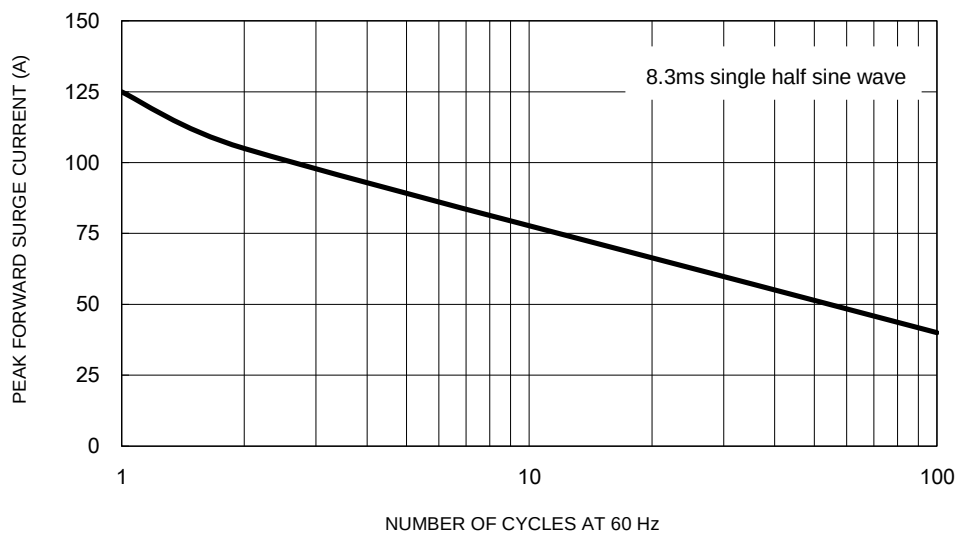
**Fig.3 Typical Reverse Characteristics**



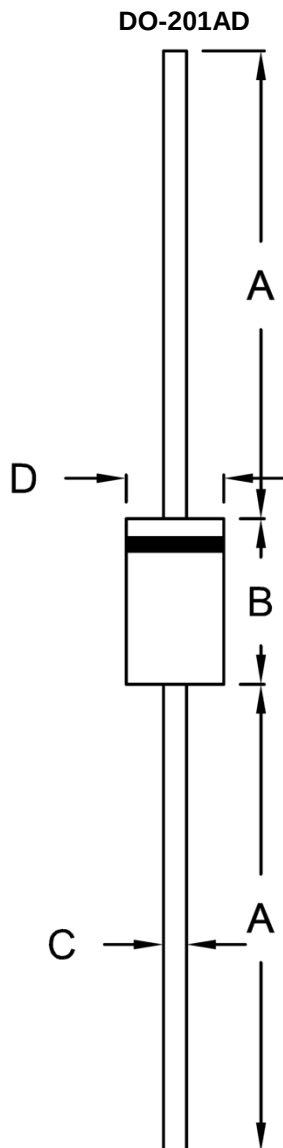
**Fig.4 Typical Forward Characteristics**



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



## PACKAGE OUTLINE DIMENSIONS



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min.      | Max. | Min.        | Max.  |
| A    | 25.40     | -    | 1.000       | -     |
| B    | 8.50      | 9.50 | 0.335       | 0.374 |
| C    | 1.20      | 1.30 | 0.047       | 0.051 |
| D    | 5.00      | 5.60 | 0.197       | 0.220 |

## MARKING DIAGRAM



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

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