

## General Purpose Plastic Rectifier



DO-201AD

### FEATURES

- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes application.

#### Note

- These devices are not AEC-Q101 qualified.

### MECHANICAL DATA

Case: DO-201AD, molded epoxy body

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

### PRIMARY CHARACTERISTICS

|             |                |
|-------------|----------------|
| $I_{F(AV)}$ | 3.0 A          |
| $V_{RRM}$   | 50 V to 1000 V |
| $I_{FSM}$   | 200 A          |
| $I_R$       | 5.0 $\mu$ A    |
| $V_F$       | 1.2 V          |
| $T_J$ max.  | 150 °C         |

### MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER  | SYMBOL         | 1N5400        | 1N5401 | 1N5402 | 1N5403 | 1N5404 | 1N5405 | 1N5406 | 1N5407 | 1N5408 | UNIT    |
|--|----------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 50            | 100    | 200    | 300    | 400    | 500    | 600    | 800    | 1000   | V       |
| Maximum RMS voltage  | $V_{RMS}$      | 35            | 70     | 140    | 210    | 280    | 350    | 420    | 560    | 700    | V       |
| Maximum DC blocking voltage  | $V_{DC}$       | 50            | 100    | 200    | 300    | 400    | 500    | 600    | 800    | 1000   | V       |
| Maximum average forward rectified current 0.5" (12.5 mm) lead length at $T_L = 105$ °C             | $I_{F(AV)}$    | 3.0           |        |        |        |        |        |        |        |        | A       |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load                 | $I_{FSM}$      | 200           |        |        |        |        |        |        |        |        | A       |
| Maximum full load reverse current, full cycle average 0.5" (12.5 mm) lead length at $T_L = 105$ °C | $I_{R(AV)}$    | 500           |        |        |        |        |        |        |        |        | $\mu$ A |
| Operating junction and storage temperature range   | $T_J, T_{STG}$ | - 50 to + 150 |        |        |        |        |        |        |        |        | °C      |

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                         |                |        |        |        |        |        |        |        |        |        |      |
|--|-------------------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| PARAMETER  | TEST CONDITIONS         | SYMBOL         | 1N5400 | 1N5401 | 1N5402 | 1N5403 | 1N5404 | 1N5405 | 1N5406 | 1N5407 | 1N5408 | UNIT |
| Maximum instantaneous forward voltage                                      | 3.0 A                   | V <sub>F</sub> | 1.2    |        |        |        |        |        |        |        |        | V    |
| Maximum DC reverse current at rated DC blocking voltage                    | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 5.0    |        |        |        |        |        |        |        |        | μA   |
|  | T <sub>A</sub> = 150 °C |                | 500    |        |        |        |        |        |        |        |        |      |
| Typical junction capacitance   | 4.0 V, 1 MHz            | C <sub>J</sub> | 30     |        |        |        |        |        |        |        |        | pF   |

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                       |        |        |        |        |        |        |        |        |        |                      |
|--|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------------|
| PARAMETER  | SYMBOL                | 1N5400 | 1N5401 | 1N5402 | 1N5403 | 1N5404 | 1N5405 | 1N5406 | 1N5407 | 1N5408 | UNIT                 |
| Typical thermal resistance   | $R_{\theta JA}^{(1)}$ | 20     |        |        |        |        |        |        |        |        | $^{\circ}\text{C/W}$ |

## Note

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted with 0.8" x 0.8" (20 mm x 20 mm) copper heatsinks

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| 1N5404-E3/54                   | 1.1             | 54                     | 1400          | 13" diameter paper tape and reel |
| 1N5404-E3/73                   | 1.1             | 73                     | 1000          | Ammo pack packaging              |

## RATINGS AND CHARACTERISTICS CURVES

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

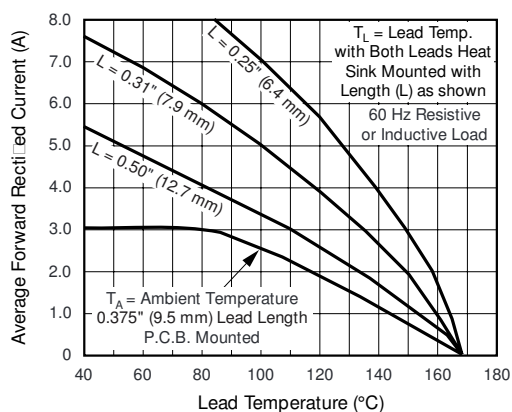


Fig. 1 - Forward Current Derating Curve

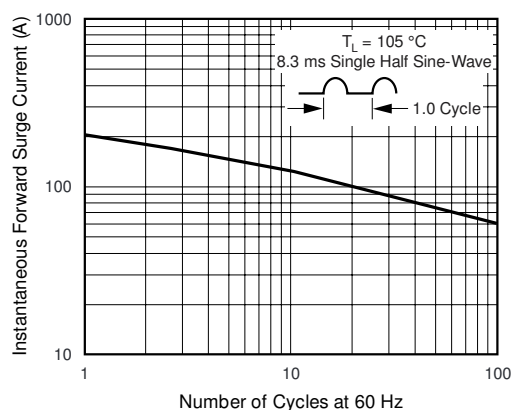


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

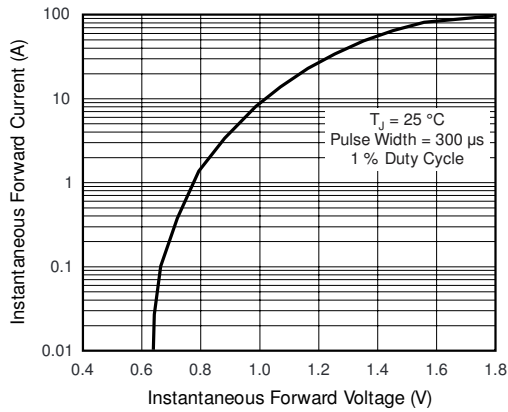


Fig. 3 - Typical Instantaneous Forward Characteristics

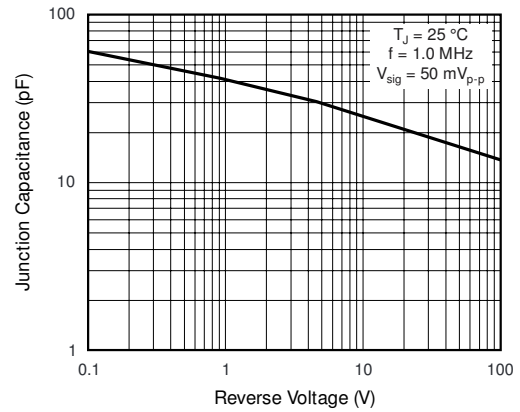


Fig. 5 - Typical Junction Capacitance

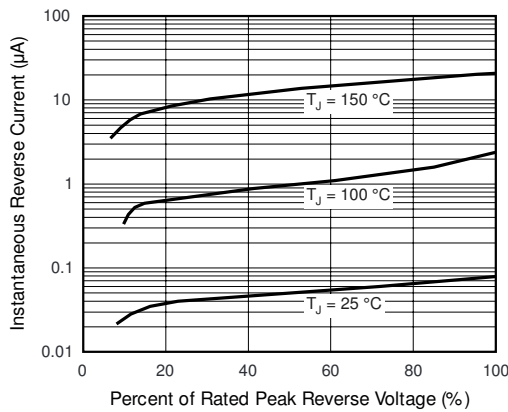


Fig. 4 - Typical Reverse Characteristics

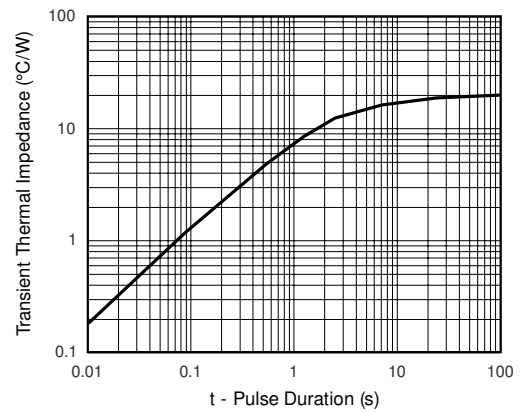
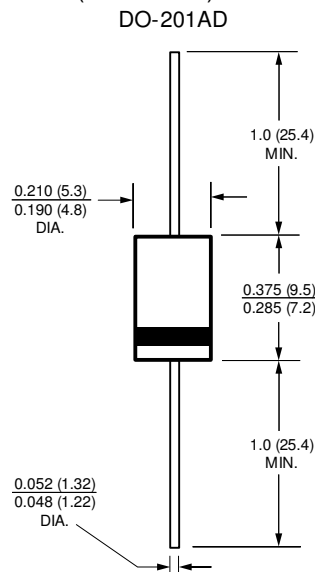


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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