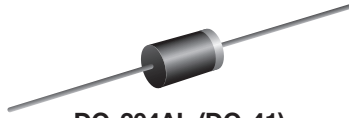


## General Purpose Plastic Rectifier



DO-204AL (DO-41)

### 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-204AL, 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 |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 1.5 A          |
| $V_{RRM}$               | 50 V to 1000 V |
| $I_{FSM}$               | 50 A           |
| $V_F$                   | 1.4 V          |
| $I_R$                   | 5.0 $\mu$ A    |
| $T_J$ max.              | 150 °C         |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)  |                |               |        |        |        |        |        |        |        |        |         |
|--|----------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| PARAMETER  | SYMBOL         | 1N5391        | 1N5392 | 1N5393 | 1N5394 | 1N5395 | 1N5396 | 1N5397 | 1N5398 | 1N5399 | 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 0.500" (12.7 mm) lead length at $T_L = 70$ °C            | $I_{F(AV)}$    | 1.5           |        |        |        |        |        |        |        |        | A       |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load                 | $I_{FSM}$      | 50            |        |        |        |        |        |        |        |        | A       |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_L = 70$ °C | $I_{R(AV)}$    | 300           |        |        |        |        |        |        |        |        | $\mu$ A |
| Operation 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          | 1N5391 | 1N5392 | 1N5393 | 1N5394 | 1N5395 | 1N5396 | 1N5397 | 1N5398 | 1N5399 | UNIT |
| Maximum instantaneous forward voltage                                      | 1.5 A  | T <sub>A</sub> = 70 °C  | V <sub>F</sub>  |        |        |        |        |        | 1.4    |        |        |        | 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 |                 |        |        |        |        |        | 300    |        |        |        |      |
| Typical reverse recovery time  | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A |                         | t <sub>rr</sub> |        |        |        |        |        | 2.0    |        |        |        | μs   |
| Typical junction capacitance   | 4.0 V, 1 MHz   |                         | C <sub>J</sub>  |        |        |        |        |        | 15     |        |        |        | pF   |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |        |        |        |        |        |        |        |        |      |  |
|---|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|--|
| PARAMETER   | SYMBOL                          | 1N5391 | 1N5392 | 1N5393 | 1N5394 | 1N5395 | 1N5396 | 1N5397 | 1N5398 | 1N5399 | UNIT |  |
| Typical thermal resistance  | R <sub>θJA</sub> <sup>(1)</sup> |        |        |        |        |        | 55     |        |        |        | °C/W |  |
|   | R <sub>θJL</sub> <sup>(1)</sup> |        |        |        |        |        | 25     |        |        |        |      |  |

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| 1N5391-E3/54                   | 0.336           | 54                     | 5500          | 13" diameter paper tape and reel |
| 1N5391-E3/73                   | 0.336           | 73                     | 3000          | Ammo pack packaging              |

**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

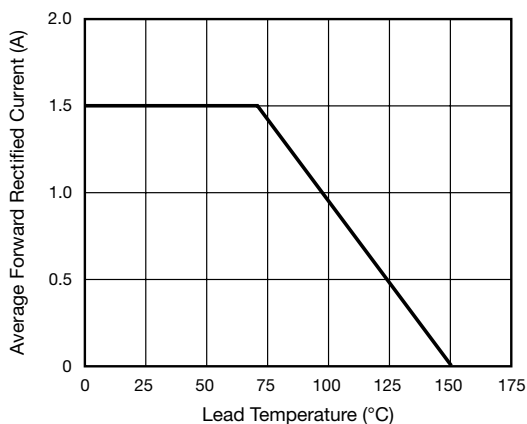


Fig. 1 - Forward Current Derating Curve

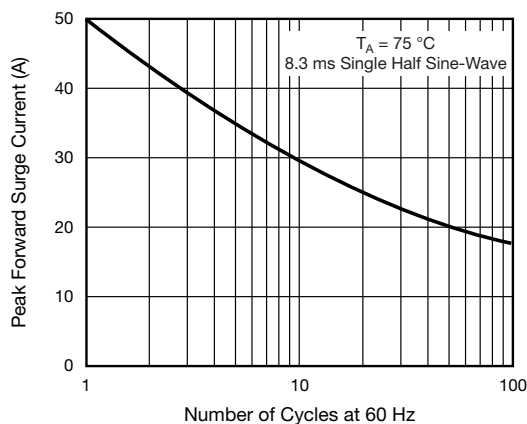


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

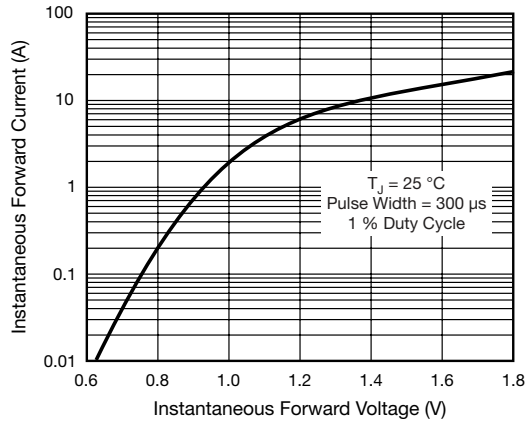


Fig. 3 - Typical Instantaneous Forward Characteristics

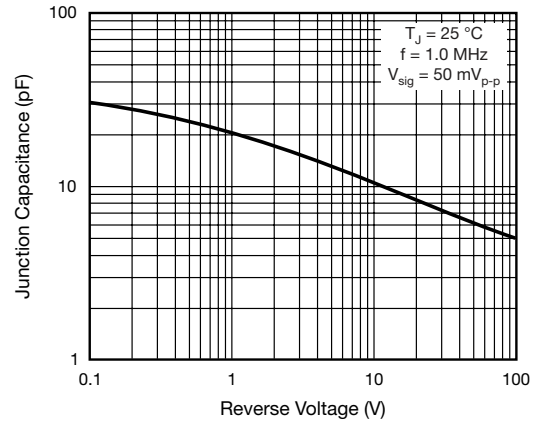


Fig. 5 - Typical Junction Capacitance

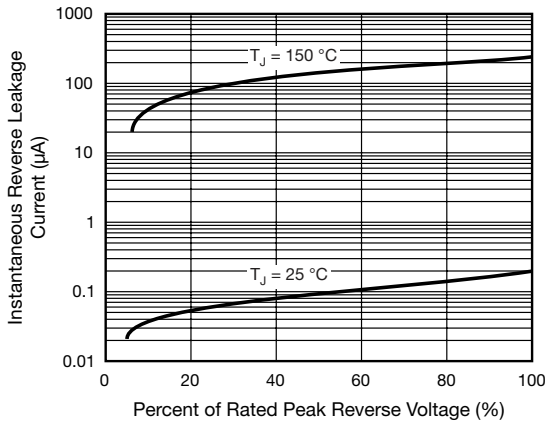


Fig. 4 - Typical Reverse Characteristics

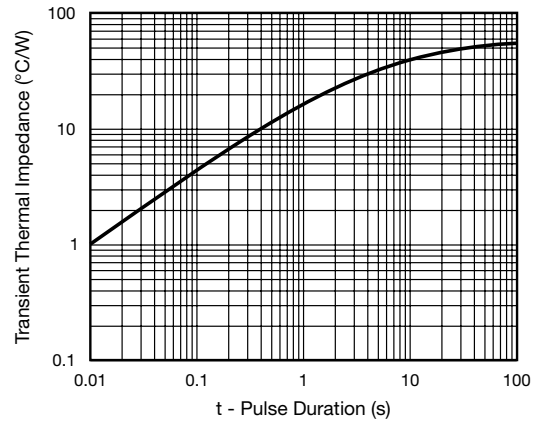


Fig. 6 - Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-204AL (DO-41)

