



## General Purpose Plastic Rectifier



DO-41 (DO-204AL)

### FEATURES

- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS  
COMPLIANT

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** DO-41 (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, 100 V, 200 V, 300 V, 400 V, 500 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 50 A  |
| $V_F$                   | 1.4 V   |
| $I_R$                   | 5.0 $\mu$ A   |
| $T_J$ max.              | 150 °C  |
| Package                 | DO-41 (DO-204AL)  |
| Circuit configuration   | Single  |

| MAXIMUM RATINGS ( $T_A = 25\text{ }^\circ\text{C}$ 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 $T_L = 70\text{ }^\circ\text{C}$            | $I_{F(AV)}$    | 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 $T_L = 70\text{ }^\circ\text{C}$ | $I_{R(AV)}$    | 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**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB 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)**

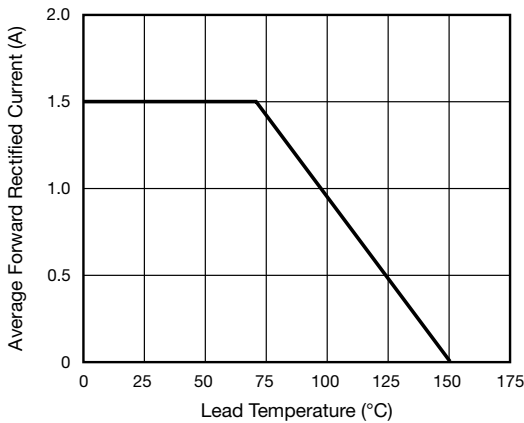


Fig. 1 - Forward Current Derating Curve

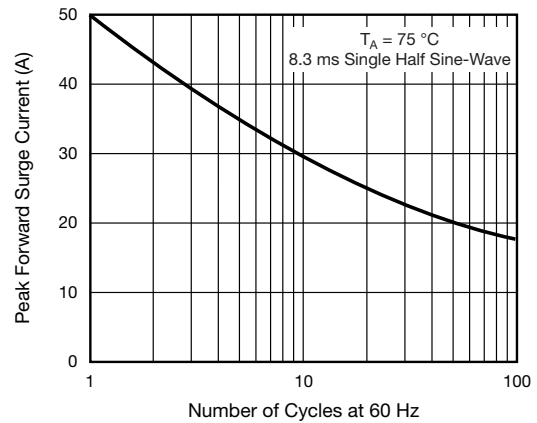


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

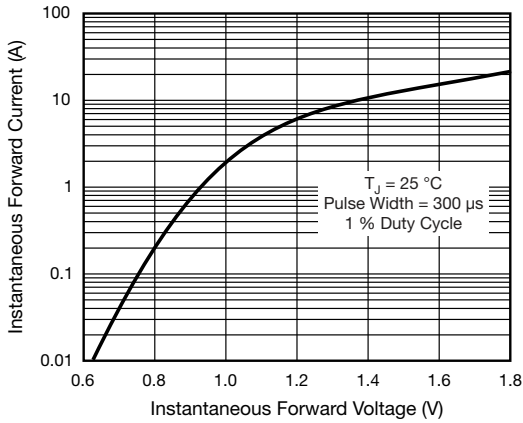


Fig. 3 - Typical Instantaneous Forward Characteristics

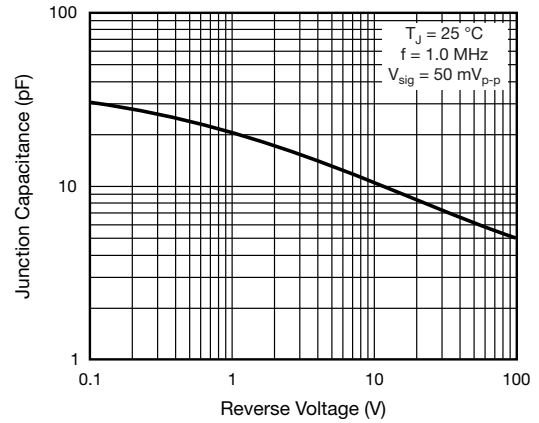


Fig. 5 - Typical Junction Capacitance

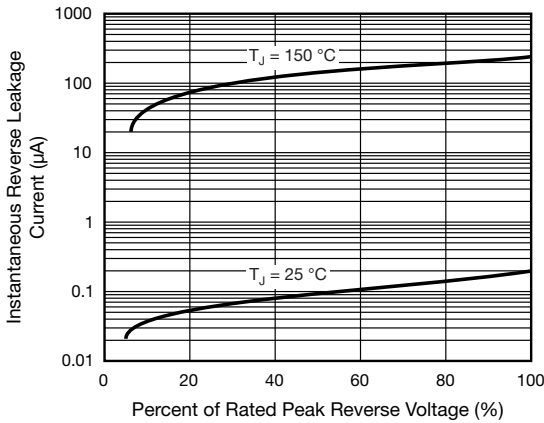


Fig. 4 - Typical Reverse Characteristics

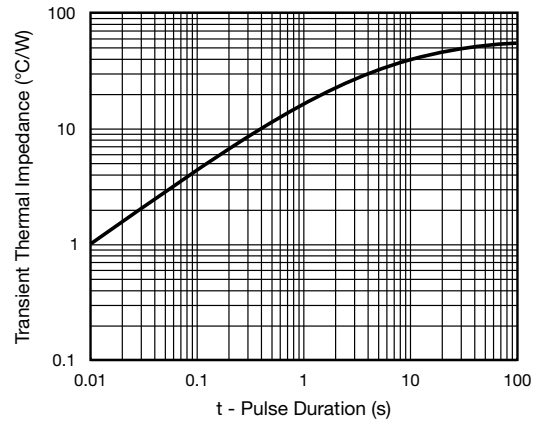
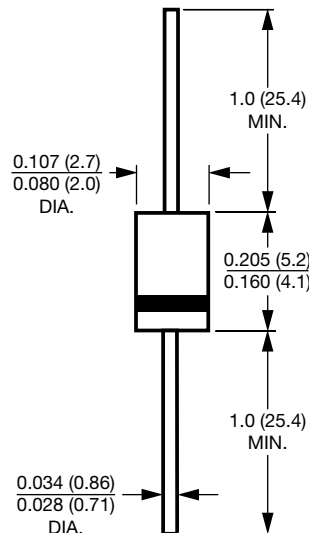


Fig. 6 - Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-41 (DO-204AL)**





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