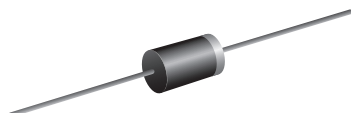




## General Purpose Plastic Rectifier



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,<br>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 ( $T_A = 25$ °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** ( $T_A = 25\text{ }^{\circ}\text{C}$  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** ( $T_A = 25\text{ }^{\circ}\text{C}$  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              |

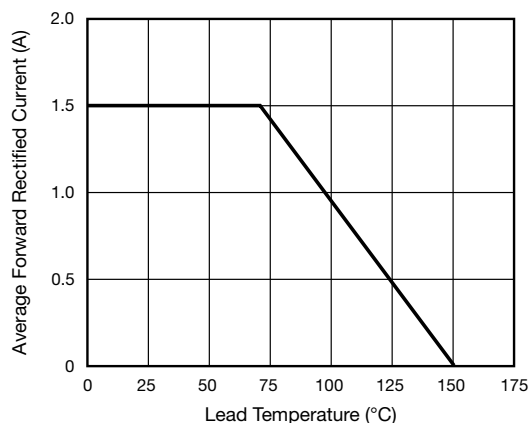
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

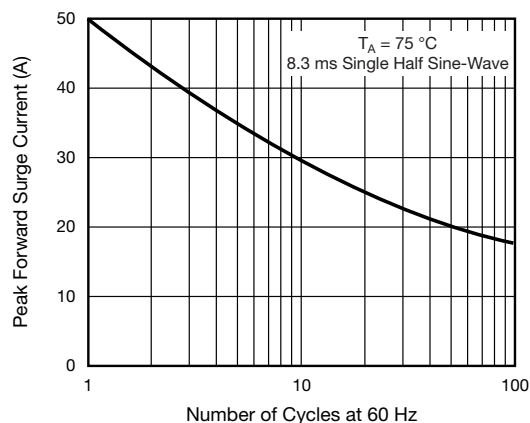


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

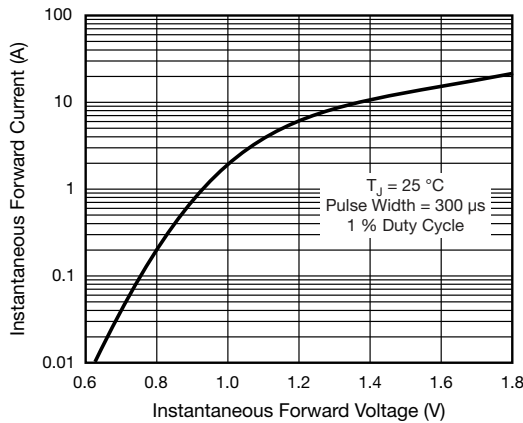


Fig. 3 - Typical Instantaneous Forward Characteristics

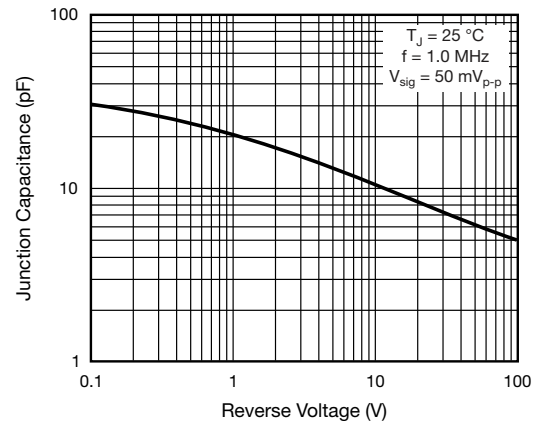


Fig. 5 - Typical Junction Capacitance

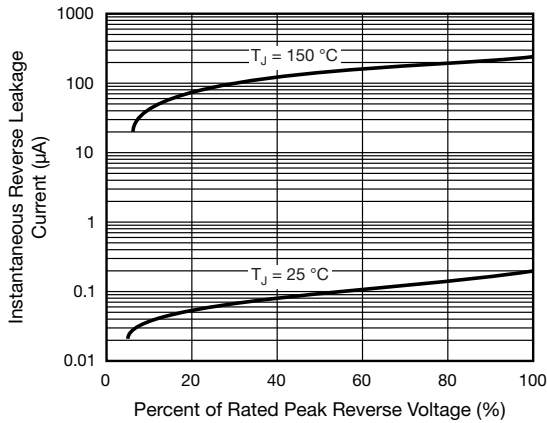


Fig. 4 - Typical Reverse Characteristics

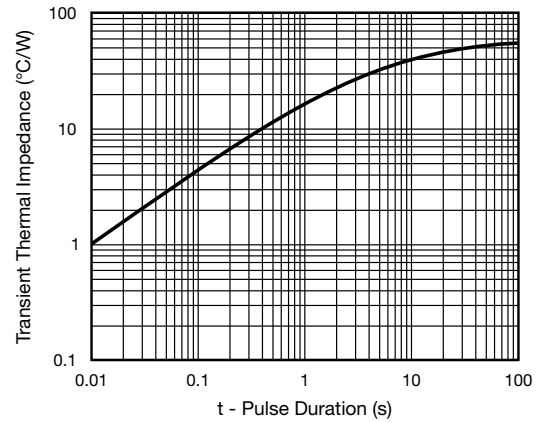
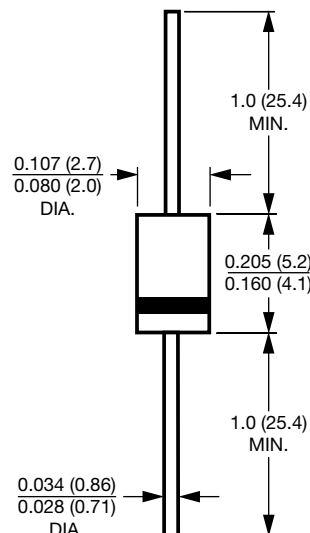


Fig. 6 - Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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