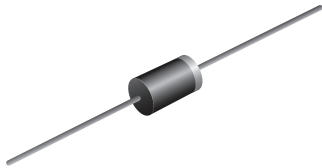




## Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®



DO-15 (DO-204AC)

### FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, typical  $I_R$  less than 0.1  $\mu\text{A}$
- 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

### PRIMARY CHARACTERISTICS

|                       |                   |
|-----------------------|-------------------|
| $I_{F(AV)}$           | 1.5 A             |
| $V_{RRM}$             | 50 V to 1000 V    |
| $I_{FSM}$             | 50 A              |
| $I_R$                 | 5.0 $\mu\text{A}$ |
| $V_F$                 | 1.4 V             |
| $T_J$ max.            | 175 °C            |
| Package               | DO-15 (DO-204AC)  |
| Circuit configuration | Single            |

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** DO-15 (DO-204AC), molded epoxy over glass 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

### MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted) <sup>(1)</sup>

| PARAMETER   | SYMBOL         | 1N53<br>91GP | 1N53<br>92GP | 1N53<br>93GP | 1N53<br>94GP | 1N53<br>95GP | 1N53<br>96GP | 1N53<br>97GP | 1N53<br>98GP | 1N53<br>99GP | 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 0.375" (9.5 mm) lead length at $T_L = 70\text{ °C}$             | $I_{F(AV)}$    | 1.5          |              |              |              |              |              |              |              |              | A             |
| Peak forward surge current 8.3 ms single half sine-wave super-imposed on rated load                       | $I_{FSM}$      | 50           |              |              |              |              |              |              |              |              | A             |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_A = 70\text{ °C}$ | $I_{R(AV)}$    | 300          |              |              |              |              |              |              |              |              | $\mu\text{A}$ |
| Operating junction and storage temperature range  | $T_J, T_{STG}$ | -65 to +175  |              |              |              |              |              |              |              |              | °C            |

#### Note

<sup>(1)</sup> JEDEC® registered values



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |  |                        |                               |              |              |              |              |              |              |              |              |              |      |
|--|--|------------------------|-------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------|
| PARAMETER  | TEST CONDITIONS  |                        | SYMBOL                        | 1N53<br>91GP | 1N53<br>92GP | 1N53<br>93GP | 1N53<br>94GP | 1N53<br>95GP | 1N53<br>96GP | 1N53<br>97GP | 1N53<br>98GP | 1N53<br>99GP | UNIT |
| Maximum instantaneous forward voltage                                      | 1.5 A  | T <sub>A</sub> = 70 °C | V <sub>F</sub> <sup>(1)</sup> |              |              |              |              | 1.4          |              |              |              |              | V    |
| Maximum DC reverse current at rated DC blocking voltage                    | T <sub>A</sub> = 25 °C   |                        | I <sub>R</sub> <sup>(1)</sup> | 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   |

**Note**

(1) JEDEC registered values

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |              |              |              |              |              |              |              |              |              |      |  |      |
|---|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------|--|------|
| PARAMETER   | SYMBOL                          | 1N53<br>91GP | 1N53<br>92GP | 1N53<br>93GP | 1N53<br>94GP | 1N53<br>95GP | 1N53<br>96GP | 1N53<br>97GP | 1N53<br>98GP | 1N53<br>99GP | UNIT |  |      |
| Typical thermal resistance  | R <sub>θJA</sub> <sup>(1)</sup> | 45           |              |              |              |              |              |              |              |              |      |  | °C/W |

**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                    |
| 1N5397GP-E3/54                 | 0.425           | 54                     | 4000          | 13" diameter paper tape and reel |
| 1N5397GP-E3/73                 | 0.425           | 73                     | 2000          | Ammo pack packaging              |



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

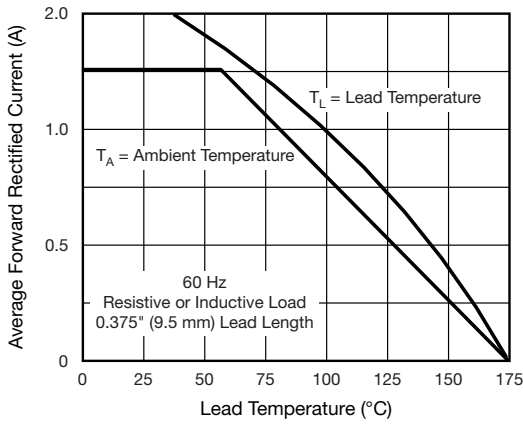


Fig. 1 - Forward Current Derating Curve

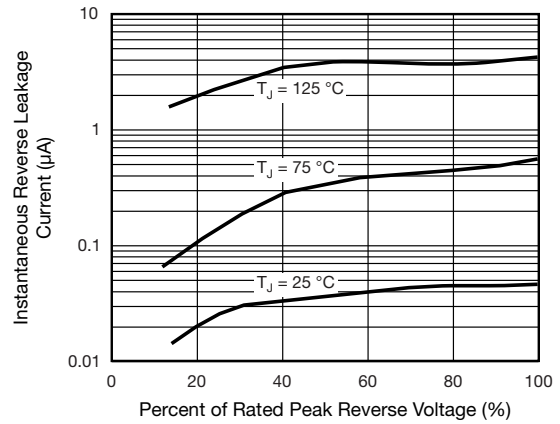


Fig. 4 - Typical Reverse Characteristics

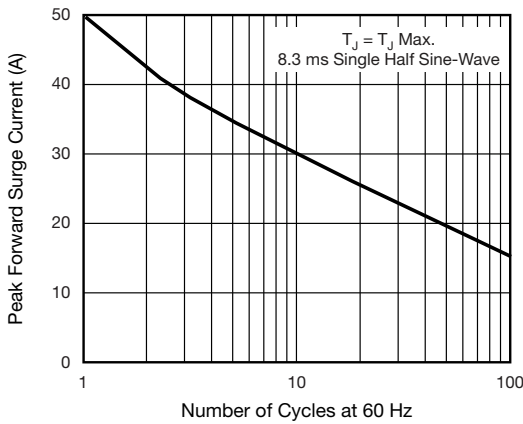


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

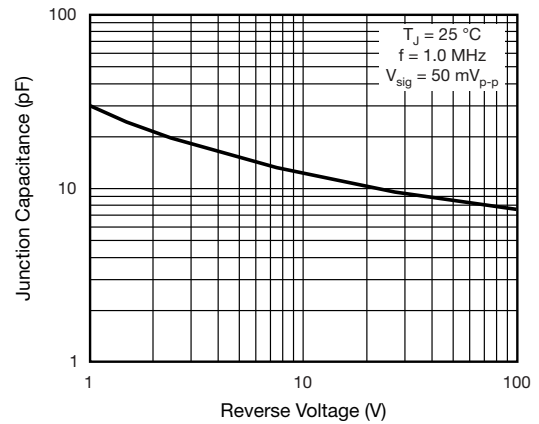


Fig. 5 - Typical Junction Capacitance

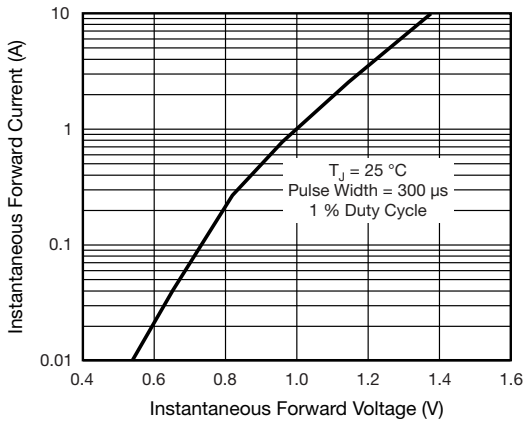


Fig. 3 - Typical Instantaneous Forward Characteristics

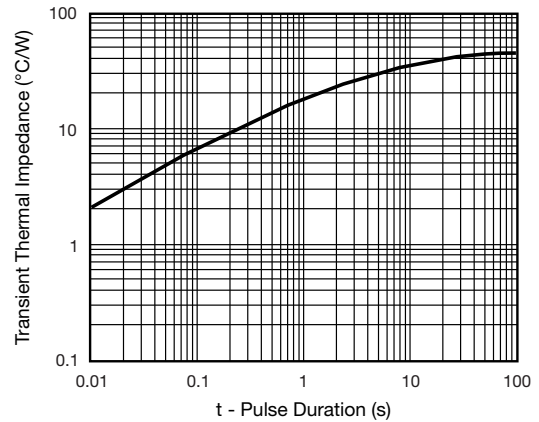
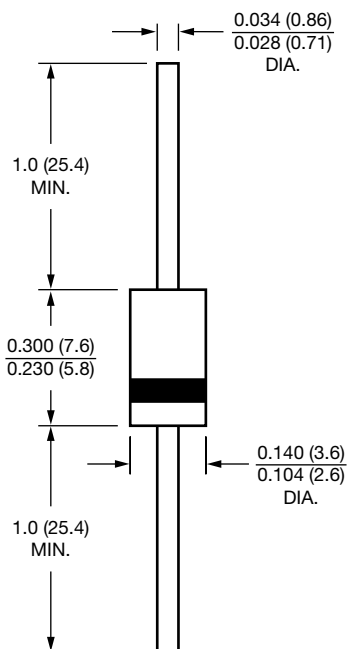


Fig. 6 - Typical Transient Thermal Impedance



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

**DO-15 (DO-204AC)**





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