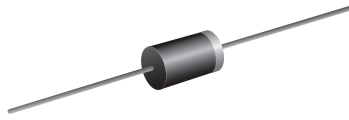


## Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®



DO-204AL (DO-41)

### FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current,  $I_R$  less than 0.1  $\mu$ A
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- 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-204AL, molded epoxy over glass body  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

| PRIMARY CHARACTERISTICS |                                    |
|-------------------------|------------------------------------|
| $I_{F(AV)}$             | 1.0 A                              |
| $V_{RRM}$               | 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 30 A                               |
| $I_R$                   | 1.0 $\mu$ A                        |
| $V_F$                   | 1.0 V                              |
| $T_J$ max.              | 175 °C                             |
| Package                 | DO-204AL (DO-41)                   |
| Diode variation         | Single die                         |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted) <sup>(1)</sup>                    |                |               |          |          |          |          |      |    |
|---|----------------|---------------|----------|----------|----------|----------|------|----|
| PARAMETER   | SYMBOL         | 1N3611GP      | 1N3612GP | 1N3613GP | 1N3614GP | 1N3957GP | UNIT |    |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$      | 200           | 400      | 600      | 800      | 1000     | V    |    |
| Maximum RMS voltage   | $V_{RMS}$      | 140           | 280      | 420      | 560      | 700      | V    |    |
| Maximum DC blocking voltage   | $V_{DC}$       | 200           | 400      | 600      | 800      | 1000     | A    |    |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length at $T_A = 75$ °C | $I_{F(AV)}$    | 1.0           |          |          |          |          |      | A  |
| Peak forward surge current 8.3 ms single half<br>sine-wave superimposed on rated load     | $I_{FSM}$      | 30            |          |          |          |          |      | 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                        | 1N3611GP | 1N3612GP | 1N3613GP | 1N3614GP | 1N3957GP | UNIT |
| Maximum instantaneous forward voltage                                      | 1.0 A  | V <sub>F</sub>                |          |          | 1.0      |          |          | V    |
| Maximum DC reverse current at rated DC blocking voltage                    | T <sub>A</sub> = 25 °C   | I <sub>R</sub> <sup>(1)</sup> |          |          | 1.0      |          |          | 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>                |          |          | 8.0      |          |          | pF   |

**Note**

(1) JEDEC registered values

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |          |          |          |          |          |      |
|---|---------------------------------|----------|----------|----------|----------|----------|------|
| PARAMETER   | SYMBOL                          | 1N3611GP | 1N3612GP | 1N3613GP | 1N3614GP | 1N3957GP | 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 and from junction to lead 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                    |
| 1N3612GP-E3/54                 | 0.335           | 54                     | 5500          | 13" diameter paper tape and reel |
| 1N3612GP-E3/73                 | 0.335           | 73                     | 3000          | Ammo pack packaging              |
| 1N3612GPHE3/54 <sup>(1)</sup>  | 0.335           | 54                     | 5500          | 13" diameter paper tape and reel |
| 1N3612GPHE3/73 <sup>(1)</sup>  | 0.335           | 73                     | 3000          | Ammo pack packaging              |

**Note**

(1) AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

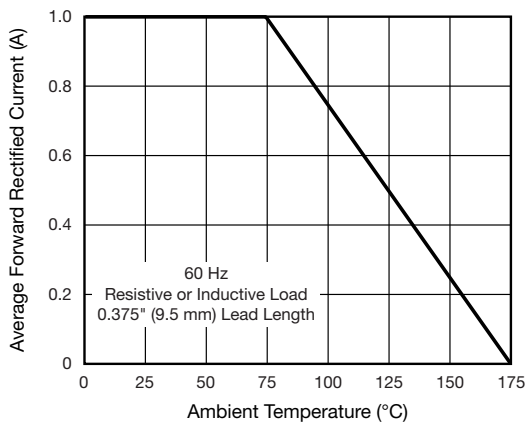


Fig. 1 - Max. Forward Current Derating

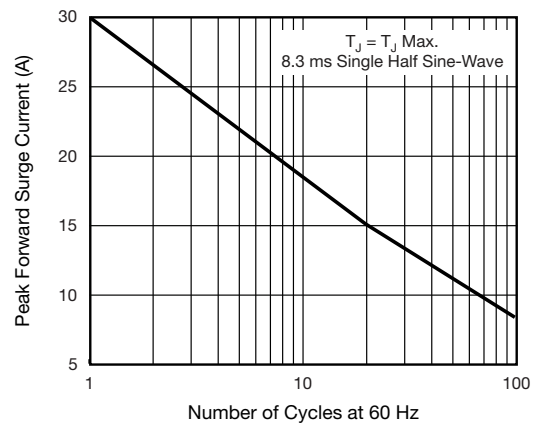


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

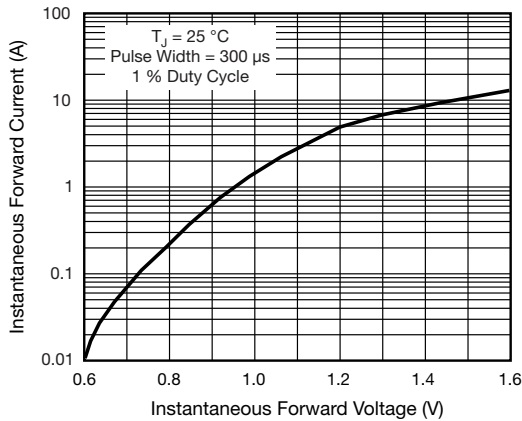


Fig. 3 - Typical Instantaneous Forward Characteristics

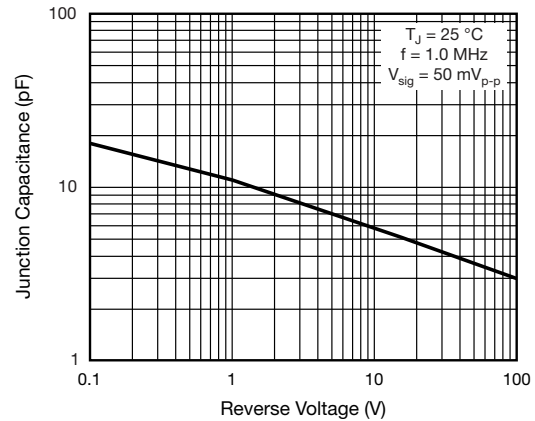


Fig. 5 - Typical Junction Capacitance

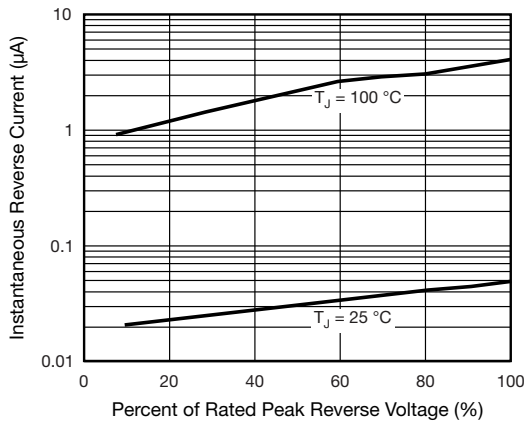


Fig. 4 - Typical Reverse Characteristics

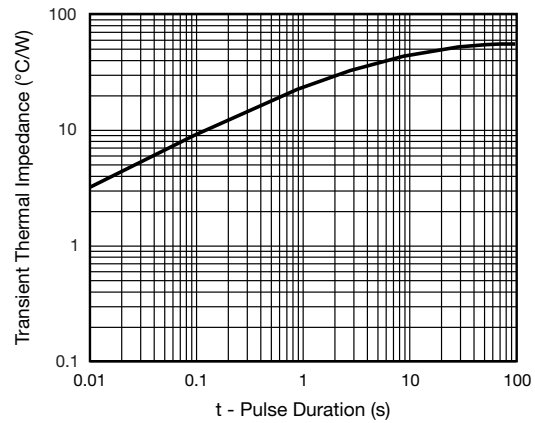
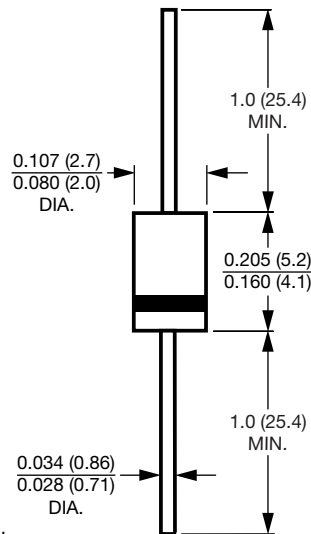


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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



**Note**

- Lead diameter is  $\frac{0.026 (0.66)}{0.023 (0.58)}$  for suffix "E" part numbers



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