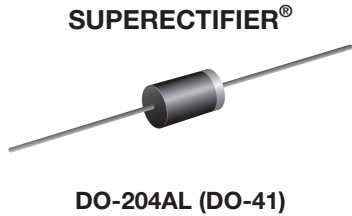


## Glass Passivated Junction Rectifier



### FEATURES

- Superrectifier 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
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B102
- AEC-Q101 qualified
- 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

### 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 to 1000 V |
| $I_{FSM}$               | 30 A            |
| $I_R$                   | 1.0 $\mu$ A     |
| $V_F$                   | 1.0 V           |
| $T_J$ max.              | 175 °C          |

| 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 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 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

# 1N3611GP thru 1N3615GP, 1N3957GP

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |   |             |          |          |          |          |          |               |
|---|---|-------------|----------|----------|----------|----------|----------|---------------|
| PARAMETER   | TEST CONDITIONS   | SYMBOL      | 1N3611GP | 1N3612GP | 1N3613GP | 1N3614GP | 1N3957GP | UNIT          |
| Maximum instantaneous forward voltage   | 1.0 A   | $V_F$       |          |          | 1.0      |          |          | V             |
| Maximum DC reverse current at rated DC blocking voltage                               | $T_A = 25\text{ }^\circ\text{C}$  | $I_R^{(1)}$ |          |          | 1.0      |          |          | $\mu\text{A}$ |
|   | $T_A = 150\text{ }^\circ\text{C}$   |             |          |          | 300      |          |          |               |
| Typical reverse recovery time   | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ ,<br>$I_{rr} = 0.25\text{ A}$ | $t_{rr}$    |          |          | 2.0      |          |          | $\mu\text{s}$ |
| Typical junction capacitance  | 4.0 V, 1 MHz  | $C_J$       |          |          | 8.0      |          |          | pF            |

**Note**

(1) JEDEC registered values

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |          |          |          |          |          |                    |
|--|-----------------------|----------|----------|----------|----------|----------|--------------------|
| PARAMETER  | SYMBOL                | 1N3611GP | 1N3612GP | 1N3613GP | 1N3614GP | 1N3957GP | UNIT               |
| Typical thermal resistance   | $R_{\theta JA}^{(1)}$ |          |          | 55       |          |          | $^\circ\text{C/W}$ |
|  | $R_{\theta JL}^{(1)}$ |          |          | 25       |          |          |                    |

**Note**

(1) Thermal resistance from junction to ambient and from junction to lead 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                    |
| 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 (1)             | 0.335           | 54                     | 5500          | 13" diameter paper tape and reel |
| 1N3612GPHE3/73 (1)             | 0.335           | 73                     | 3000          | Ammo pack packaging              |

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

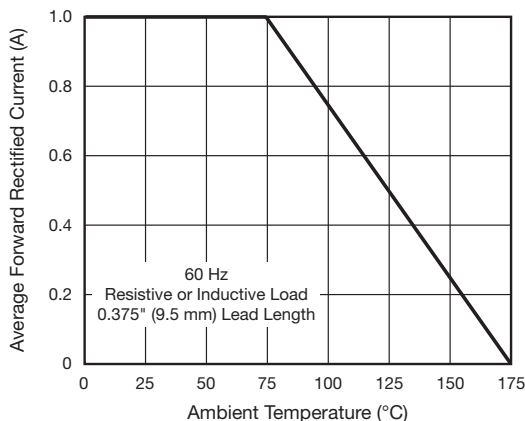


Fig. 1 - Max. Forward Current Derating

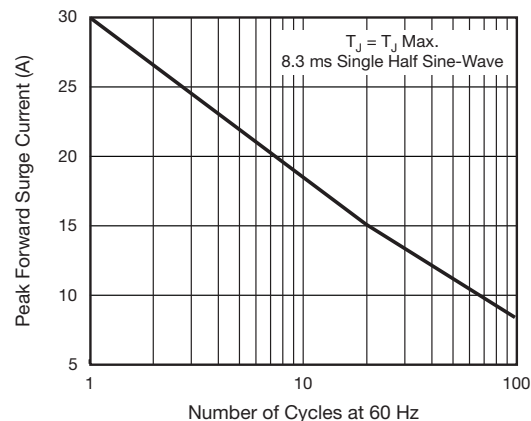


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

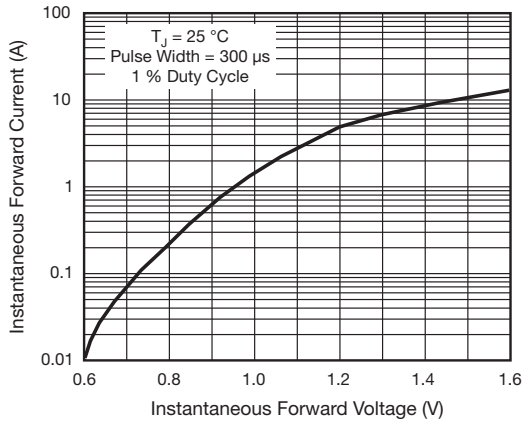


Fig. 3 - Typical Instantaneous Forward Characteristics

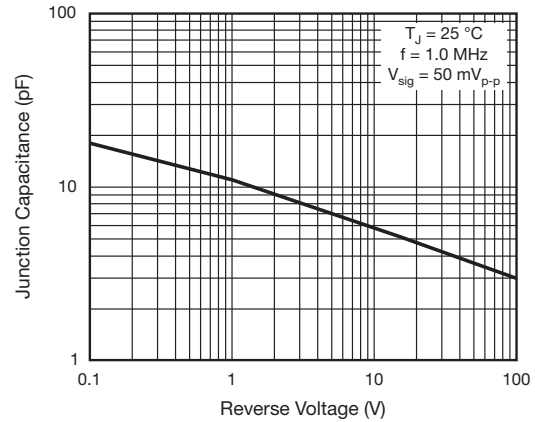


Fig. 5 - Typical Junction Capacitance

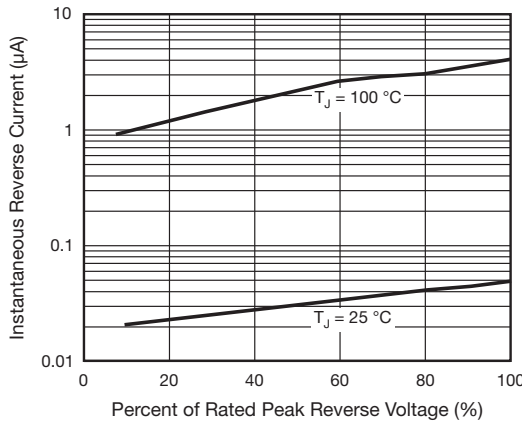


Fig. 4 - Typical Reverse Characteristics

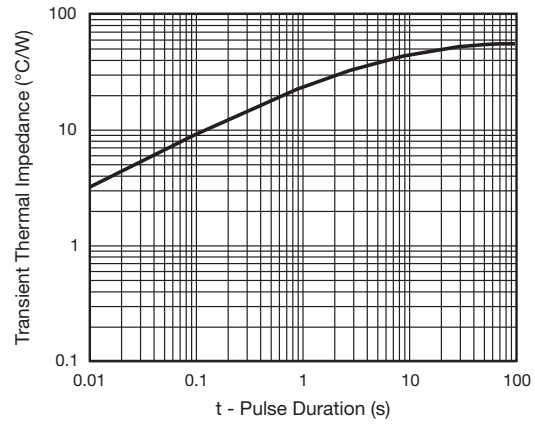
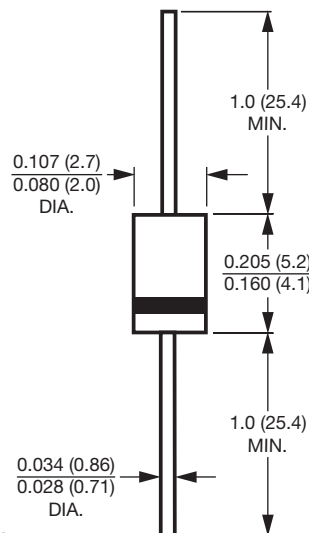


Fig. 6 - Typical Transient Thermal Impedance

## 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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