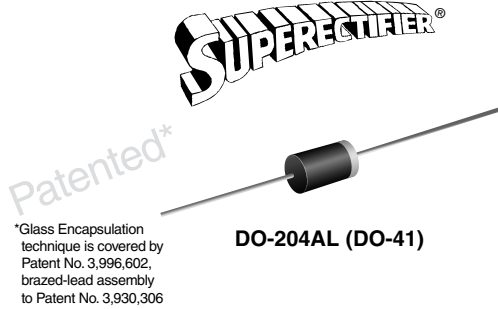


## Glass Passivated Junction Rectifier



### FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, typical  $I_R$  less than 0.1  $\mu A$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** DO-204AL, molded epoxy over glass body  
Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 1.0 A          |
| $V_{RRM}$               | 50 V to 1000 V |
| $I_{FSM}$               | 30 A           |
| $I_R$                   | 5.0 $\mu A$    |
| $V_F$                   | 1.1 V          |
| $T_J$ max.              | 175 °C         |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)  |                |               |          |          |          |          |          |          |         |
|--|----------------|---------------|----------|----------|----------|----------|----------|----------|---------|
| PARAMETER  | SYMBOL         | 1N4001GP      | 1N4002GP | 1N4003GP | 1N4004GP | 1N4005GP | 1N4006GP | 1N4007GP | UNIT    |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 50            | 100      | 200      | 400      | 600      | 800      | 1000     | V       |
| Maximum RMS voltage <sup>(1)</sup>   | $V_{RMS}$      | 35            | 70       | 140      | 280      | 420      | 560      | 700      | V       |
| Maximum DC blocking voltage <sup>(1)</sup>   | $V_{DC}$       | 50            | 100      | 200      | 400      | 600      | 800      | 1000     | V       |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 75$ °C <sup>(1)</sup>          | $I_{F(AV)}$    | 1.0           |          |          |          |          |          |          | A       |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load <sup>(1)</sup>              | $I_{FSM}$      | 30            |          |          |          |          |          |          | A       |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length $T_A = 75$ °C <sup>(1)</sup> | $I_{R(AV)}$    | 30            |          |          |          |          |          |          | $\mu A$ |
| Operating junction and storage temperature range <sup>(1)</sup>  | $T_J, T_{STG}$ | - 65 to + 175 |          |          |          |          |          |          | °C      |

**Note:**

(1) JEDEC registered values

# 1N4001GP thru 1N4007GP

Vishay General Semiconductor



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |  |          |          |          |          |           |          |          |          |               |
|--|--|----------|----------|----------|----------|-----------|----------|----------|----------|---------------|
| PARAMETER  | TEST CONDITIONS  | SYMBOL   | 1N4001GP | 1N4002GP | 1N4003GP | 1N4004GP  | 1N4005GP | 1N4006GP | 1N4007GP | UNIT          |
| Maximum instantaneous forward voltage  | 1.0 A  | $V_F$    |          |          |          | 1.1       |          |          |          | V             |
| Maximum DC reverse current at rated DC blocking voltage <sup>(1)</sup>                       | $T_A = 25\text{ }^\circ\text{C}$<br>$T_A = 125\text{ }^\circ\text{C}$        | $I_R$    |          |          |          | 5.0<br>50 |          |          |          | $\mu\text{A}$ |
| Typical reverse recovery time  | $I_F = 0.5\text{ A}$ ,<br>$I_R = 1.0\text{ A}$ ,<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

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |          |          |          |          |          |          |          |                    |
|---|-----------------|----------|----------|----------|----------|----------|----------|----------|--------------------|
| PARAMETER   | SYMBOL          | 1N4001GP | 1N4002GP | 1N4003GP | 1N4004GP | 1N4005GP | 1N4006GP | 1N4007GP | UNIT               |
| Typical thermal resistance <sup>(1)</sup>   | $R_{\theta JA}$ |          |          |          | 55       |          |          |          | $^\circ\text{C/W}$ |
|   | $R_{\theta JL}$ |          |          |          | 25       |          |          |          |                    |

**Note:**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                  |
|---------------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| 1N4004GP-E3/54                        | 0.335           | 54                     | 5500          | 13" diameter paper tape and reel |
| 1N4004GP-E3/73                        | 0.335           | 73                     | 3000          | Ammo pack packaging              |
| 1N4004GPHE3/54 <sup>(1)</sup>         | 0.335           | 54                     | 5500          | 13" diameter paper tape and reel |
| 1N4004GPHE3/73 <sup>(1)</sup>         | 0.335           | 73                     | 3000          | Ammo pack packaging              |

**Note:**

(1) Automotive grade AEC Q101 qualified



### RATINGS AND CHARACTERISTICS CURVES

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

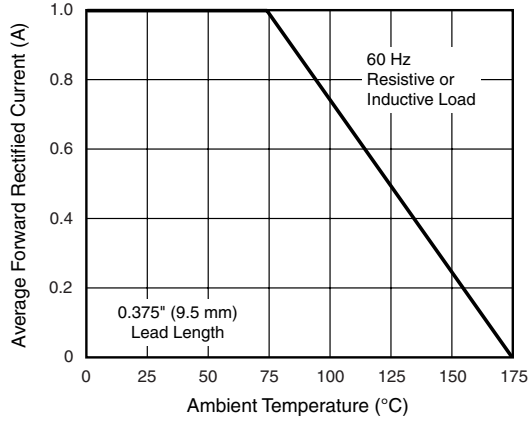


Figure 1. Forward Current Derating Curve

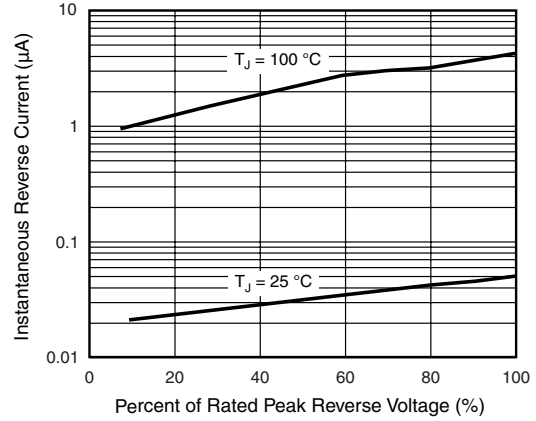


Figure 4. Typical Reverse Characteristics

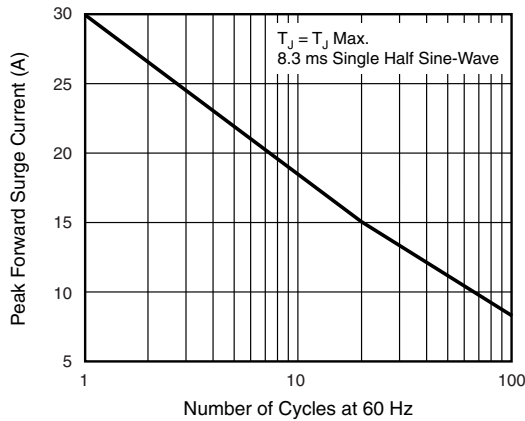


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

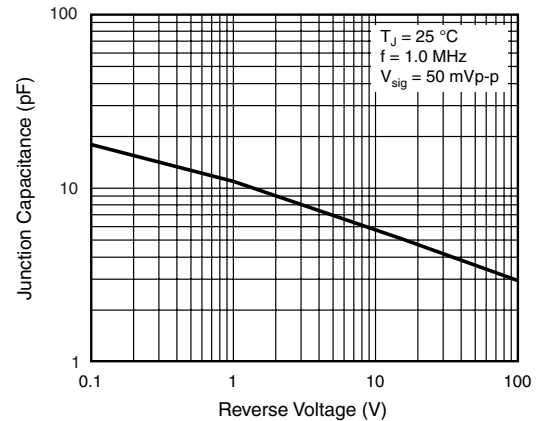


Figure 5. Typical Junction Capacitance

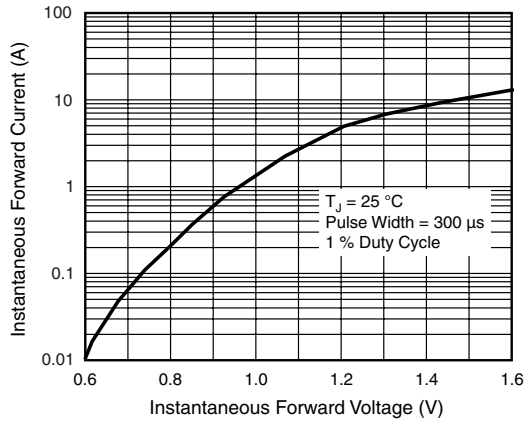


Figure 3. Typical Instantaneous Forward Characteristics

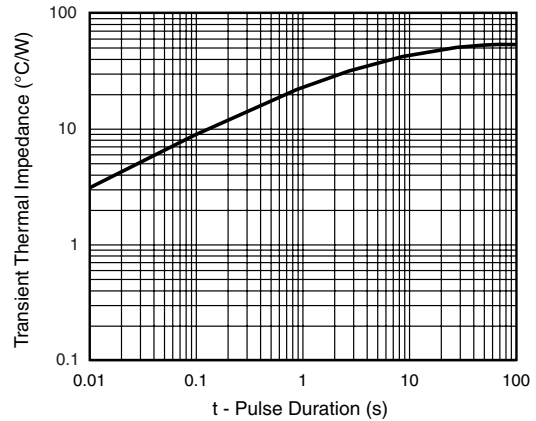
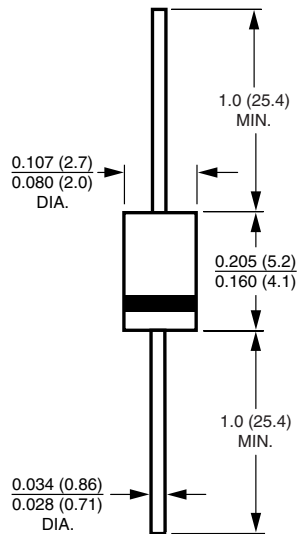


Figure 6. Typical Transient Thermal Impedance

## 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



## Disclaimer

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