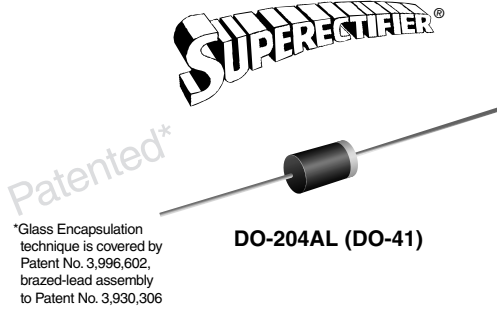


Glass Passivated Junction Rectifier



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 μA
- 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 μA |
| 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 ⁽¹⁾ | V_{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC blocking voltage ⁽¹⁾ | 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 ⁽¹⁾ | $I_{F(AV)}$ | 1.0 | | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load ⁽¹⁾ | I_{FSM} | 30 | | | | | | | A |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length $T_A = 75$ °C ⁽¹⁾ | $I_{R(AV)}$ | 30 | | | | | | | μA |
| Operating junction and storage temperature range ⁽¹⁾ | T_J, T_{STG} | - 65 to + 175 | | | | | | | °C |

Note:

(1) JEDEC registered values

1N4001GP thru 1N4007GP

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ 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 ⁽¹⁾ | $T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$ | I_R | | | | 5.0 50 | | | | μA |
| Typical reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | t_{rr} | | | | 2.0 | | | | μs |
| 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 | 1N4001GP | 1N4002GP | 1N4003GP | 1N4004GP | 1N4005GP | 1N4006GP | 1N4007GP | UNIT |
| Typical thermal resistance ⁽¹⁾ | $R_{\theta JA}$ | | | | 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

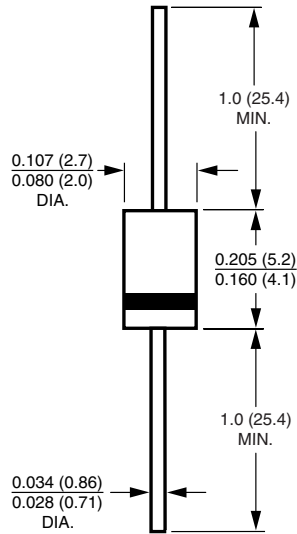
| ORDERING INFORMATION (Example) | | | | |
|---------------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| 1N4004GP-E3/54 | 0.335 | 54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

Note:

(1) Automotive grade AEC Q101 qualified

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