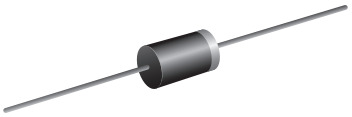
# Glass Passivated Junction Plastic Rectifier

**SUPERECTIFIER®**



**DO-41 (DO-204AL)**

## FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current
- 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

RoHS COMPLIANT

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** DO-41 (DO-204AL), 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

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 1.0 A |
| $V_{RRM}$ | 100 V to 1000 V |
| $I_{FSM}$ | 30 A |
| $I_R$ | 5.0 µA |
| $V_F$ | 1.1 V |
| $T_J$ max. | 175 °C |
| Package | DO-41 (DO-204AL) |
| Circuit configuration | Single |

**MAXIMUM RATINGS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | SYMBOL | GP10-4002 | GP10-4003 | GP10-4004 | GP10-4005 | GP10-4006 | GP10-4007 | UNIT |
|---|---|---|---|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 100 to 1000 (fig.5) | | | | | | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length (fig. 1) | $I_{F(AV)}$ | 1.0 | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 30 | | | | | | A |
| Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead length at $T_A$ = 75 °C | $I_{R(AV)}$ | 30 | | | | | | µA |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | -65 to +175 | | | | | | °C |

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | TEST CONDITIONS | SYMBOL | GP10-4002 | GP10-4003 | GP10-4004 | GP10-4005 | GP10-4006 | GP10-4007 | UNIT |
|---|---|---|---|---|---|---|---|---|---|
| Maximum instantaneous forward voltage | 1.0 A | $V_F$ | 1.1 | | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage | $T_A$ = 25 °C | $I_R$ | 5.0 | | | | | | µA |
| | $T_A$ = 125 °C | | 50 | | | | | | |
| Typical reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | $t_{rr}$ | 3.0 | | | | | | µs |
| Typical junction capacitance | 4.0 V, 1 MHz | $C_J$ | 8.0 | | | | 7.0 | | pF |


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| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| PARAMETER | SYMBOL | GP10-4002 | GP10-4003 | GP10-4004 | GP10-4005 | GP10-4006 | GP10-4007 | UNIT |
| Typical thermal resistance | $R_{\theta JA}$ (1) | 55 | | | | | | °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 |
| GP10-4002-E3/54 | 0.335 | 54 | 5500 | 13" diameter paper tape and reel |
| GP10-4002-E3/73 | 0.335 | 73 | 3000 | Ammo pack packaging |

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

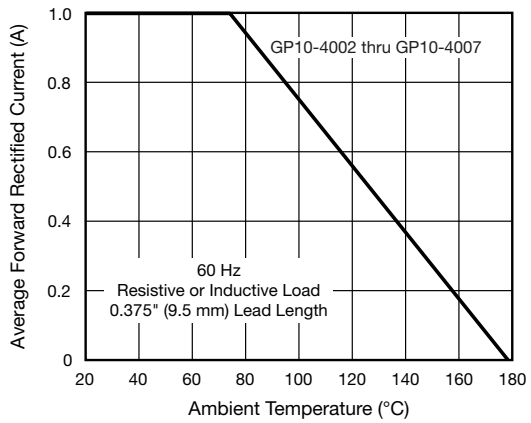



Fig. 1 - Forward Current Derating Curve

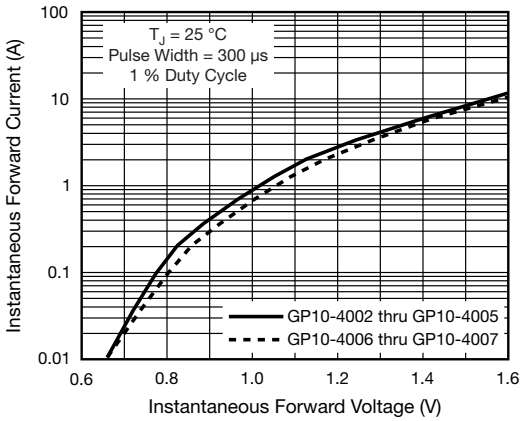



Fig. 3 - Typical Instantaneous Forward Characteristics

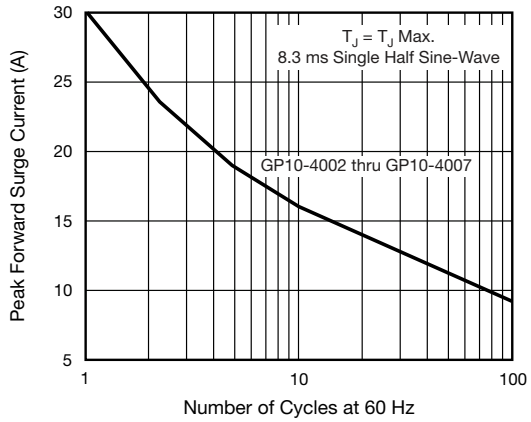



Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

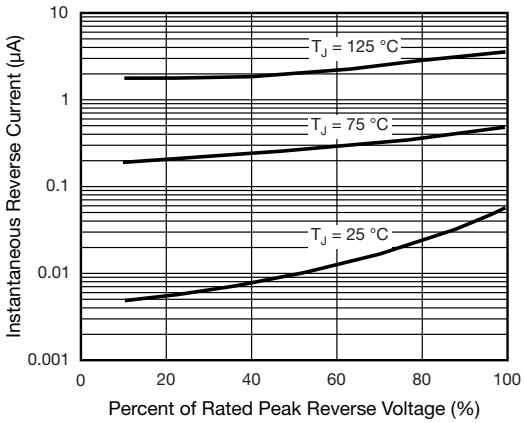



Fig. 4 - Typical Reverse Characteristics



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GP10-4002..... 100 V
GP10-4003..... 200 V
GP10-4004..... 400 V
GP10-4005..... 600 V
GP10-4006..... 800 V
GP10-4007..... 1000 V

Fig. 5 - Maximum Repetitive Peak Reverse Voltage, $V_{RRM}$

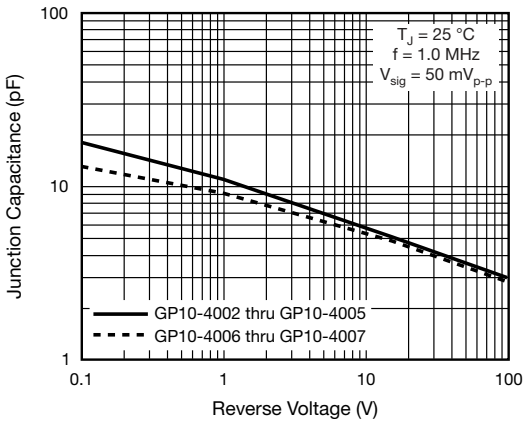
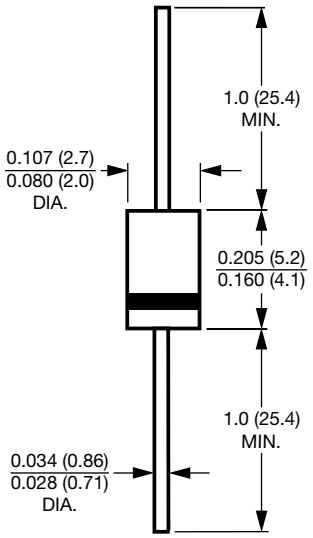



Fig. 6 - Typical Junction Capacitance

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

**DO-41 (DO-204AL)**




**Note**

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



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