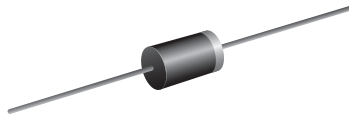


## Glass Passivated Junction Plastic Rectifier

**SUPERECTIFIER®**

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

### FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current
- 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](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

### 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

**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               |
| $V_{RRM}$               | 50 V to 1600 V      |
| $I_{FSM}$               | 30 A, 25 A          |
| $I_R$                   | 5.0 $\mu$ A         |
| $V_F$                   | 1.1 V, 1.2 V, 1.3 V |
| $T_J$ max.              | 175 °C              |
| Package                 | DO-204AL (DO-41)    |
| Diode variations        | Single die          |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)  |                |                     |   |   |   |   |             |   |   |   |   |   |   |   |      |         |    |
|--|----------------|---------------------|---|---|---|---|-------------|---|---|---|---|---|---|---|------|---------|----|
| PARAMETER  | SYMBOL         | A                   | B | D | G | J | K           | M | N | Q | T | V | W | Y | UNIT |         |    |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 50 to 1600 (fig. 5) |   |   |   |   |             |   |   |   |   |   |   |   |      | V       |    |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length (fig. 1)                      | $I_{F(AV)}$    | 1.0                 |   |   |   |   |             |   |   |   |   |   |   |   |      | A       |    |
| Peak forward surge current 8.3 ms single half<br>sine-wave superimposed on rated load                  | $I_{FSM}$      | 30                  |   |   |   |   | 25          |   |   |   |   |   |   |   |      |         | A  |
| Maximum full load reverse current, full cycle<br>average, 0.375" (9.5 mm) lead length at $T_A = 75$ °C | $I_{R(AV)}$    | 30                  |   |   |   |   |             |   |   |   |   |   |   |   |      | $\mu$ A |    |
| Operating junction and storage temperature range   | $T_J, T_{STG}$ | -65 to +175         |   |   |   |   | -65 to +150 |   |   |   |   |   |   |   |      |         | °C |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |   |          |     |   |   |   |   |     |   |   |   |     |               |   |    |      |
|--|---|----------|-----|---|---|---|---|-----|---|---|---|-----|---------------|---|----|------|
| PARAMETER  | TEST CONDITIONS   | SYMBOL   | A   | B | D | G | J | K   | M | N | Q | T   | V             | W | Y  | UNIT |
| Maximum instantaneous forward voltage  | 1.0 A   | $V_F$    | 1.1 |   |   |   |   | 1.2 |   |   |   | 1.3 |               |   | V  |      |
| Maximum DC reverse current at rated DC blocking voltage                                      | $T_A = 25\text{ }^\circ\text{C}$  | $I_R$    | 5.0 |   |   |   |   |     |   |   |   |     | $\mu\text{A}$ |   |    |      |
|  | $T_A = 125\text{ }^\circ\text{C}$   |          | 50  |   |   |   |   |     |   |   |   |     |               |   |    |      |
| Typical reverse recovery time  | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ ,<br>$t_{rr} = 0.25\text{ A}$ | $t_{rr}$ | 3.0 |   |   |   |   |     |   |   |   |     | $\mu\text{s}$ |   |    |      |
| Typical junction capacitance   | 4.0 V, 1 MHz  | $C_J$    | 8.0 |   |   |   |   | 7.0 |   |   |   | 5.0 |               |   | pF |      |

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |    |   |   |   |   |   |   |   |                    |   |   |   |   |      |  |
|---|-----------------------|----|---|---|---|---|---|---|---|--------------------|---|---|---|---|------|--|
| PARAMETER   | SYMBOL                | A  | B | D | G | J | K | M | N | Q                  | T | V | W | Y | UNIT |  |
| Typical thermal resistance  | $R_{\theta JA}^{(1)}$ | 55 |   |   |   |   |   |   |   | $^\circ\text{C/W}$ |   |   |   |   |      |  |

**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                    |
| GP10J-E3/54                           | 0.335           | 54                     | 5500          | 13" diameter paper tape and reel |
| GP10J-E3/73                           | 0.335           | 73                     | 3000          | Ammo pack packaging              |

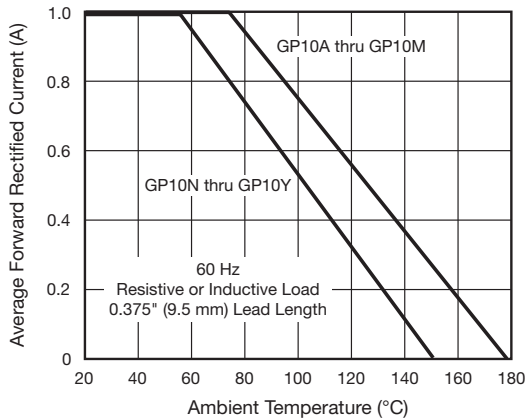
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

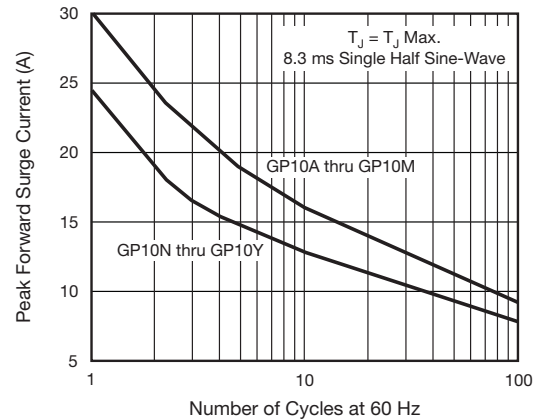


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

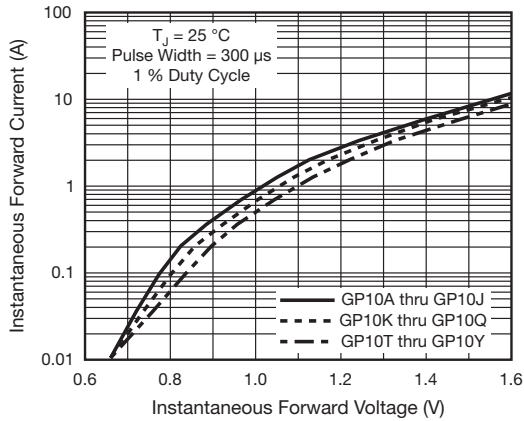


Fig. 3 - Typical Instantaneous Forward Characteristics

|            |        |
|------------|--------|
| GP10A..... | 50 V   |
| GP10B..... | 100 V  |
| GP10D..... | 200 V  |
| GP10G..... | 400 V  |
| GP10J..... | 600 V  |
| GP10K..... | 800 V  |
| GP10M..... | 1000 V |
| GP10N..... | 1100 V |
| GP10Q..... | 1200 V |
| GP10T..... | 1300 V |
| GP10V..... | 1400 V |
| GP10W..... | 1500 V |
| GP10Y..... | 1600 V |

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

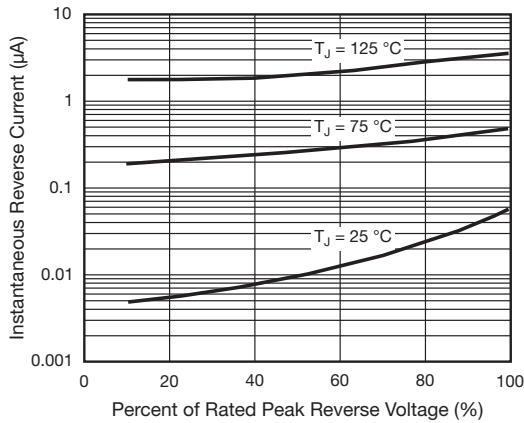


Fig. 4 - Typical Reverse Characteristics

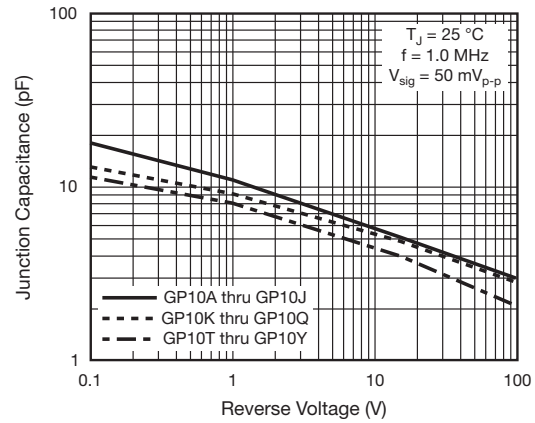
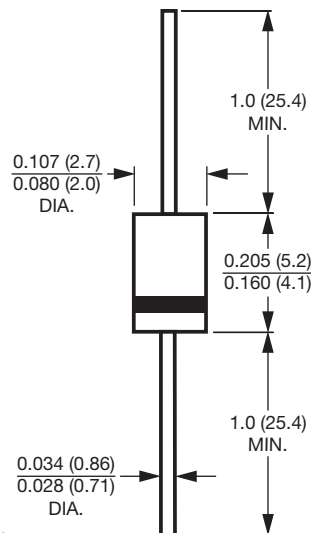


Fig. 6 - Typical Junction Capacitance

**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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