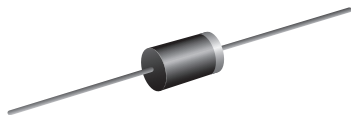




## High Voltage Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®



DO-41 (DO-204AL)

### FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- 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

| PRIMARY CHARACTERISTICS |  |
|-------------------------|--|
| $I_{F(AV)}$             | 0.25 A                                 |
| $V_{RRM}$               | 2000 V, 2500 V, 3000 V, 3500 V, 4000 V |
| $I_{FSM}$               | 15 A                                   |
| $I_R$                   | 5.0 $\mu$ A                            |
| $V_F$                   | 3.0 V                                  |
| $T_J$ max.              | 175 °C                                 |
| Package                 | DO-41 (DO-204AL)                       |
| Circuit configuration   | Single                                 |

### TYPICAL APPLICATIONS

For use in rectification of high voltage power supplies, inverters, converters, and freewheeling diodes application.

### 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

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                                   |                |             |         |         |         |         |      |
|---|----------------|-------------|---------|---------|---------|---------|------|
| PARAMETER   | SYMBOL         | GP02-20     | GP02-25 | GP02-30 | GP02-35 | GP02-40 | UNIT |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$      | 2000        | 2500    | 3000    | 3500    | 4000    | V    |
| Maximum RMS voltage   | $V_{RMS}$      | 1400        | 1750    | 2100    | 2450    | 2800    | V    |
| Maximum DC blocking voltage   | $V_{DC}$       | 2000        | 2500    | 3000    | 3500    | 4000    | V    |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length at $T_A = 55$ °C | $I_{F(AV)}$    | 0.25        |         |         |         |         | A    |
| Peak forward surge current 8.3 ms single half<br>sine-wave superimposed on rated load     | $I_{FSM}$      | 15          |         |         |         |         | A    |
| Operating junction and storage temperature range  | $T_J, T_{STG}$ | -65 to +175 |         |         |         |         | °C   |



| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |   |          |         |         |         |         |         |               |
|---|---|----------|---------|---------|---------|---------|---------|---------------|
| PARAMETER   | TEST CONDITIONS   | SYMBOL   | GP02-20 | GP02-25 | GP02-30 | GP02-35 | GP02-40 | UNIT          |
| Maximum instantaneous forward voltage   | 1.0 A   | $V_F$    |         |         | 3.0     |         |         | V             |
| Maximum DC reverse current at rated DC blocking voltage                               | $T_A = 25\text{ }^\circ\text{C}$  | $I_R$    |         |         | 5.0     |         |         | $\mu\text{A}$ |
|   | $T_A = 100\text{ }^\circ\text{C}$   |          |         |         | 50      |         |         |               |
| 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  | $C_J$    |         |         | 3.0     |         |         | pF            |

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |         |         |         |         |         |                    |  |
|--|-----------------------|---------|---------|---------|---------|---------|--------------------|--|
| PARAMETER  | SYMBOL                | GP02-20 | GP02-25 | GP02-30 | GP02-35 | GP02-40 | UNIT               |  |
| Typical thermal resistance   | $R_{\theta JA}^{(1)}$ |         |         | 130     |         |         | $^\circ\text{C/W}$ |  |

**Note**

<sup>(1)</sup> 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                    |
| GP02-20-E3/54                  | 0.339           | 54                     | 5500          | 13" diameter paper tape and reel |
| GP02-20-E3/73                  | 0.339           | 73                     | 3000          | Ammo pack packaging              |



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

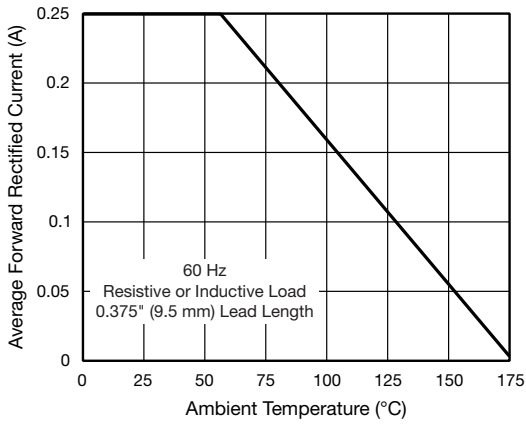


Fig. 1 - Forward Current Derating Curve

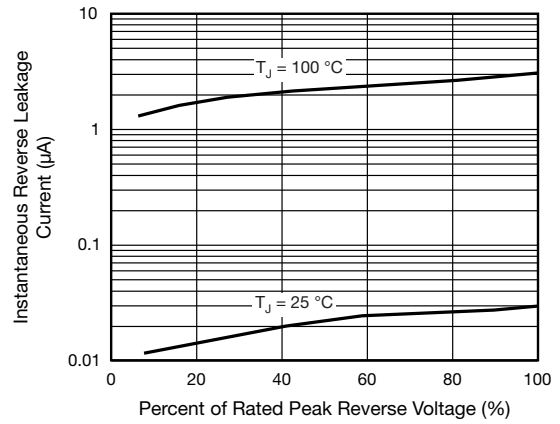


Fig. 4 - Typical Reverse Characteristics

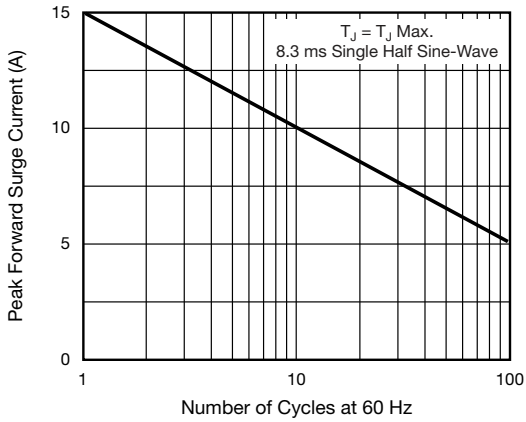


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

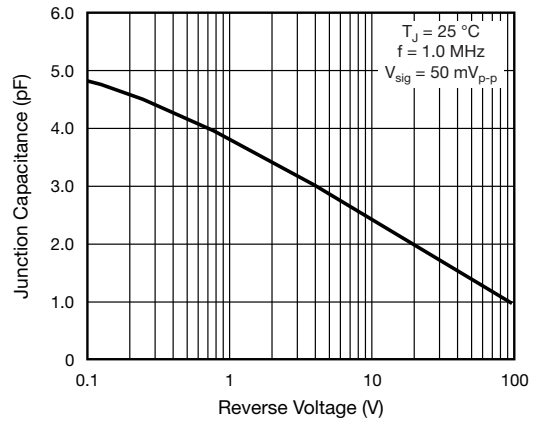


Fig. 5 - Typical Junction Capacitance

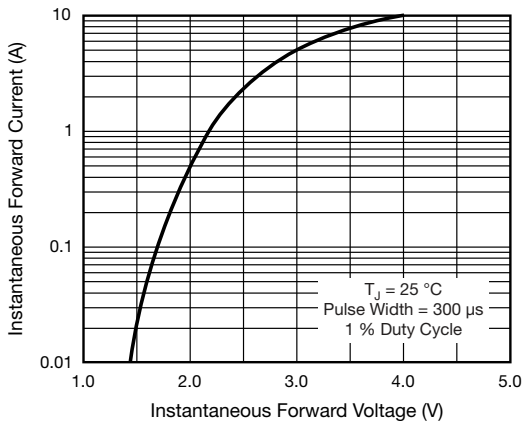
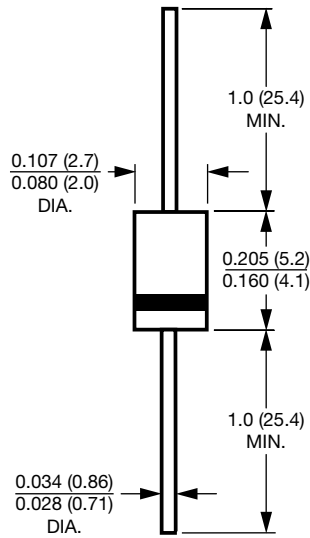


Fig. 3 - Typical Instantaneous Forward Characteristics



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

DO-41 (DO-204AL)





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