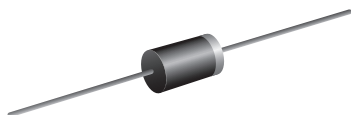




# High Voltage Glass Passivated Junction Plastic Rectifier

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)



## 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 <sub>F</sub>  | 3.0     |         |         |         |         | V    |
| Maximum DC reverse current at rated DC blocking voltage |                                                                          | T <sub>A</sub> = 25 °C  | I <sub>R</sub>  | 5.0     |         |         |         |         | μA   |
|                                                         |                                                                          | T <sub>A</sub> = 100 °C |                 | 50      |         |         |         |         |      |
| Typical reverse recovery time                           | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A |                         | t <sub>rr</sub> | 2.0     |         |         |         |         | μs   |
| Typical junction capacitance                            | 4.0 V, 1 MHz                                                             |                         | C <sub>J</sub>  | 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              |

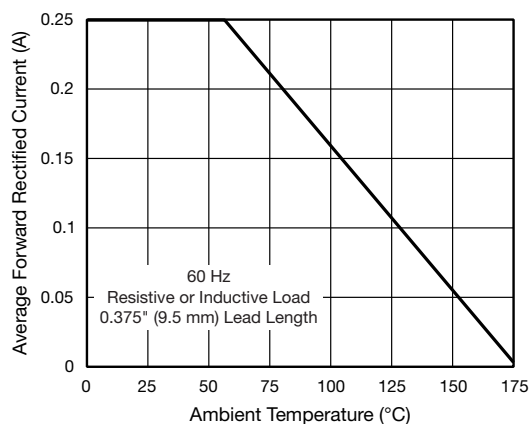
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

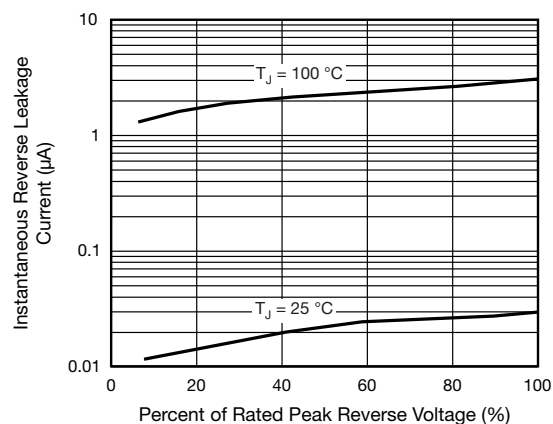


Fig. 4 - Typical Reverse Characteristics

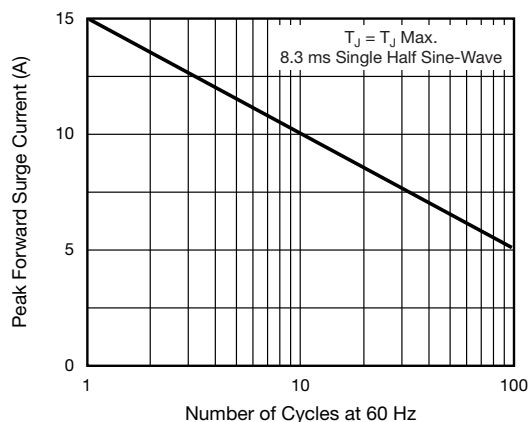


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

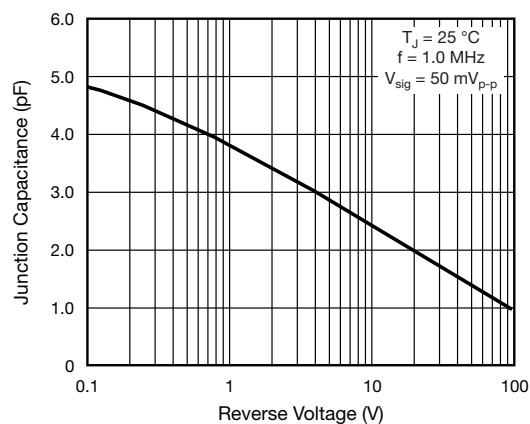


Fig. 5 - Typical Junction Capacitance

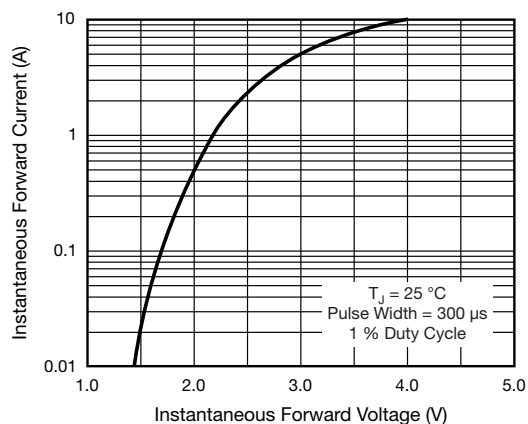
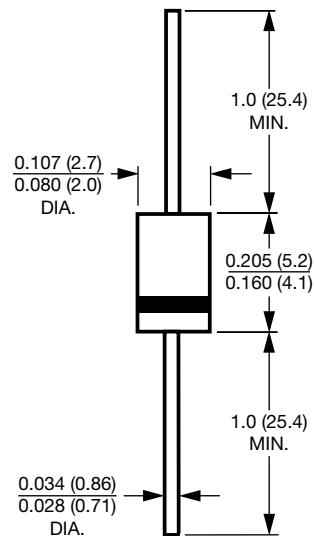


Fig. 3 - Typical Instantaneous Forward Characteristics



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

DO-41 (DO-204AL)





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