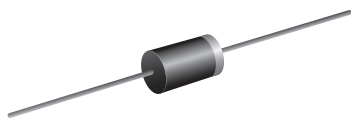


## Glass Passivated Ultrafast Plastic Rectifier

**SUPERECTIFIER®**

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

### FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- 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 high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive and telecommunication.

### 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  
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

| PRIMARY CHARACTERISTICS |                     |
|-------------------------|---------------------|
| $I_{F(AV)}$             | 1.0 A               |
| $V_{RRM}$               | 100 V, 150 V, 200 V |
| $I_{FSM}$               | 30 A                |
| $t_{rr}$                | 35 ns               |
| $V_F$                   | 0.95 V              |
| $I_R$                   | 2.0 $\mu$ A         |
| $T_J \text{ max.}$      | 175 °C              |
| Package                 | DO-204AL (DO-41)    |
| Diode variations        | Single die          |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                                   |                |               |        |        |      |
|--------------------------------------------------------------------------------------------------|----------------|---------------|--------|--------|------|
| PARAMETER                                                                                        | SYMBOL         | FGP10B        | FGP10C | FGP10D | UNIT |
| Maximum repetitive peak reverse voltage                                                          | $V_{RRM}$      | 100           | 150    | 200    | V    |
| Maximum RMS voltage                                                                              | $V_{RMS}$      | 70            | 105    | 140    | V    |
| Maximum DC blocking voltage                                                                      | $V_{DC}$       | 100           | 150    | 200    | V    |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length at $T_A = 55\text{ °C}$ | $I_{F(AV)}$    | 1.0           |        |        | A    |
| Peak forward surge current 8.3 ms single half sine-wave<br>superimposed on rated load            | $I_{FSM}$      | 30            |        |        | 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      | FGP10B | FGP10C | FGP10D | UNIT          |
|---------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------|-------------|--------|--------|--------|---------------|
| Maximum instantaneous forward voltage                   | 1.0 A                                                                     |                                     | $V_F^{(1)}$ | 0.95   |        |        | V             |
| Maximum DC reverse current at rated DC blocking voltage |                                                                           | $T_A = 25\text{ }^{\circ}\text{C}$  | $I_R^{(1)}$ | 2.0    |        |        | $\mu\text{A}$ |
|                                                         |                                                                           | $T_A = 100\text{ }^{\circ}\text{C}$ |             | 50     |        |        |               |
| Maximum reverse recovery time                           | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ ,<br>$I_{rr} = 0.25\text{ A}$ |                                     | $t_{rr}$    | 35     |        |        | ns            |
| Typical junction capacitance                            | 4.0 V, 1 MHz                                                              |                                     | $C_J$       | 25     |        |        | pF            |

**Note**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                  | SYMBOL                          | FGP10B | FGP10C | FGP10D | UNIT |
|----------------------------|---------------------------------|--------|--------|--------|------|
| Maximum thermal resistance | R <sub>θJA</sub> <sup>(1)</sup> | 70     |        |        | °C/W |
|                            | R <sub>θJL</sub> <sup>(1)</sup> | 20     |        |        |      |

**Note**

(1) Units mounted on PCB 10 mm x 10 mm copper pads

**ORDERING INFORMATION** (Example)

| PREFERRED P/N               | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
|-----------------------------|-----------------|------------------------|---------------|----------------------------------|
| FGP10D-E3/54                | 0.30            | 54                     | 5500          | 13" diameter paper tape and reel |
| FGP10D-E3/73                | 0.30            | 73                     | 3000          | Ammo pack packaging              |
| FGP10DHE3/54 <sup>(1)</sup> | 0.30            | 54                     | 5500          | 13" diameter paper tape and reel |
| FGP10DHE3/73 <sup>(1)</sup> | 0.30            | 73                     | 3000          | Ammo pack packaging              |

**Note**

(1) AEC-Q101 qualified

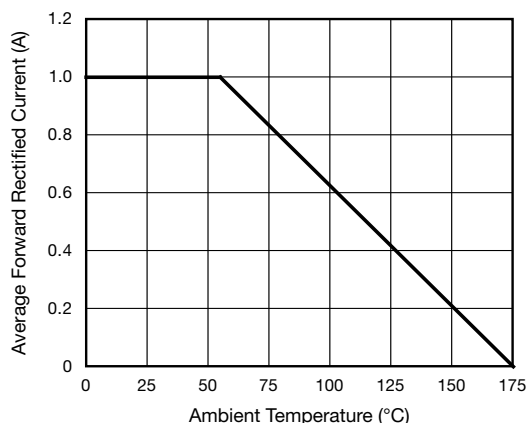
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

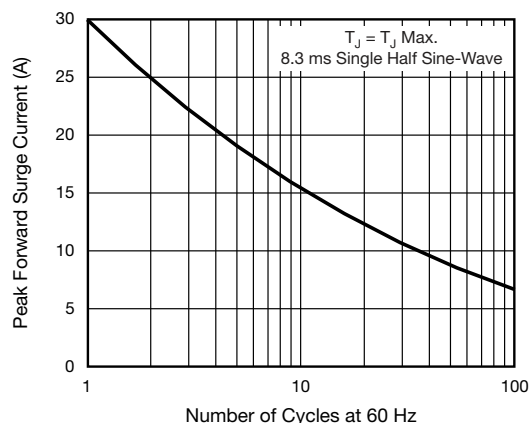


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

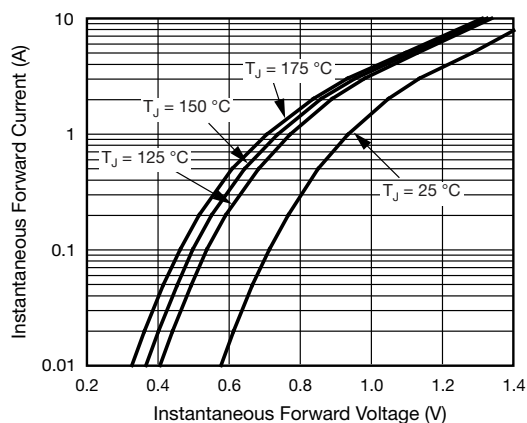


Fig. 3 - Typical Instantaneous Forward Characteristics

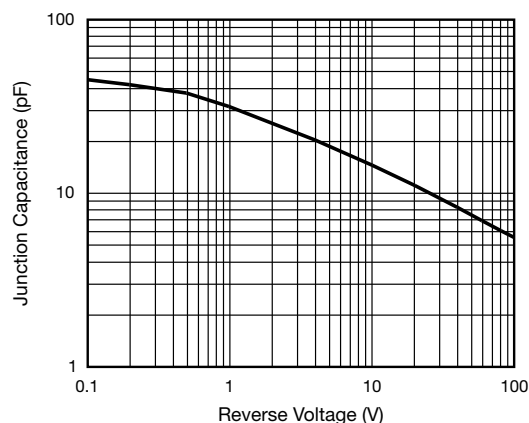


Fig. 5 - Typical Junction Capacitance

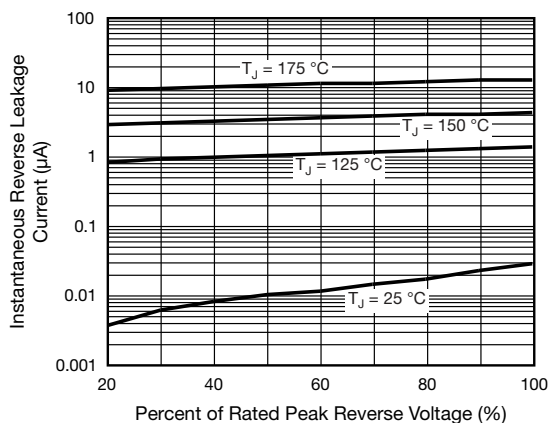


Fig. 4 - Typical Reverse Leakage Characteristics

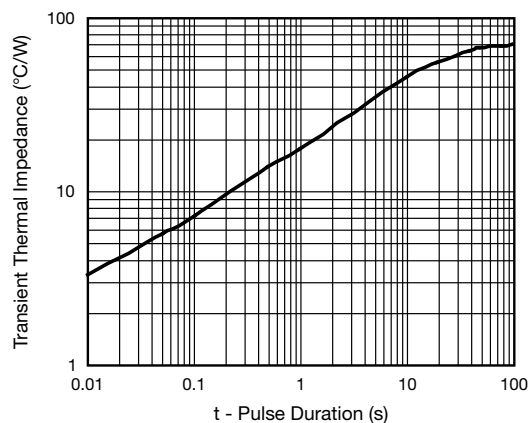
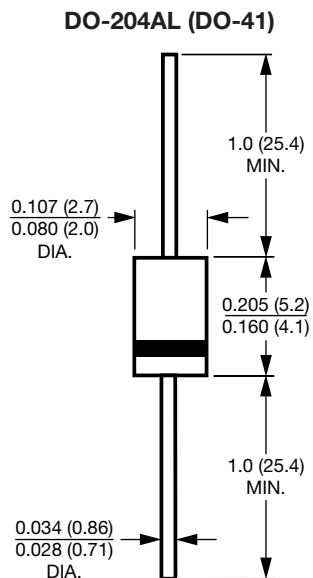


Fig. 6 - Typical Transient Thermal Impedance

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




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