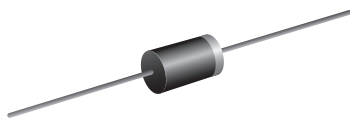




## Glass Passivated Ultrafast Plastic Rectifier

SUPERECTIFIER®



DO-41 (DO-204AL)

## FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- 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)



## TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

## 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                                   |
| $V_{RRM}$             | 50 V, 100 V, 150 V, 200 V, 300 V, 400 V |
| $I_{FSM}$             | 30 A                                    |
| $t_{rr}$              | 50 ns                                   |
| $V_F$                 | 0.95 V, 1.25 V                          |
| $T_J$ max.            | 150 °C                                  |
| Package               | DO-41 (DO-204AL)                        |
| Circuit configuration | Single                                  |

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

| PARAMETER                                                                              | SYMBOL         | EGP10A      | EGP10B | EGP10C | EGP10D | EGP10F | EGP10G | UNIT |
|----------------------------------------------------------------------------------------|----------------|-------------|--------|--------|--------|--------|--------|------|
| Maximum repetitive peak reverse voltage                                                | $V_{RRM}$      | 50          | 100    | 150    | 200    | 300    | 400    | V    |
| Maximum RMS voltage                                                                    | $V_{RMS}$      | 35          | 70     | 105    | 140    | 210    | 280    | V    |
| Maximum DC blocking voltage                                                            | $V_{DC}$       | 50          | 100    | 150    | 200    | 300    | 400    | V    |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55$ °C | $I_{F(AV)}$    | 1.0         |        |        |        |        |        | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load     | $I_{FSM}$      | 30          |        |        |        |        |        | A    |
| Operating junction and storage temperature range                                       | $T_J, T_{STG}$ | -65 to +150 |        |        |        |        |        | °C   |

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

| PARAMETER                                               | TEST CONDITIONS                                                          |                         | SYMBOL          | EGP10A | EGP10B | EGP10C | EGP10D | EGP10F | EGP10G | UNIT |
|---------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|-----------------|--------|--------|--------|--------|--------|--------|------|
| Maximum instantaneous forward voltage                   | 1.0 A                                                                    |                         | V <sub>F</sub>  | 0.95   |        |        |        | 1.25   |        | 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> = 125 °C |                 | 100    |        |        |        |        |        |      |
| Maximum 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> | 50     |        |        |        |        |        | ns   |
| Typical junction capacitance                            | 4.0 V, 1 MHz                                                             |                         | C <sub>J</sub>  | 22     |        |        |        | 15     |        | pF   |

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

| PARAMETER                  | SYMBOL                | EGP10A | EGP10B | EGP10C | EGP10D | EGP10F | EGP10G | UNIT                 |
|----------------------------|-----------------------|--------|--------|--------|--------|--------|--------|----------------------|
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 50     |        |        |        |        |        | $^{\circ}\text{C/W}$ |

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient, and from junction to lead 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                    |
|---------------|-----------------|------------------------|---------------|----------------------------------|
| EGP10D-E3/54  | 0.337           | 54                     | 5500          | 13" diameter paper tape and reel |
| EGP10D-E3/73  | 0.337           | 73                     | 3000          | Ammo pack packaging              |

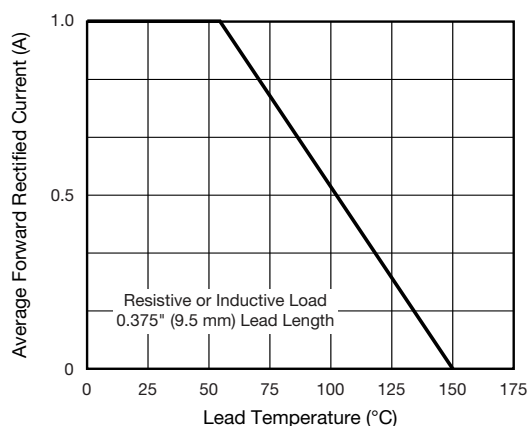
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

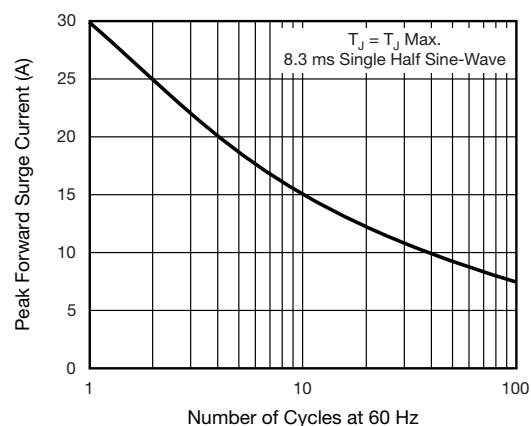


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

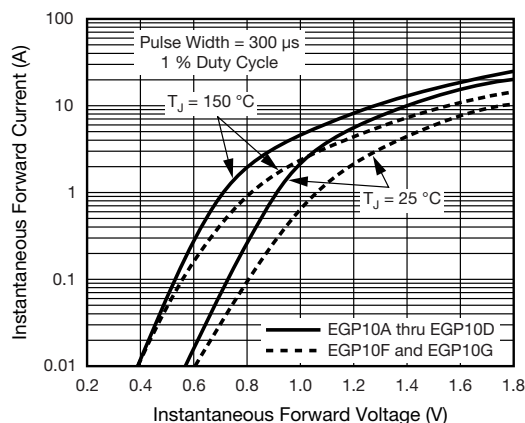


Fig. 3 - Typical Instantaneous Forward Characteristics

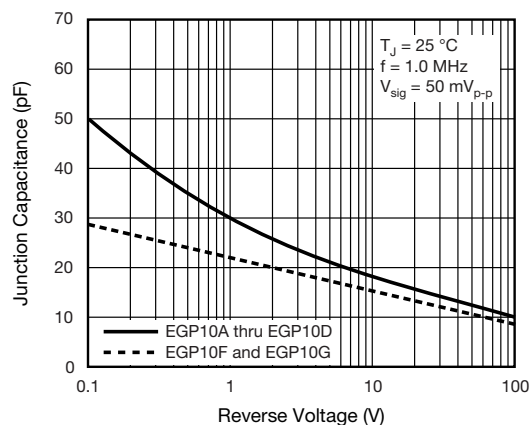


Fig. 5 - Typical Junction Capacitance

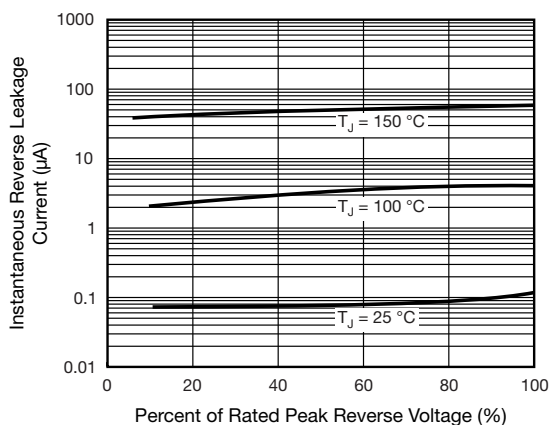


Fig. 4 - Typical Reverse Leakage Characteristics

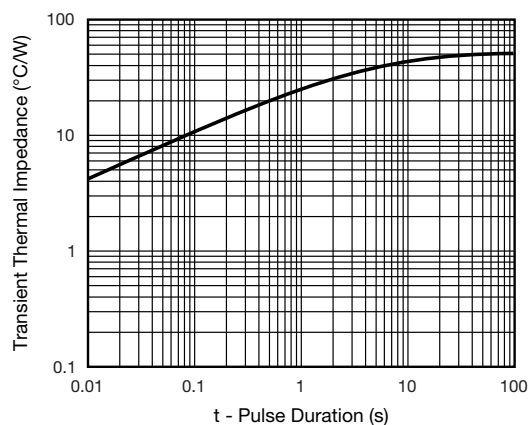
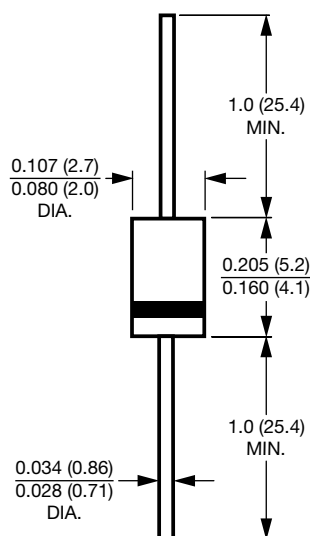


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)**DO-41 (DO-204AL)**



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