

## Glass Passivated Ultrafast Plastic Rectifier



### FEATURES

- Superrectifier 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)



**RoHS**  
COMPLIANT

### 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:** GP20, 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 |   |
|-------------------------|---|
| $I_{F(AV)}$             | 5.0 A                                   |
| $V_{RRM}$               | 50 V, 100 V, 150 V, 200 V, 300 V, 400 V |
| $I_{FSM}$               | 150 A                                   |
| $t_{rr}$                | 50 ns                                   |
| $V_F$                   | 0.95 V, 1.25 V                          |
| $T_J \text{ max.}$      | 150 °C                                  |
| Package                 | GP20                                    |
| Diode variations        | Single die                              |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                                |                |             |        |        |        |        |        |      |
|---|----------------|-------------|--------|--------|--------|--------|--------|------|
| PARAMETER   | SYMBOL         | EGP50A      | EGP50B | EGP50C | EGP50D | EGP50F | EGP50G | 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 $T_L = 55\text{ °C}$ | $I_{F(AV)}$    | 5           |        |        |        |        |        | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load            | $I_{FSM}$      | 150         |        |        |        |        |        | A    |
| Operating and storage temperature range   | $T_J, T_{STG}$ | -65 to +150 |        |        |        |        |        | °C   |



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |  |          |        |        |        |        |        |        |               |
|--|--|----------|--------|--------|--------|--------|--------|--------|---------------|
| PARAMETER  | TEST CONDITIONS  | SYMBOL   | EGP50A | EGP50B | EGP50C | EGP50D | EGP50F | EGP50G | UNIT          |
| Maximum instantaneous forward voltage  | 5.0 A  | $V_F$    | 0.95   |        |        |        | 1.25   |        | 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     |        |        |        |        |        |               |
| Maximum reverse recovery time  | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $t_{rr} = 0.25\text{ A}$ | $t_{rr}$ | 50     |        |        |        |        |        | ns            |
| Typical junction capacitance   | 4.0 V, 1 MHz   | $C_J$    | 95     |        |        |        | 75     |        | pF            |

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |        |        |        |        |        |        |                    |  |
|---|-----------------------|--------|--------|--------|--------|--------|--------|--------------------|--|
| PARAMETER   | SYMBOL                | EGP50A | EGP50B | EGP50C | EGP50D | EGP50F | EGP50G | UNIT               |  |
| Typical thermal resistance  | $R_{\theta JA}^{(1)}$ | 20     |        |        |        |        |        | $^\circ\text{C/W}$ |  |
|   | $R_{\theta JL}^{(1)}$ | 5.0    |        |        |        |        |        |                    |  |

**Note**

(1) Thermal resistance from junction to ambient, and from junction to lead at 0.375" (9.5 mm) lead length, PCB mounted

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                  |
|---------------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| EGP50G-E3/54                          | 1.01            | 54                     | 1400          | 13" diameter paper tape and reel |
| EGP50G-E3/73                          | 1.01            | 73                     | 1000          | Ammo pack packaging              |

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

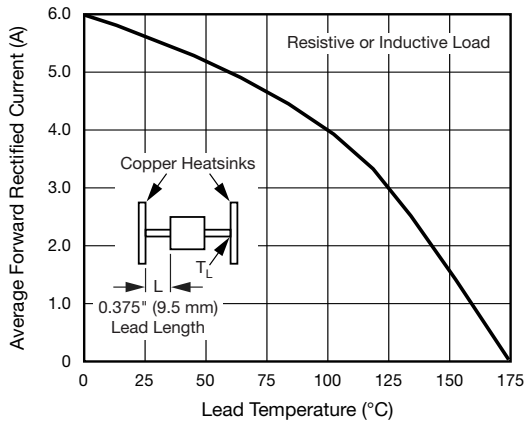


Fig. 1 - Maximum Forward Current Derating Curve

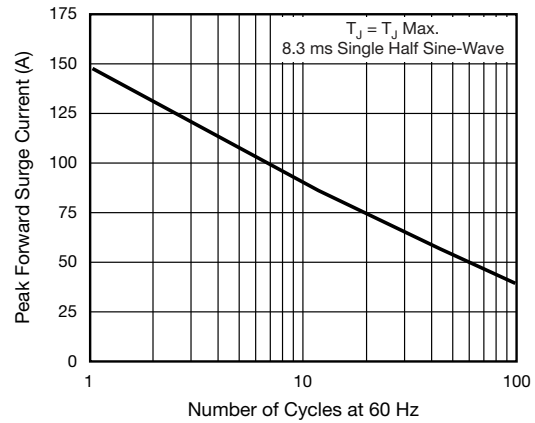


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

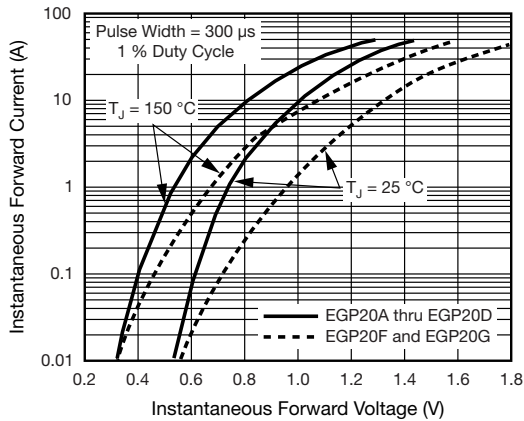


Fig. 3 - Typical Instantaneous Forward Characteristics

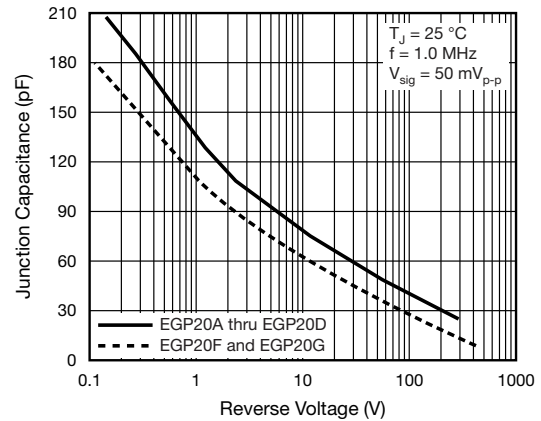


Fig. 5 - Typical Junction Capacitance

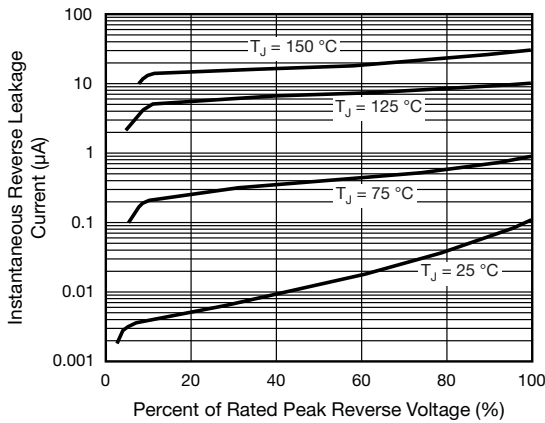


Fig. 4 - Typical Reverse Leakage Characteristics

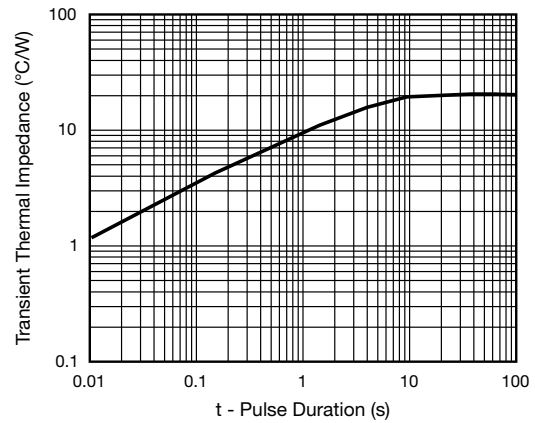
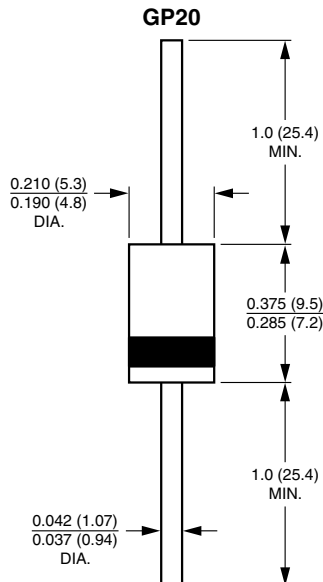


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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