

Glass Passivated Ultrafast Plastic Rectifier



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



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 |



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ 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 | | | | | | μA |
| | $T_A = 125\text{ }^\circ\text{C}$ | | 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 |

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ 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

| ORDERING INFORMATION (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)

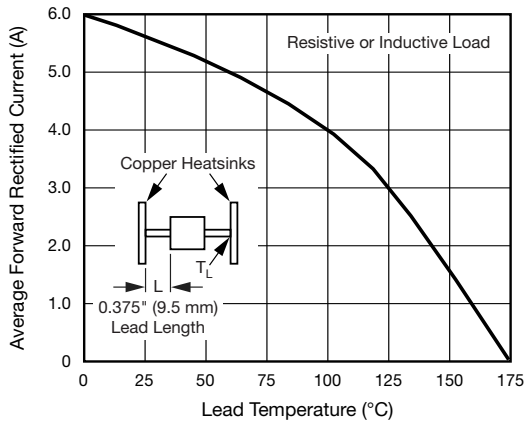


Fig. 1 - Maximum Forward Current Derating Curve

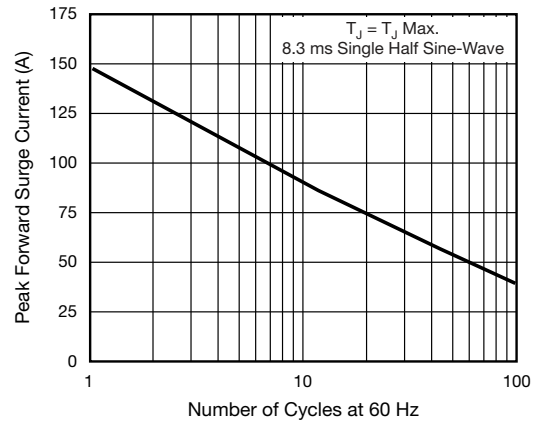


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

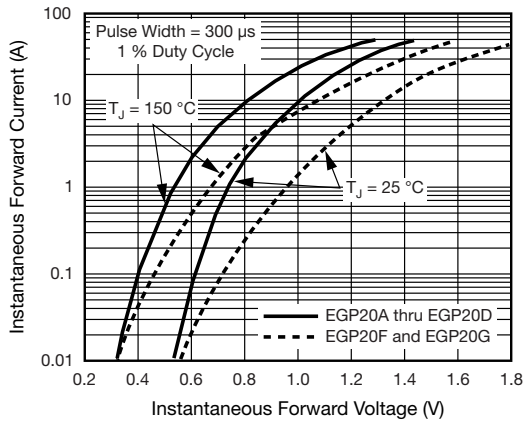


Fig. 3 - Typical Instantaneous Forward Characteristics

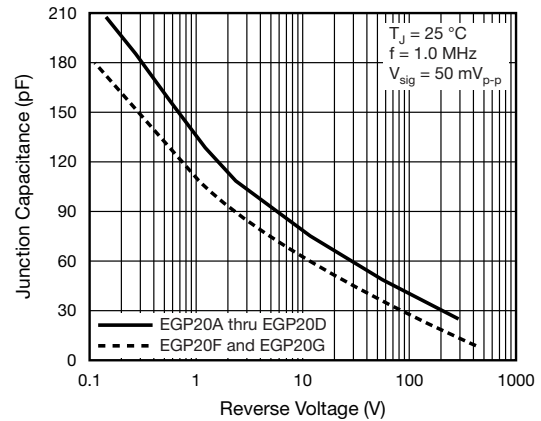


Fig. 5 - Typical Junction Capacitance

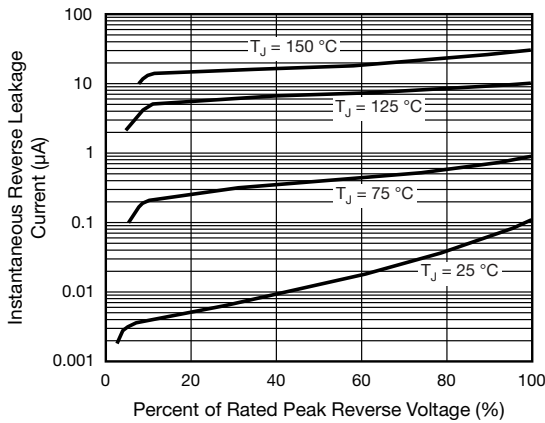


Fig. 4 - Typical Reverse Leakage Characteristics

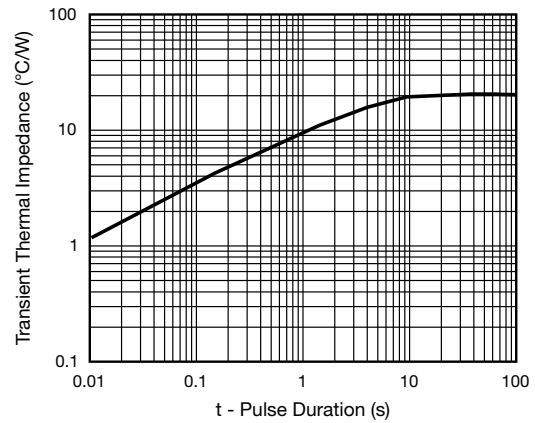
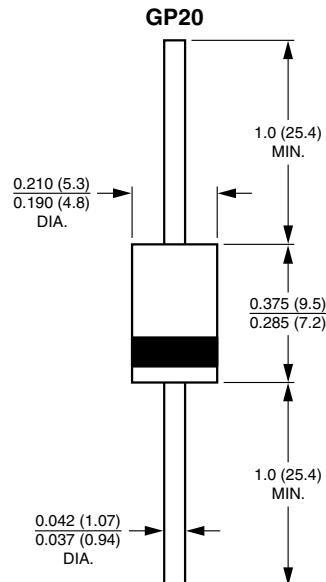


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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