

High Current Axial Plastic Rectifier


P600
FEATURES

- Low forward voltage drop
- Low leakage current, I_R less than 0.1 μ A
- High forward current capability
- 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 general purpose rectification of power supplies, inverters, converters, and freewheeling diodes application.

Note

- These devices are not AEC-Q101 qualified.

MECHANICAL DATA

Case: P600, void-free molded epoxy 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 | |
|-------------------------|---|
| $I_{F(AV)}$ | 6.0 A |
| V_{RRM} | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V |
| I_{FSM} | 400 A |
| I_R | 5.0 μ A |
| V_F | 0.9 V, 0.95 V |
| T_J max. | 150 °C |
| Package | P600 |
| Diode variations | Single die |

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | | | | | | |
|--|--|---------------|-------|-------|-------|-------|-------|------|
| PARAMETER | SYMBOL | GI750 | GI751 | GI752 | GI754 | GI756 | GI758 | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | V |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | V |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 200 | 400 | 600 | 800 | V |
| Maximum non-repetitive peak reverse voltage | V_{RSM} | 60 | 120 | 240 | 480 | 720 | 1200 | V |
| Maximum average forward rectified current at | $T_A = 60$ °C, PCB mounting (fig. 1) | 6.0 | | | | | | A |
| | $T_L = 60$ °C, 0.125" (3.18 mm) lead length (fig. 2) | 22 | | | | | | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 400 | | | | | | A |
| Operating junction and storage temperature range | T_J, T_{STG} | - 50 to + 150 | | | | | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted) | | | | | | | | | |
|--|---|----------|-------|-------|-------|-------|-------|-------|---------|
| PARAMETER | TEST CONDITIONS | SYMBOL | GI750 | GI751 | GI752 | GI754 | GI756 | GI758 | UNIT |
| Maximum instantaneous forward voltage at | 6.0 A | V_F | 0.90 | | | | 0.95 | | V |
| | 100 A | | 1.25 | | | | 1.30 | | |
| Maximum DC reverse current at rated DC blocking voltage | $T_A = 25$ °C | I_R | 5.0 | | | | | | μ A |
| | $T_A = 100$ °C | | 1.0 | | | | | | mA |
| Typical reverse recovery time | $I_F = 0.5$ A, $I_R = 1.0$ A, $I_{rr} = 0.25$ A | t_{rr} | 2.5 | | | | | | μ s |
| Typical junction capacitance | 4.0 V, 1 MHz | C_J | 150 | | | | | | pF |



| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|--|-----------------------|-------|-------|-------|-------|-------|-------|--------------------|
| PARAMETER | SYMBOL | GI750 | GI751 | GI752 | GI754 | GI756 | GI758 | UNIT |
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 20 | | | | | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}^{(1)}$ | 4.0 | | | | | | |

Note

(1) Thermal resistance from junction to ambient and from junction to lead at 0.375" (9.5 mm) lead length, PCB mounted with 1.1" x 1.1" (30 mm x 30 mm) copper pads

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| GI756-E3/54 | 2.1 | 54 | 800 | 13" diameter paper tape and reel |
| GI756-E3/73 | 2.1 | 73 | 300 | Ammo pack packaging |

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



Fig. 1 - Maximum Forward Current Derating Curve

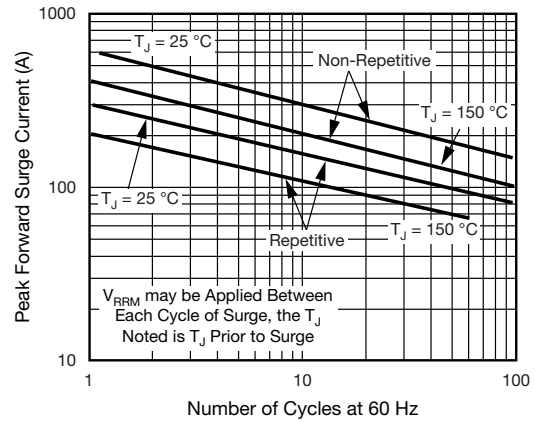


Fig. 3 - Maximum Peak Forward Surge Current

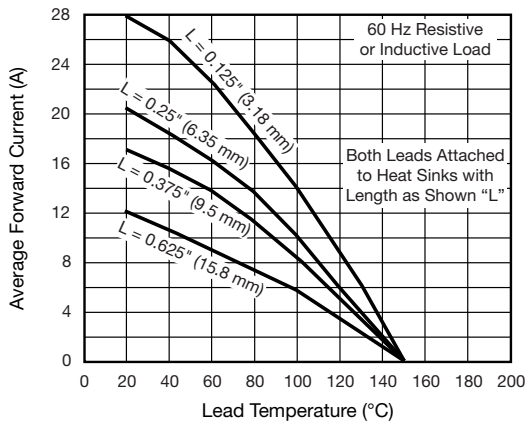


Fig. 2 - Maximum Forward Current Derating Curve

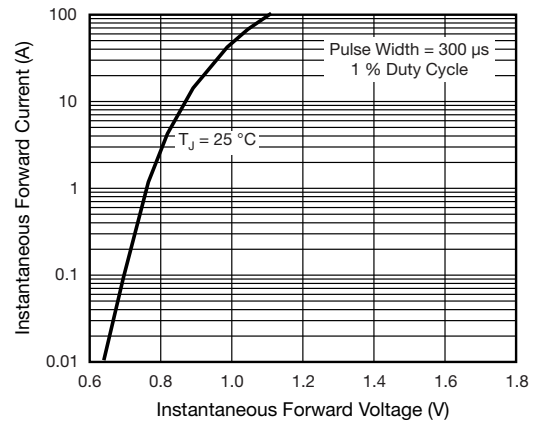


Fig. 4 - Typical Instantaneous Forward Characteristics



Fig. 5 - Typical Reverse Characteristics

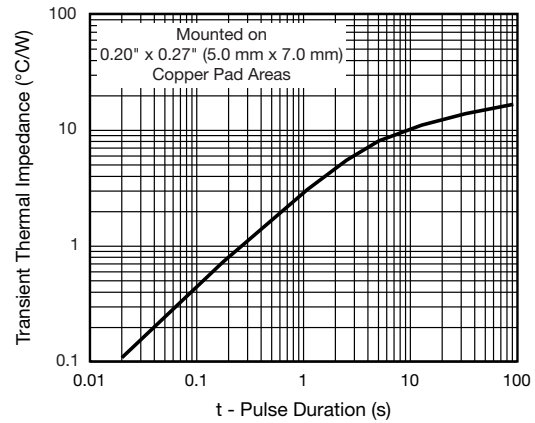


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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