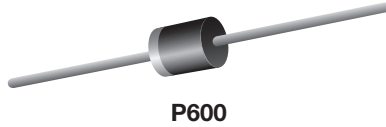


General Purpose Plastic Rectifier



FEATURES

- Low forward voltage drop
- Low leakage current
- 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.

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, 1000 V |
| I_{FSM} | 400 A |
| V_F | 0.9 V, 1.0 V |
| I_R | 5.0 μ A |
| T_J max. | 150 °C |
| Package | P600 |
| Diode variations | Single die |

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | | | | | | | | |
|--|----------------|--|-------|-------|-------|-------|-------|-------|------|---|
| PARAMETER | SYMBOL | P600A | P600B | P600D | P600G | P600J | P600K | P600M | UNIT | |
| Max. repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V | |
| Max. RMS voltage | V_{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V | |
| Max. DC blocking voltage | V_{DC} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V | |
| Max. average forward rectified current at | $I_{F(AV)}$ | $T_A = 60$ °C, 0.375" (9.5 mm) lead length (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 | P600A | P600B | P600D | P600G | P600J | P600K | P600M | UNIT |
| Max. instantaneous forward voltage | 6.0 A | V_F | 0.90 | | | | | | 1.0 | V |
| | 100 A | | 1.30 | | | | | | 1.4 | |
| Max. 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, $t_{rr} = 0.25$ 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 | P600A | P600B | P600D | P600G | P600J | P600K | P600M | 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 |
| P600J-E3/54 | 2.1 | 54 | 800 | 13" diameter paper tape and reel |
| P600J-E3/73 | 2.1 | 73 | 300 | Ammo pack packaging |

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

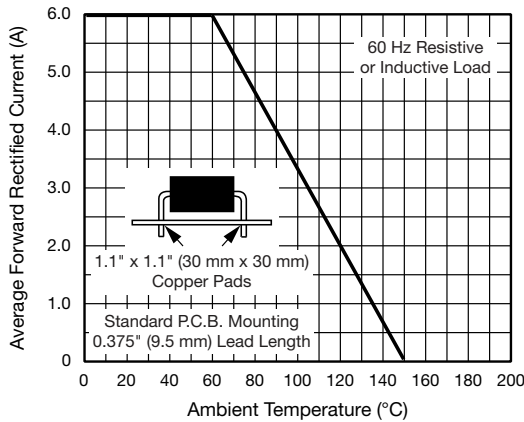


Fig. 1 - Max. Forward Current Derating Curve

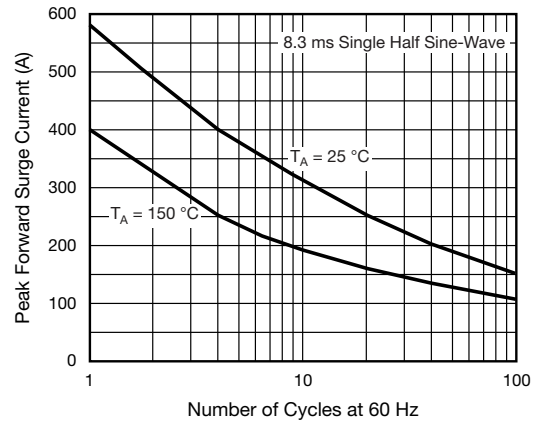


Fig. 3 - Typical Instantaneous Forward Characteristics

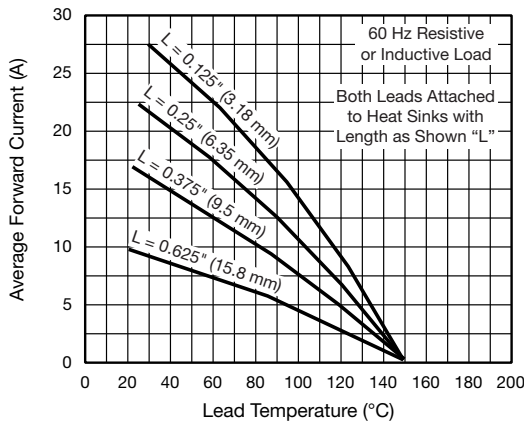


Fig. 2 - Max. Non-repetitive Forward Surge Current

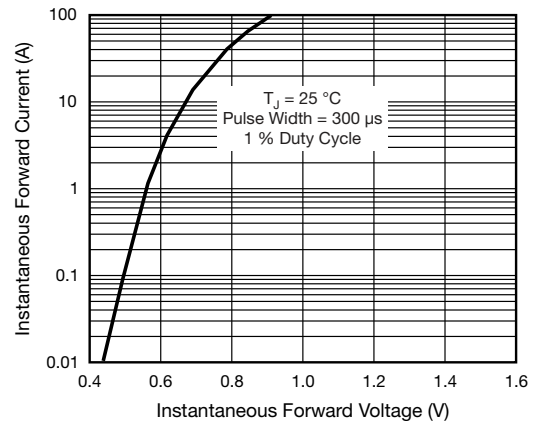


Fig. 4 - Typical Instantaneous Forward Characteristics

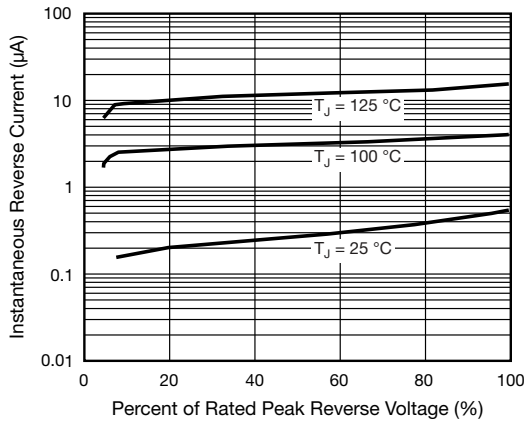


Fig. 5 - Typical Reverse Characteristics

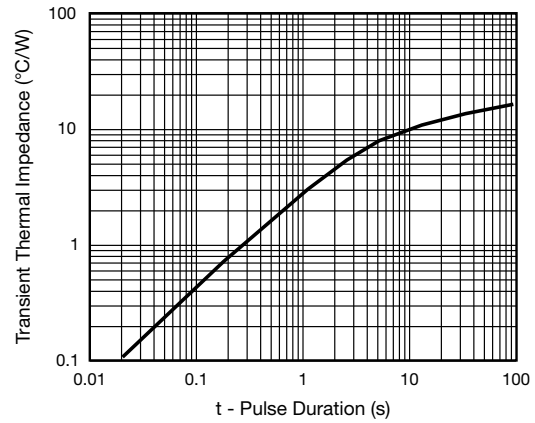
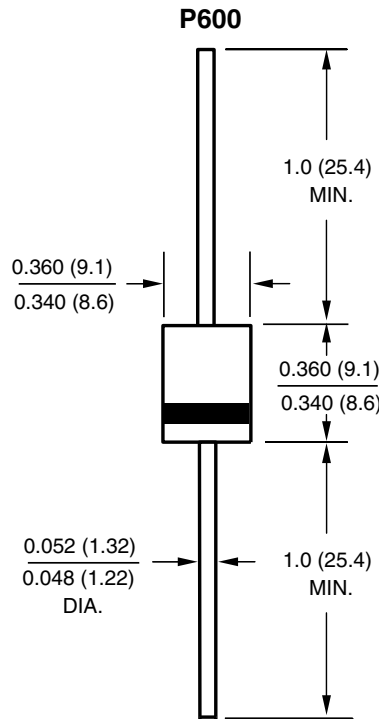


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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