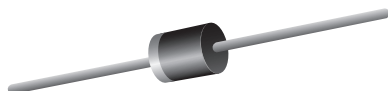




## General Purpose Plastic Rectifier



P600

### 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](http://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 $\mu$ A                                     |
| $T_J$ max.              | 150 °C                                          |
| Package                 | P600                                            |
| Diode variations        | Single die                                      |

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)                    |                                                               |                                   |               |       |       |       |       |       |       |      |
|------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------|---------------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER                                                                          |                                                               | SYMBOL                            | P600A         | P600B | P600D | P600G | P600J | P600K | P600M | UNIT |
| Max. repetitive peak reverse voltage                                               |                                                               | V <sub>RRM</sub>                  | 50            | 100   | 200   | 400   | 600   | 800   | 1000  | V    |
| Max. RMS voltage                                                                   |                                                               | V <sub>RMS</sub>                  | 35            | 70    | 140   | 280   | 420   | 560   | 700   | V    |
| Max. DC blocking voltage                                                           |                                                               | V <sub>DC</sub>                   | 50            | 100   | 200   | 400   | 600   | 800   | 1000  | V    |
| Max. average forward rectified current at                                          | T <sub>A</sub> = 60 °C, 0.375" (9.5 mm) lead length (fig. 1)  | I <sub>F(AV)</sub>                | 6.0           |       |       |       |       |       | A     |      |
|                                                                                    | T <sub>L</sub> = 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 <sub>FSM</sub>                  | 400           |       |       |       |       |       | A     |      |
| Operating junction and storage temperature range                                   |                                                               | T <sub>J</sub> , T <sub>STG</sub> | - 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   |       |       |       |       |       |       | $\mu$ 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   |       |       |       |       |       |       | $\mu$ s |
| Typical junction capacitance                                       | 4.0 V, 1 MHz                                    | $C_J$    | 150   |       |       |       |       |       |       | pF      |



| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                     |       |       |       |       |       |       |       |      |
|-------------------------------------------------------------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER                                                               | SYMBOL              | P600A | P600B | P600D | P600G | P600J | P600K | P600M | UNIT |
| Typical thermal resistance                                              | RθJA <sup>(1)</sup> | 20    |       |       |       |       |       |       | °C/W |
|                                                                         | RθJL <sup>(1)</sup> | 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)**

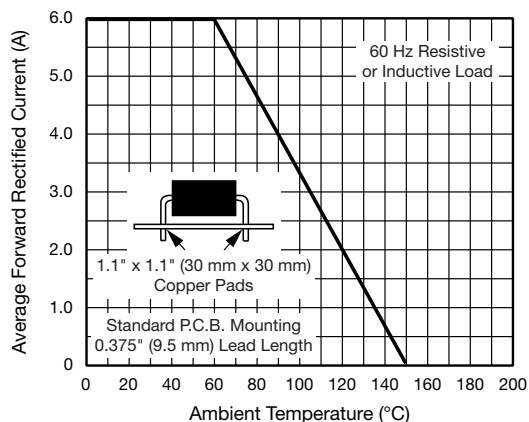


Fig. 1 - Max. Forward Current Derating Curve

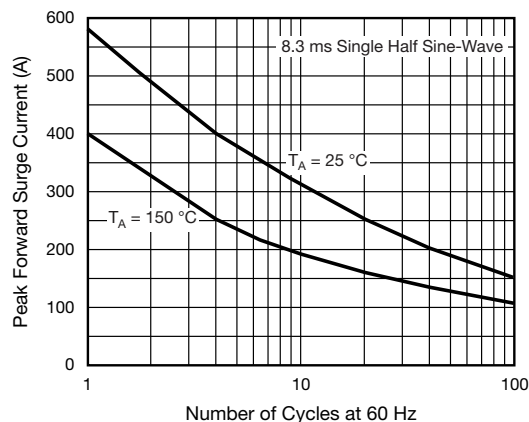


Fig. 3 - Typical Instantaneous Forward Characteristics

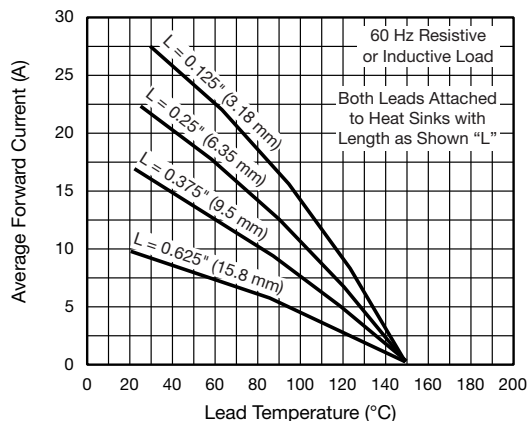


Fig. 2 - Max. Non-repetitive Forward Surge Current

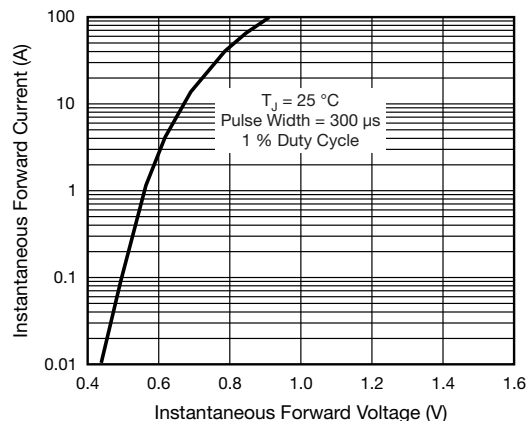


Fig. 4 - Typical Instantaneous Forward Characteristics

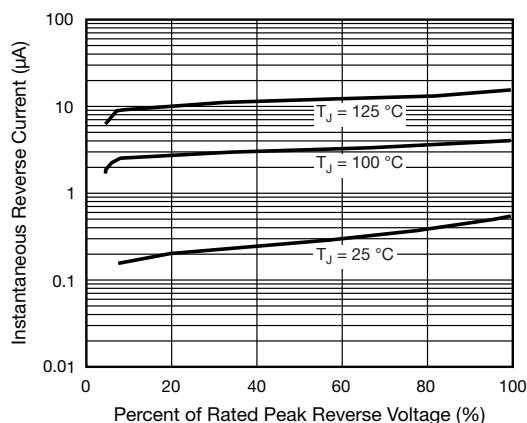


Fig. 5 - Typical Reverse Characteristics

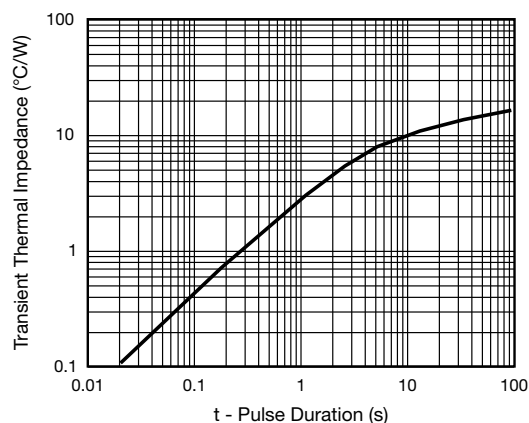
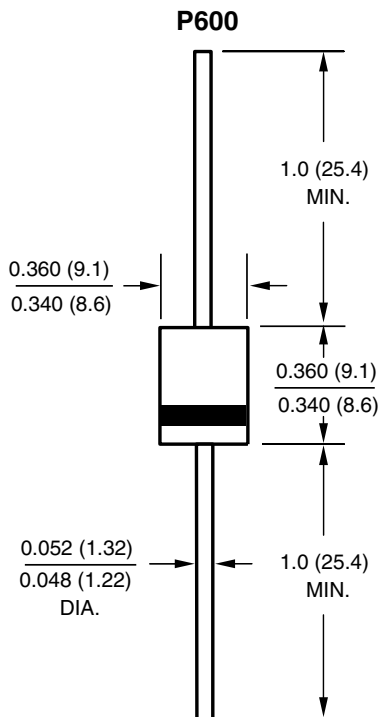


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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