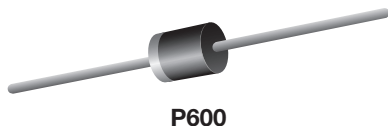


## General Purpose Plastic Rectifier



### 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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**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 to 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         |

### MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                          |                                                               | SYMBOL                            | P600A         | P600B | P600D | P600G | P600J | P600K | P600M | UNIT |
|------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------|---------------|-------|-------|-------|-------|-------|-------|------|
| Maximum repetitive peak reverse voltage                                            |                                                               | V <sub>RRM</sub>                  | 50            | 100   | 200   | 400   | 600   | 800   | 1000  | V    |
| Maximum RMS voltage                                                                |                                                               | V <sub>RMS</sub>                  | 35            | 70    | 140   | 280   | 420   | 560   | 700   | V    |
| Maximum DC blocking voltage                                                        |                                                               | V <sub>DC</sub>                   | 50            | 100   | 200   | 400   | 600   | 800   | 1000  | V    |
| Maximum 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 ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                                                                           |          |       |       |       |       |       |       |       |               |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------|-------|-------|-------|-------|-------|-------|-------|---------------|
| PARAMETER                                                                               | TEST CONDITIONS                                                           | SYMBOL   | P600A | P600B | P600D | P600G | P600J | P600K | P600M | UNIT          |
| Maximum instantaneous forward voltage                                                   | 6.0 A                                                                     | $V_F$    | 0.90  |       |       |       |       |       | 1.0   | V             |
|                                                                                         | 100 A                                                                     |          | 1.30  |       |       |       |       |       | 1.4   |               |
| Maximum DC reverse current at rated DC blocking voltage                                 | $T_A = 25\text{ }^{\circ}\text{C}$                                        | $I_R$    | 5.0   |       |       |       |       |       |       | $\mu\text{A}$ |
|                                                                                         | $T_A = 100\text{ }^{\circ}\text{C}$                                       |          | 1.0   |       |       |       |       |       |       | mA            |
| Typical reverse recovery time                                                           | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ ,<br>$t_{rr} = 0.25\text{ A}$ | $t_{rr}$ | 2.5   |       |       |       |       |       |       | $\mu\text{s}$ |
| 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

<sup>(1)</sup> Thermal resistance from junction to ambient and from junction to lead at 0.375" (9.5 mm) lead length, P.C.B. 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)

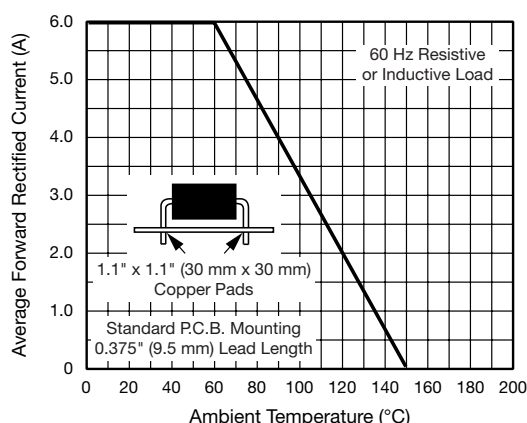


Fig. 1 - Maximum Forward Current Derating Curve

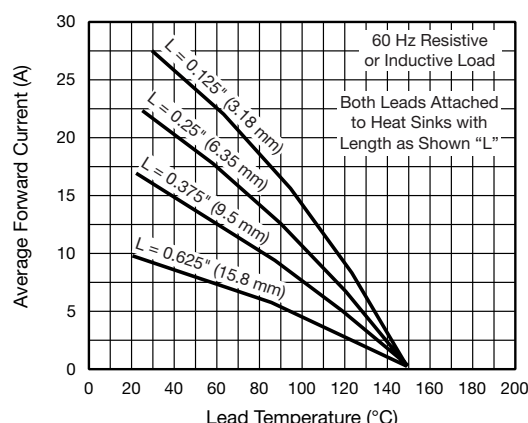


Fig. 2 - Maximum Non-repetitive Forward Surge Current

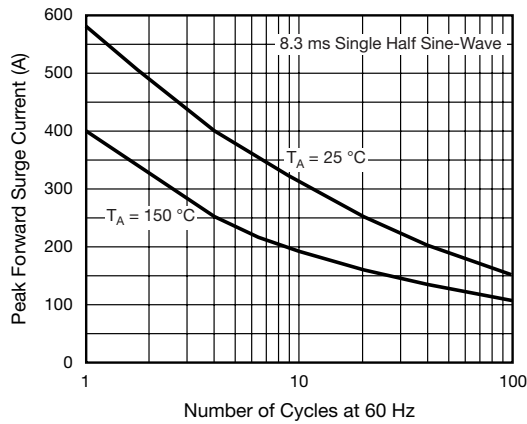


Fig. 3 - Typical Instantaneous Forward Characteristics

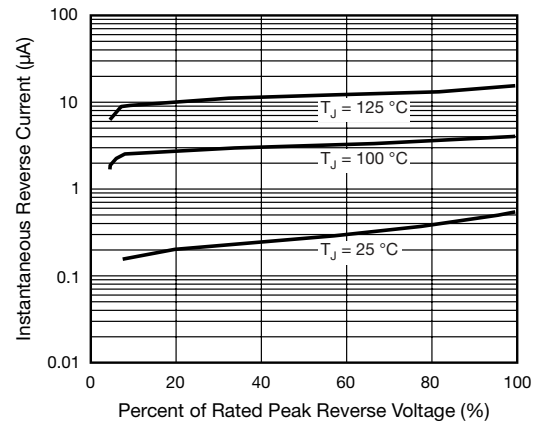


Fig. 5 - Typical Reverse Characteristics

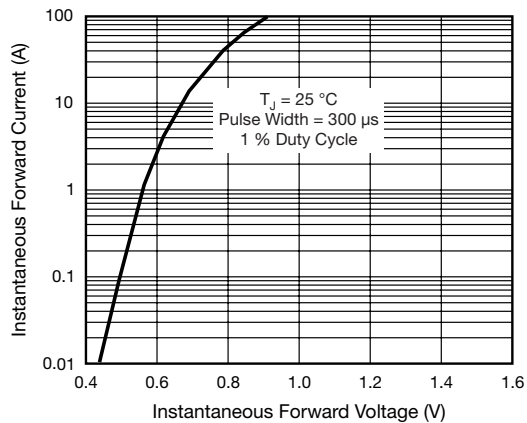


Fig. 4 - Typical Instantaneous Forward Characteristics

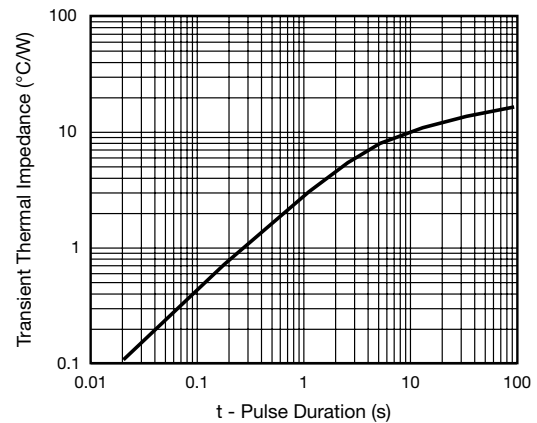
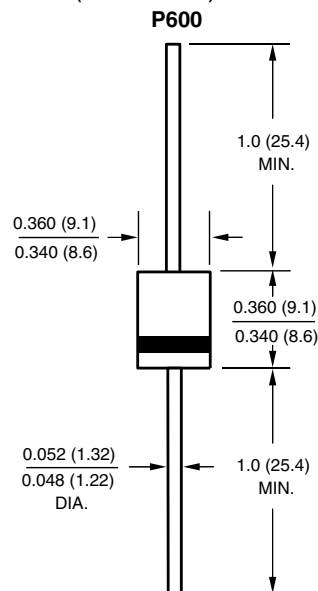


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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