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General Purpose Plastic Rectifier



Case Style P600

| 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 μ A |
| T_J max. | 150 °C |

FEATURES

- Low forward voltage drop
- Low leakage current
- High forward current capability
- High forward surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and 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 Q101 qualified.)

MECHANICAL DATA

Case: P600, void-free molded epoxy body

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

| 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_{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum average forward rectified current at $T_A = 60$ °C, 0.375" (9.5 mm) lead length (Fig. 1) $T_L = 60$ °C, 0.125" (3.18 mm) lead length (Fig. 2) | $I_{F(AV)}$ | 6.0 22 | | | | | | | A |
| 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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | | | |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------|-------|-------|-------|--------------|-------|-------|------------|---------------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | P600A | P600B | P600D | P600G | P600J | P600K | P600M | UNIT |
| Maximum instantaneous forward voltage | 6.0 A 100 A | V_F | | | | 0.90 1.30 | | | 1.0 1.4 | V |
| Maximum DC reverse current at rated DC blocking voltage | $T_A = 25\text{ }^\circ\text{C}$ $T_A = 100\text{ }^\circ\text{C}$ | I_R | | | | 5.0 1.0 | | | | μA mA |
| Typical reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | t_{rr} | | | | 2.5 | | | | μs |
| 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 ⁽¹⁾ | $R_{\theta JA}$ $R_{\theta JL}$ | | | | 20 4.0 | | | | $^\circ\text{C/W}$ | |

Note:

(1) 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 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)

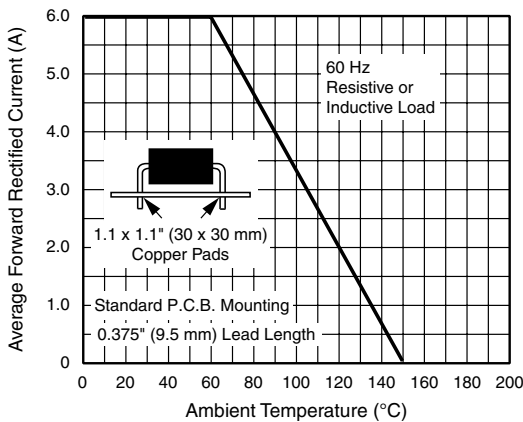


Figure 1. Maximum Forward Current Derating Curve

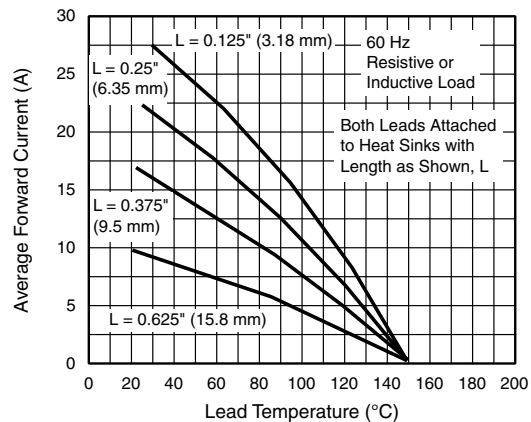


Figure 2. Maximum Non-repetitive Forward Surge Current

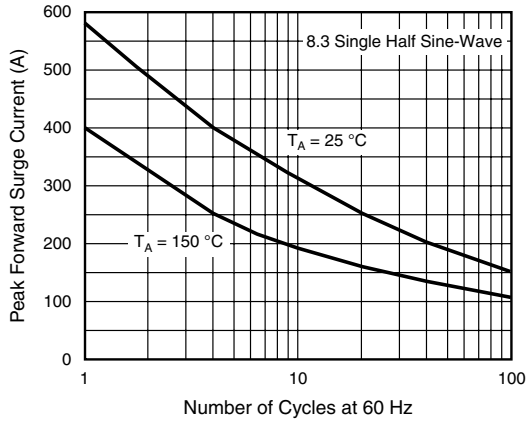


Figure 3. Typical Instantaneous Forward Characteristics

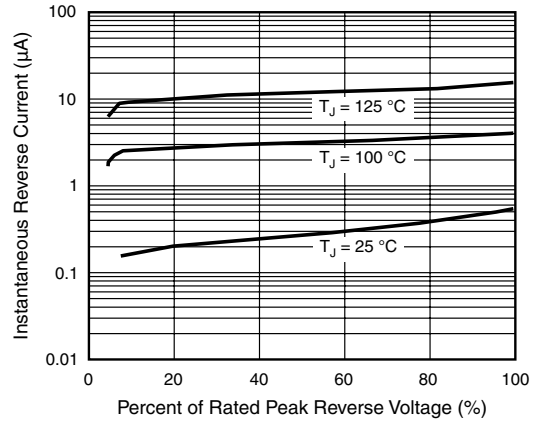


Figure 5. Typical Reverse Characteristics

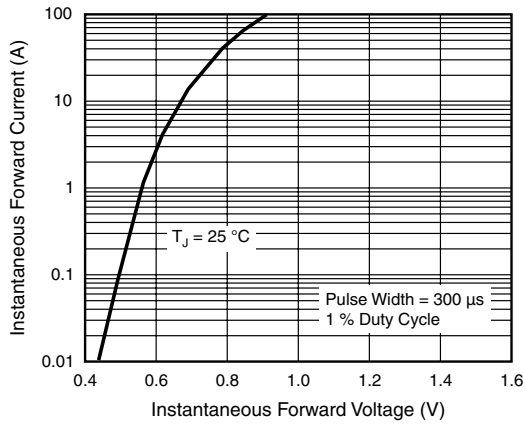


Figure 4. Typical Instantaneous Forward Characteristics

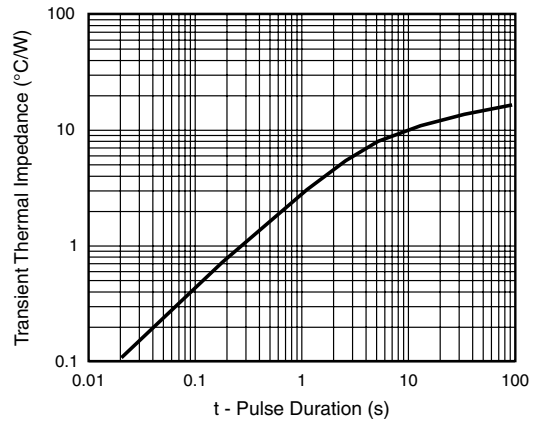
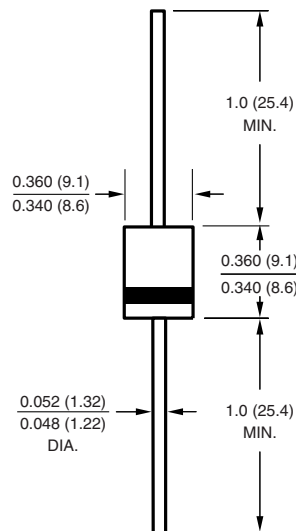


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Style P600





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