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General Purpose Plastic Rectifier



Case Style P600

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

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

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 °C unless otherwise noted)									
PARAMETER	SYMBOL	P600A	P600B	P600D	P600G	P600J	P600K	P600M	UNIT
Typical thermal resistance ⁽¹⁾	R _{θJA}	20							°C/W
	R _{θJL}	4.0							

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)

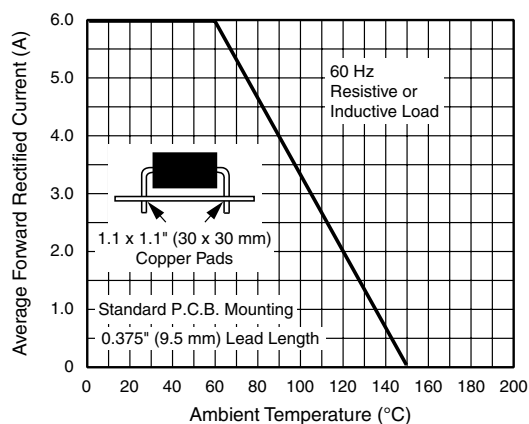


Figure 1. Maximum Forward Current Derating Curve

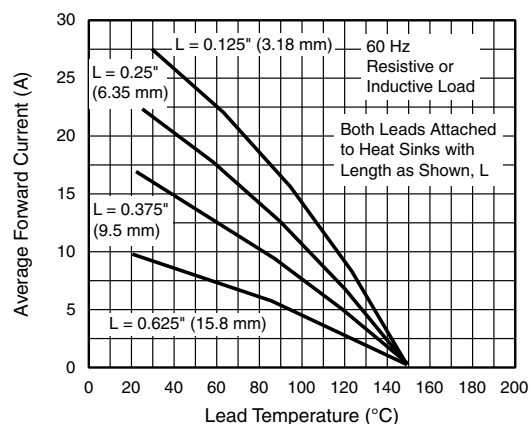


Figure 2. Maximum Non-repetitive Forward Surge Current

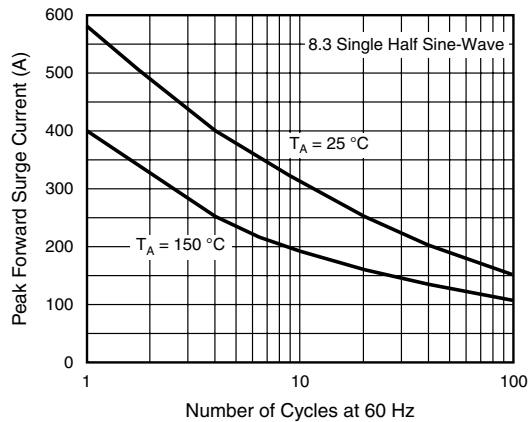


Figure 3. Typical Instantaneous Forward Characteristics

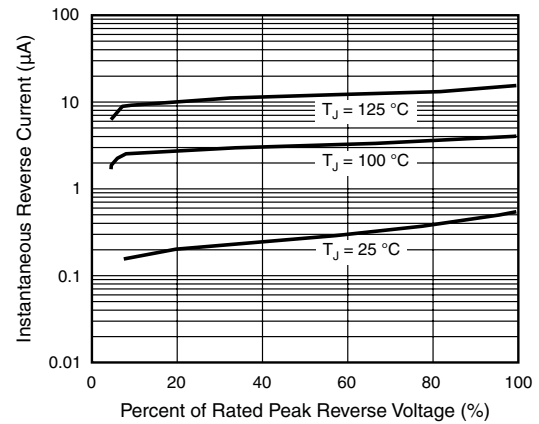


Figure 5. Typical Reverse Characteristics

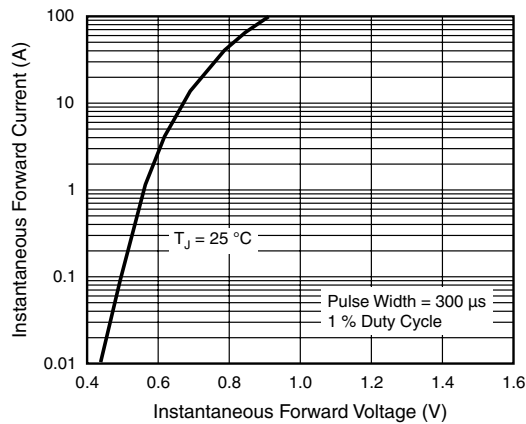


Figure 4. Typical Instantaneous Forward Characteristics

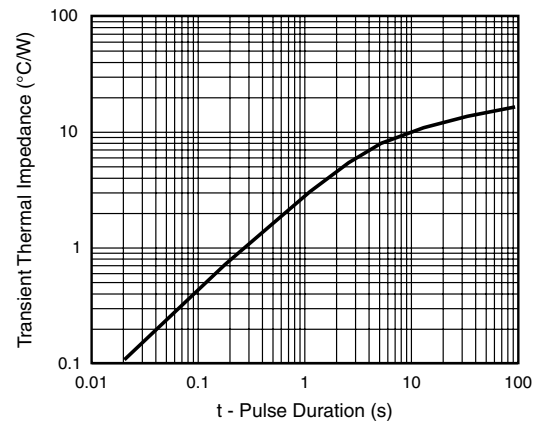
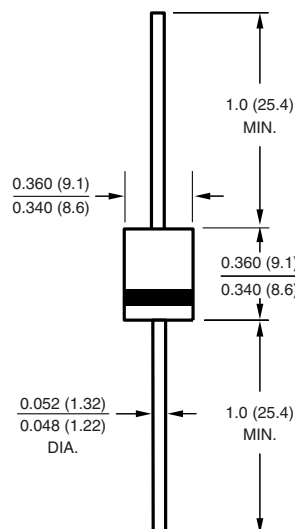


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Style P600





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