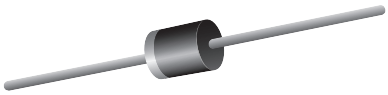
General Purpose Plastic Rectifier



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

Pb e3 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 µA
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)	$I_{F(AV)}$	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

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ELECTRICAL CHARACTERISTICS (T_A = 25 °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 °C	I_R	5.0							μA
		T_A =100 °C		1.0							mA
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 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	$R\theta_{JA}$ (1)	20							°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, 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 °C unless otherwise noted)

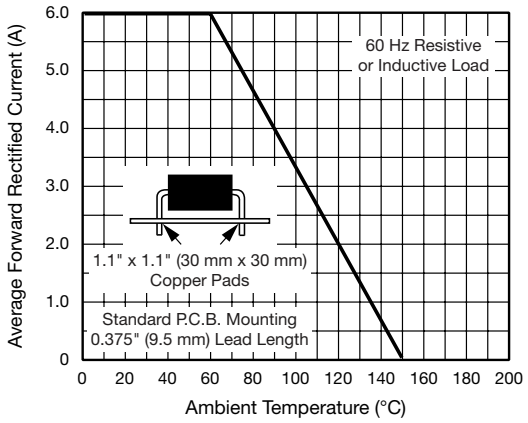

Fig. 1 - Maximum Forward Current Derating Curve

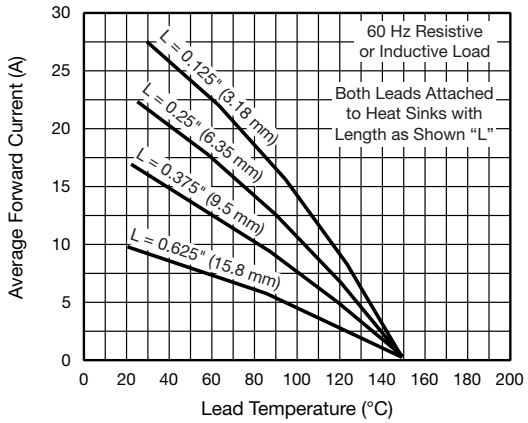

Fig. 2 - Maximum Non-repetitive Forward Surge Current

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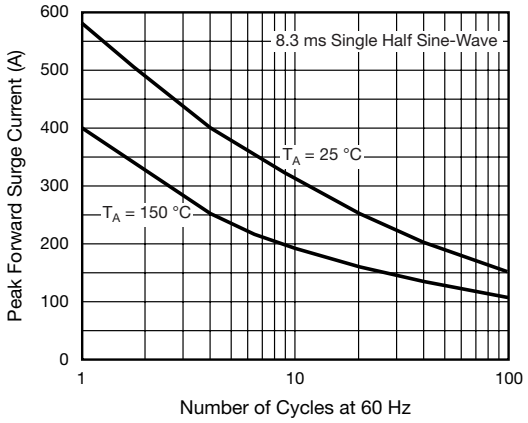


Fig. 3 - Typical Instantaneous Forward Characteristics

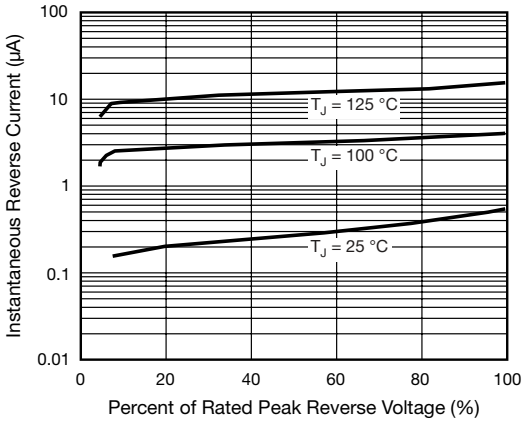


Fig. 5 - Typical Reverse Characteristics

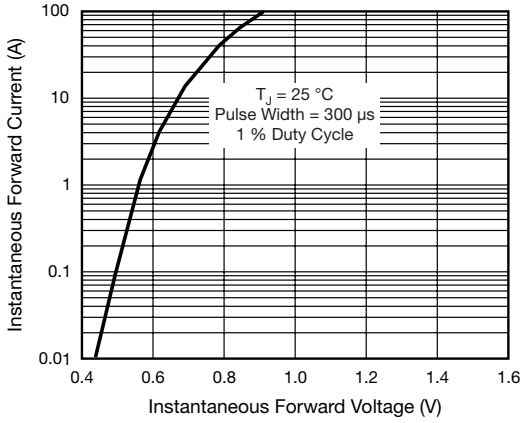


Fig. 4 - Typical Instantaneous Forward Characteristics

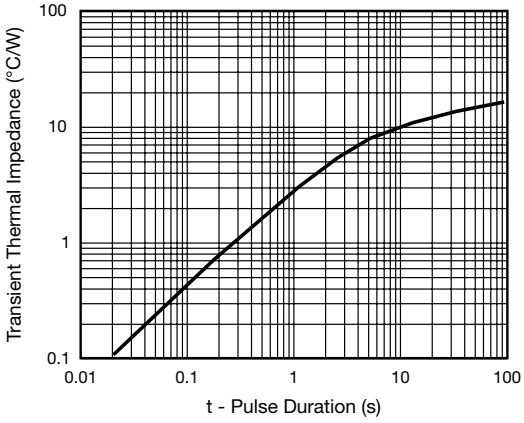
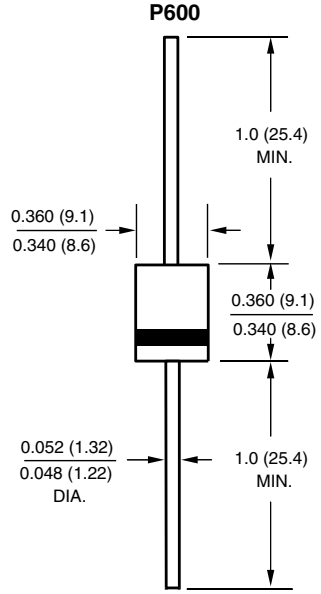


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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