

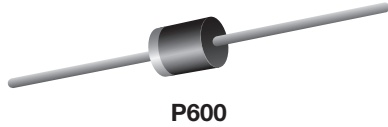


**THE DATASHEET OF  
P600M-E3/54**





# 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
- 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 ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	P600A	P600B	P600D	P600G	P600J	P600K	P600M	UNIT	
Max. repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V	
Max. RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	V	
Max. DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	V	
Max. average forward rectified current at	$I_{F(AV)}$	$T_A = 60\text{ }^\circ\text{C}$ , 0.375" (9.5 mm) lead length (fig. 1)						6.0		A
		$T_L = 60\text{ }^\circ\text{C}$ , 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		

ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ 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	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 100\text{ }^\circ\text{C}$	$I_R$	5.0						$\mu$ A	
			1.0						mA	
Typical reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $t_{rr} = 0.25\text{ A}$	$t_{rr}$	2.5						$\mu$ 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							$^\circ\text{C}/\text{W}$
	$R_{\theta JL}^{(1)}$	4.0							

**Note**

(1) Thermal resistance from junction to ambient and from junction to lead at 0.375" (9.5 mm) lead length, 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)**

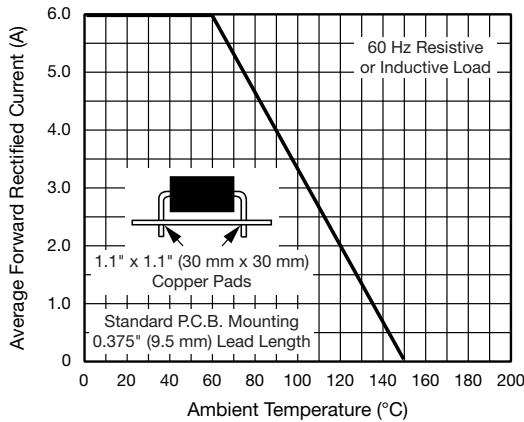


Fig. 1 - Max. Forward Current Derating Curve

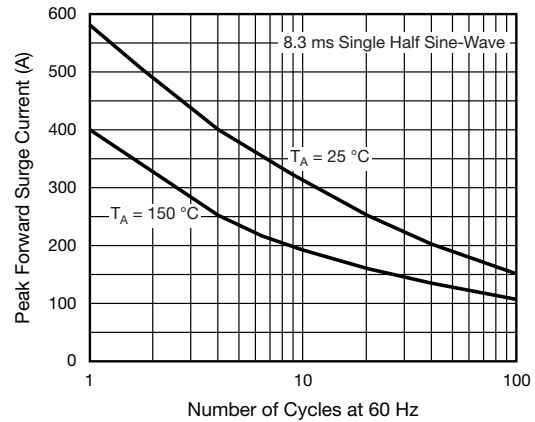


Fig. 3 - Typical Instantaneous Forward Characteristics

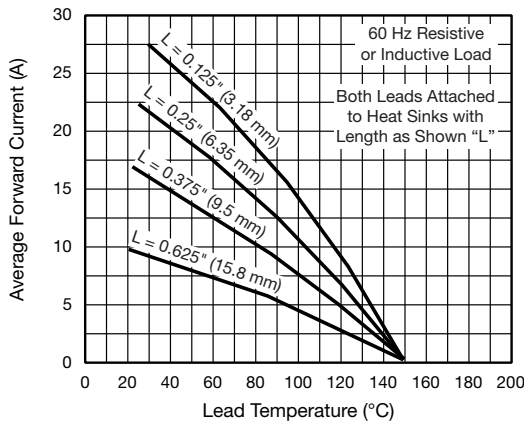


Fig. 2 - Max. Non-repetitive Forward Surge Current

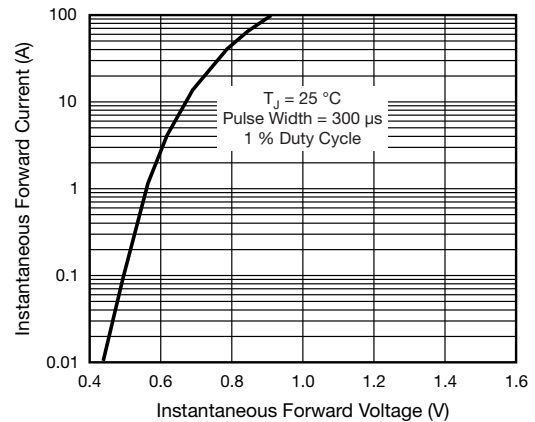


Fig. 4 - Typical Instantaneous Forward Characteristics

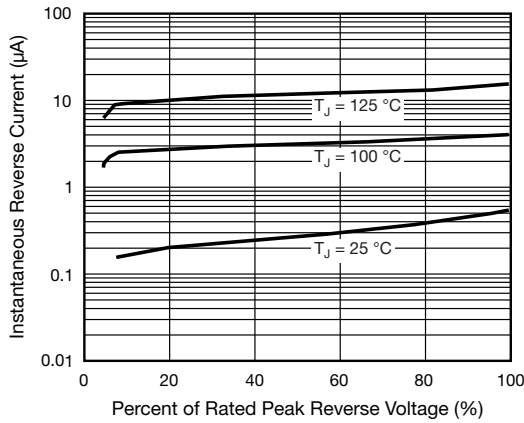


Fig. 5 - Typical Reverse Characteristics

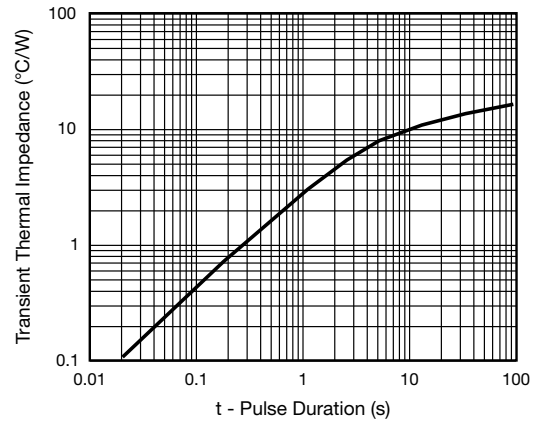
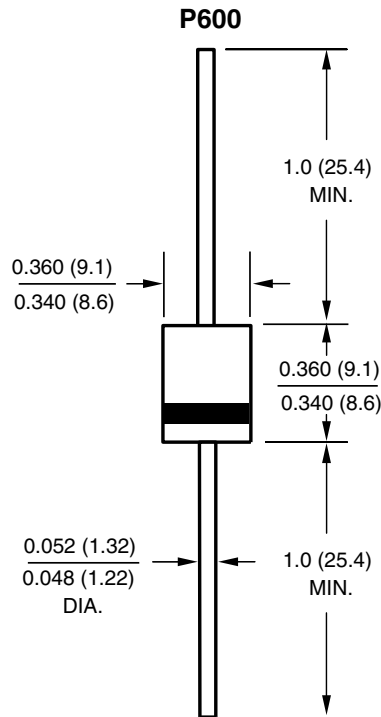


Fig. 6 - Typical Transient Thermal Impedance

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





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