

## Photovoltaic Solar Panel Protection Rectifier


**P600**

### FEATURES

- Glass passivated chip junction
- Low forward voltage drop
- 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 solar panel protection

### MECHANICAL DATA

**Case:** P600

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	
$I_{F(AV)}$	10 A
$V_{RRM}$	1000 V
$I_{FSM}$	440 A
$V_F$ at $I_F = 10$ A ( $T_A = 125$ °C)	0.80 V
$I_R$	5.0 $\mu$ A
$T_J$ max.	175 °C

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	GPP100MS	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 50$ °C	$I_{F(AV)}$ <sup>(1)</sup>	10	A
Peak forward surge current 8.3 ms single half sine-wave $T_A = 25$ °C	$I_{FSM}$	440	A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 175	°C

**Note**
<sup>(1)</sup> With heatsink

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 5.0\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.86	-	V
	$I_F = 10\text{ A}$			0.92	1.05	
	$I_F = 5.0\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.73	-	
	$I_F = 10\text{ A}$			0.80	0.95	
Reverse current	$V_R = 1000\text{ V}$	$I_R^{(2)}$	0.4	5.0	$\mu\text{A}$	
			$T_A = 125\text{ }^\circ\text{C}$	103		500
Typical reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$	$t_{rr}$	5.5	-	$\mu\text{s}$	
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	110	-	pF	

**Notes**

- (2) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle  
 (3) Pulse test: 40 ms pulse width

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	GPP100MS	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	20	$^\circ\text{C/W}$
	$R_{\theta JL}^{(1)}$	4.0	

**Note**

- (1) Leads clipped at 3 mm lead length from plastic body on 7.0 cm x 2.2 cm x 1.9 cm x 2 heatsink

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
GPP100MS-E3/54	2.0	54	800	13" diameter paper tape and reel
GPP100MS-E3/73	2.0	73	300	Ammopack packaging

**RATINGS AND CHARACTERISTICS CURVES**

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

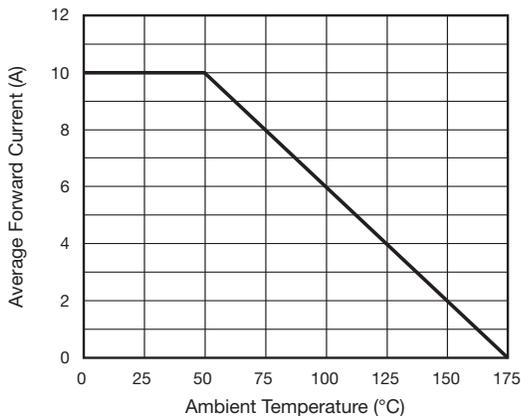


Fig. 1 - Maximum Forward Current Derating Curve

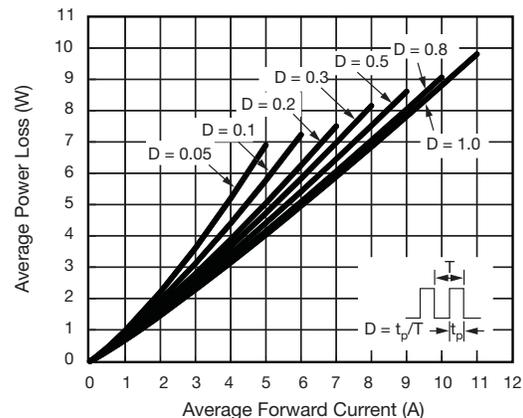


Fig. 2 - Forward Power Loss Characteristics

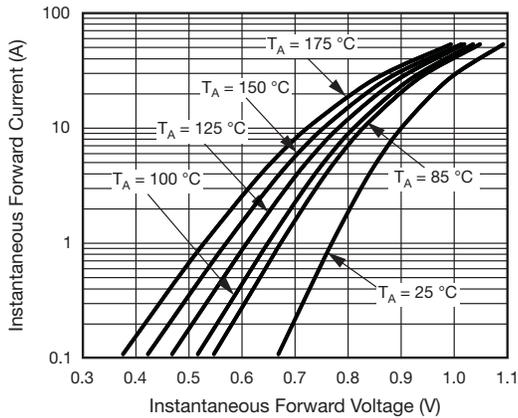


Fig. 3 - Typical Instantaneous Forward Characteristics

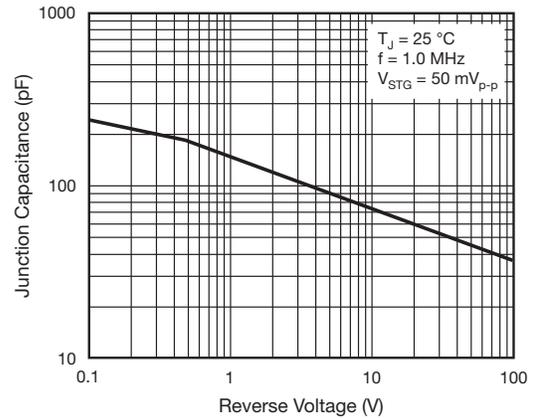


Fig. 5 - Typical Junction Capacitance

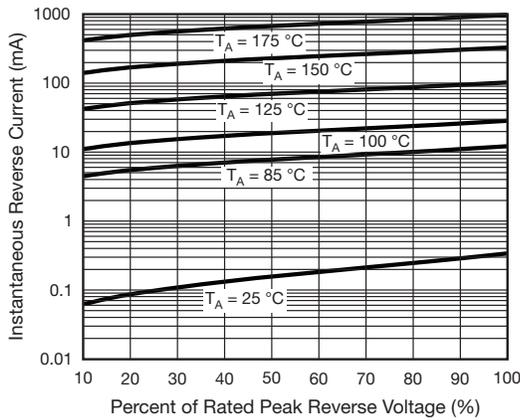
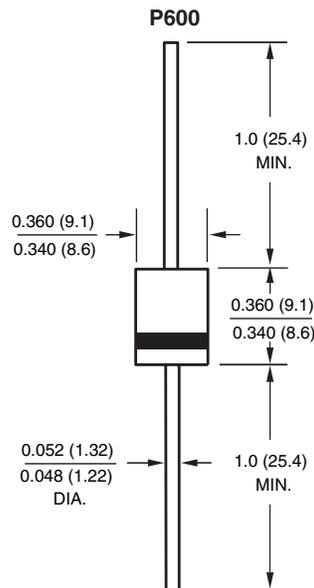


Fig. 4 - Typical Reverse Leakage Characteristics

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





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