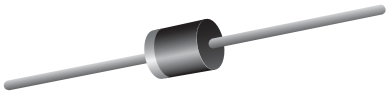
Photovoltaic Solar Panel Protection Rectifier



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

Pb e3 RoHS COMPLIANT

TYPICAL APPLICATIONS

For use in solar panel protection

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 µA
T_J max.	175 °C

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

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	$I_{F(AV)}$ (1)	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

(1) With heatsink

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

Notes

(2) Pulse test: 300 µs pulse width, 1 % duty cycle

(3) Pulse test: 40 ms pulse width

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**GPP100MS**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	20	°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

ORDERING INFORMATION (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 °C unless otherwise noted)

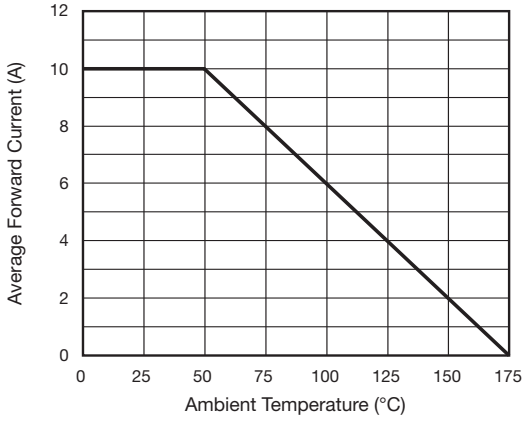


Fig. 1 - Maximum Forward Current Derating Curve

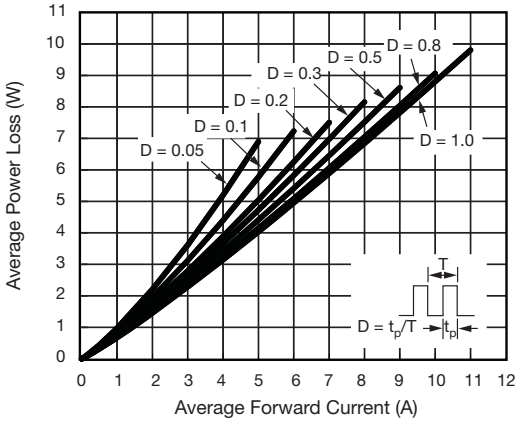


Fig. 2 - Forward Power Loss Characteristics

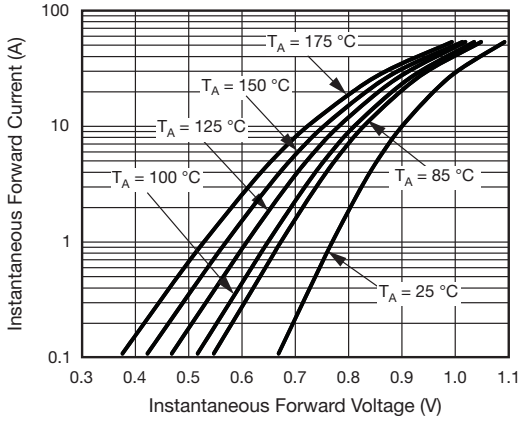


Fig. 3 - Typical Instantaneous Forward Characteristics

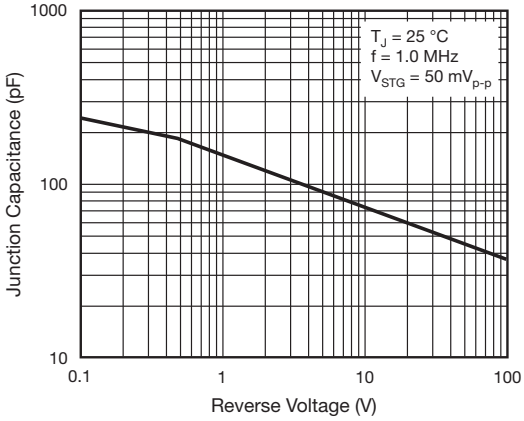


Fig. 5 - Typical Junction Capacitance

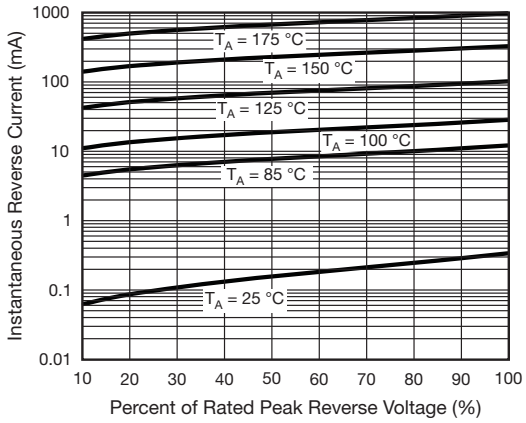
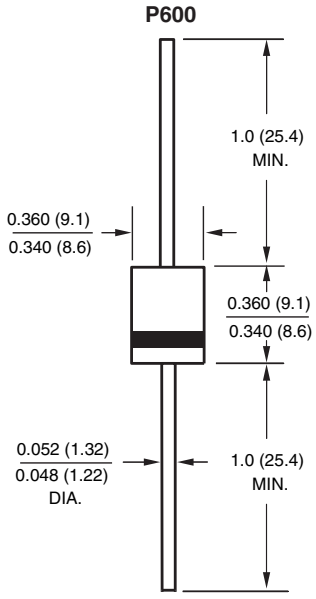


Fig. 4 - Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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