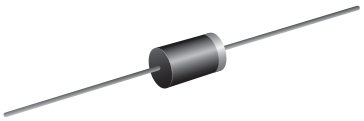
Miniature Ultrafast Plastic Rectifier



MPG06

FEATURES

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Soft recovery characteristics
- Low forward voltage drop
- Low switching losses, high efficiency
- 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

RoHS COMPLIANT

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	0.6 A
V_{RRM}	50 V, 100 V, 150 V, 200 V
I_{FSM}	40 A
t_{rr}	15 ns
V_F	0.95 V
T_J max.	150 °C
Package	MPG06
Diode variations	Single die

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

MECHANICAL DATA

Case: MPG06
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	UG06A	UG06B	UG06C	UG06D	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	0.6				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	40				A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150				°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**VALUE**	**UNIT**
Maximum instantaneous forward voltage	I_F = 0.6 A		V_F (1)	0.95	V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	5.0	μA
		T_A = 100 °C		100	
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	15	ns
Maximum reverse recovery time	I_F = 0.6 A, V_R = 30 V, dI/dt = 50 A/μs, I_{rr} = 10 % I_{RM}	T_J = 25 °C	t_{rr}	25	ns
		T_J = 100 °C		35	
Maximum stored charge	I_F = 0.6 A, V_R = 30 V, dI/dt = 50 A/μs, I_{rr} = 10 % I_{RM}	T_J = 25 °C	Q_{rr}	8.0	nC
		T_J = 100 C		20	
Typical junction capacitance	4 V, 1 MHz		C_J	9.0	pF

Note

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

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)							
PARAMETER	**SYMBOL**	**UG06A**	**UG06B**	**UG06C**	**UG06D**	**UNITS**
Typical thermal resistance	$R\theta_{JA}$ (1)	97				°C/W
	$R\theta_{JL}$ (1)	28				

Note

(1) Thermal resistance from junction to ambient and junction to lead at 0.375" (9.5 mm) lead length, PCB mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
UG06D-E3/54	0.181	54	5500	13" diameter paper tape and reel
UG06D-E3/73	0.181	73	3000	Ammo pack packaging

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

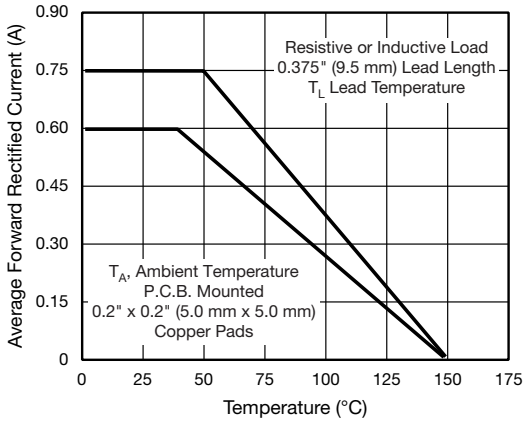


Fig. 1 - Maximum Forward Current Derating Curves

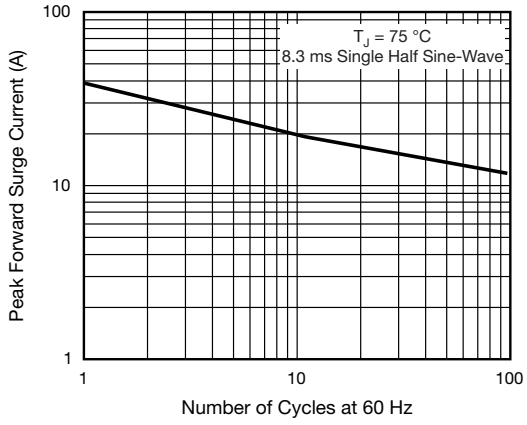


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

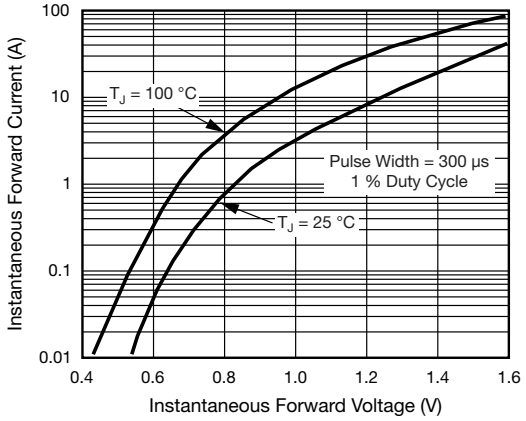


Fig. 3 - Typical Instantaneous Forward Characteristics

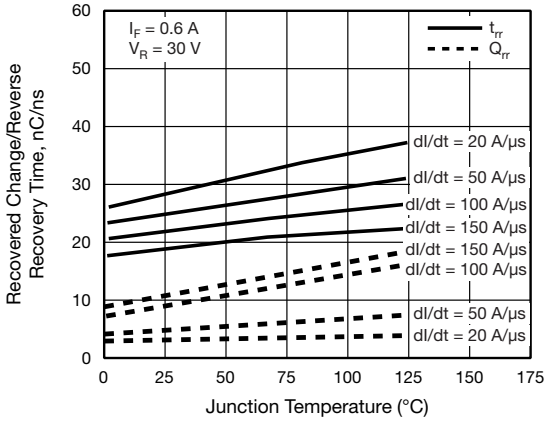


Fig. 5 - Reverse Switching Charateristics

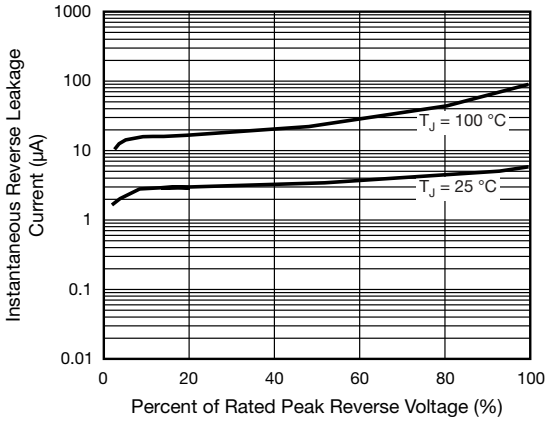


Fig. 4 - Typical Reverse Leakage Characteristics

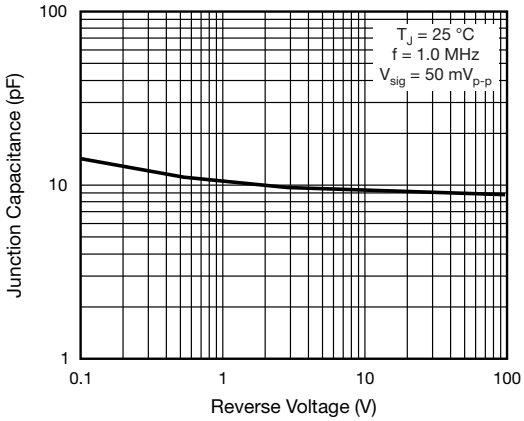
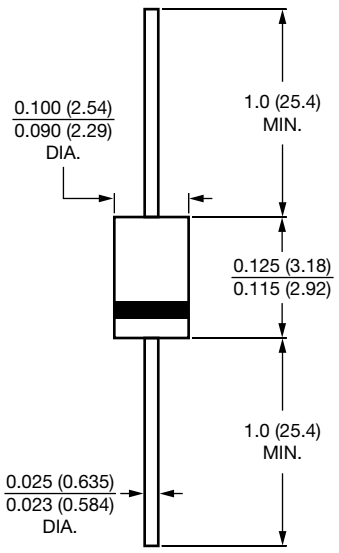


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

MPG06



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