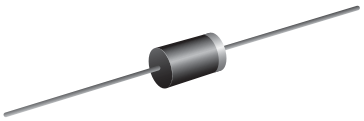
Miniature Ultrafast Plastic Rectifier



MPG06

FEATURES

- Glass passivated pallet 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

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

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

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	
Maximum DC blocking voltage	V_{DC}	50	100	150	200	
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				
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	
		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)

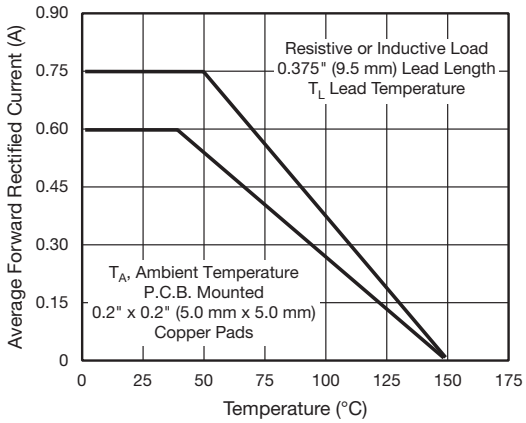


Fig. 1 - Maximum Forward Current Derating Curves

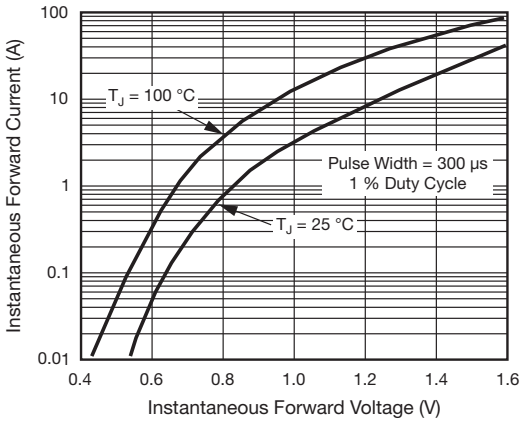


Fig. 3 - Typical Instantaneous Forward Characteristics

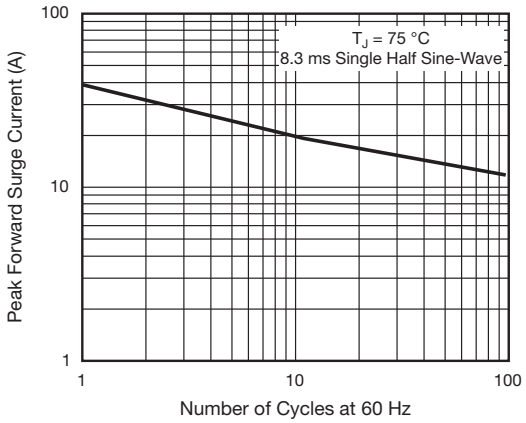


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

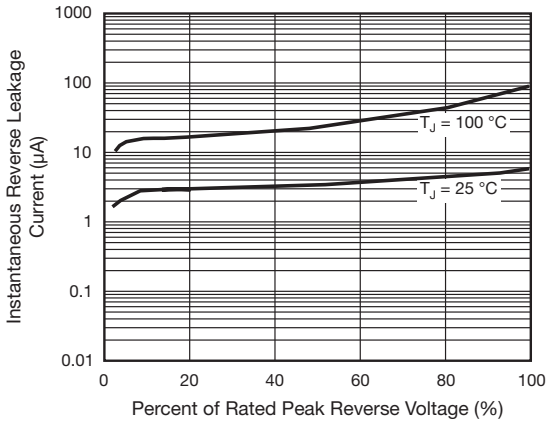


Fig. 4 - Typical Reverse Leakage Characteristics

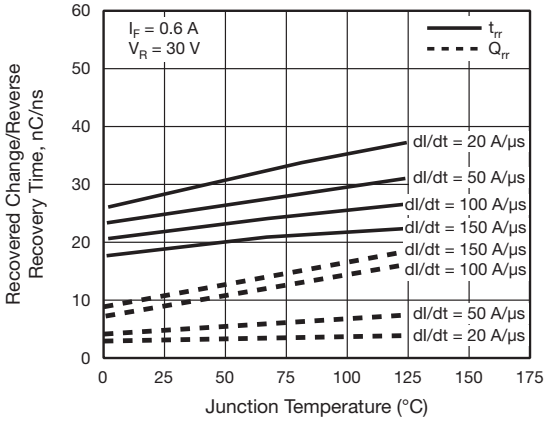


Fig. 5 - Reverse Switching Charateristics

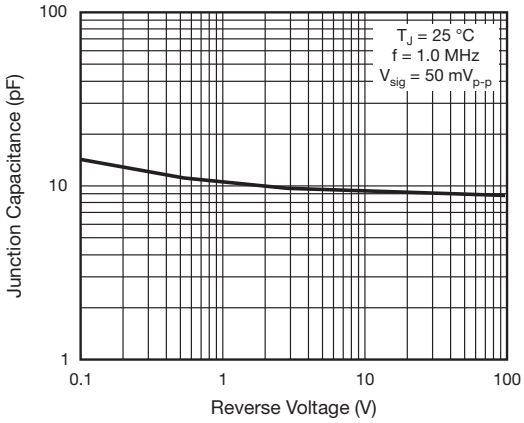
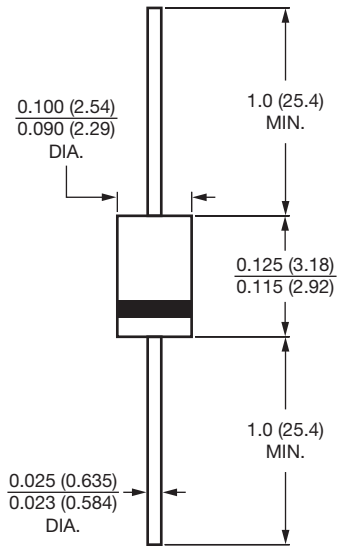


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

MPG06



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