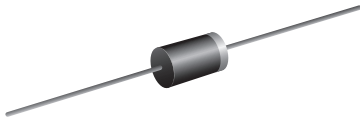


Miniature Ultrafast Plastic Rectifier


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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


RoHS
COMPLIANT

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	0.6 A
V_{RRM}	50 V to 200 V
I_{FSM}	40 A
t_{rr}	15 ns
V_F	0.95 V
$T_J \text{ max.}$	150 °C

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: MPG20

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 ($T_A = 25\text{ °C}$ 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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
Maximum instantaneous forward voltage	$I_F = 0.6\text{ A}$		$V_F^{(1)}$	0.95	V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$		I_R	5.0	μA
	$T_A = 100\text{ }^\circ\text{C}$			100	
Maximum reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		t_{rr}	15	ns
Maximum reverse recovery time	$I_F = 0.6\text{ A}, V_R = 30\text{ V}, dl/dt = 50\text{ A}/\mu\text{s}, I_{rr} = 10\% I_{RM}$	$T_J = 25\text{ }^\circ\text{C}$	t_{rr}	25	ns
		$T_J = 100\text{ }^\circ\text{C}$		35	
Maximum stored charge	$I_F = 0.6\text{ A}, V_R = 30\text{ V}, dl/dt = 50\text{ A}/\mu\text{s}, I_{rr} = 10\% I_{RM}$	$T_J = 25\text{ }^\circ\text{C}$	Q_{rr}	8.0	nC
		$T_J = 100\text{ }^\circ\text{C}$		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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	UG06A	UG06B	UG06C	UG06D	UNITS
Typical thermal resistance	$R_{\theta JA}^{(1)}$	97				$^\circ\text{C}/\text{W}$
	$R_{\theta JL}^{(1)}$	28				

Note

(1) Thermal resistance from junction to ambient and junction to lead at 0.375" (9.5 mm) lead length, P.C.B. 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

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

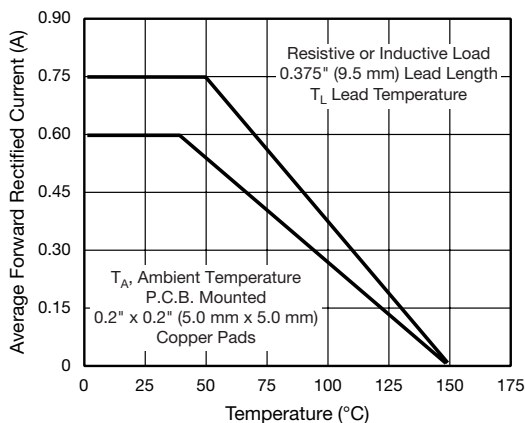


Fig. 1 - Maximum Forward Current Derating Curves

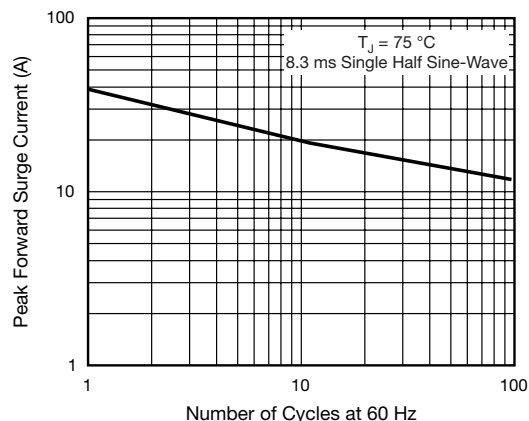


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

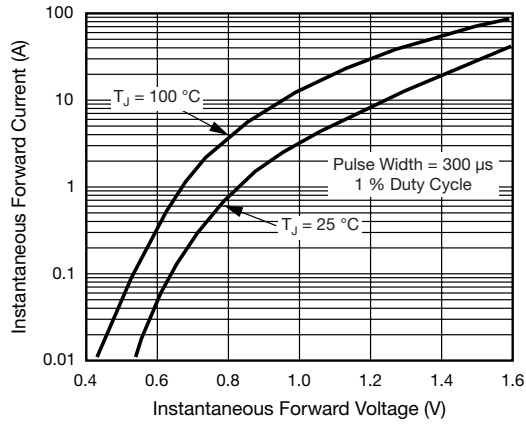


Fig. 3 - Typical Instantaneous Forward Characteristics

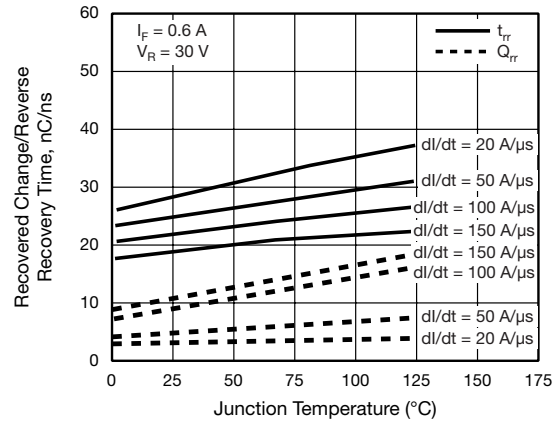


Fig. 5 - Reverse Switching Characteristics

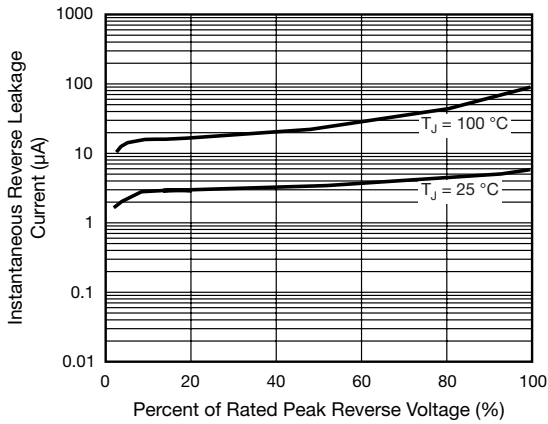


Fig. 4 - Typical Reverse Leakage Characteristics

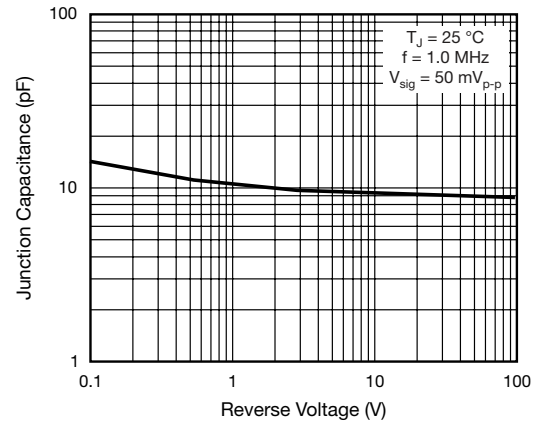
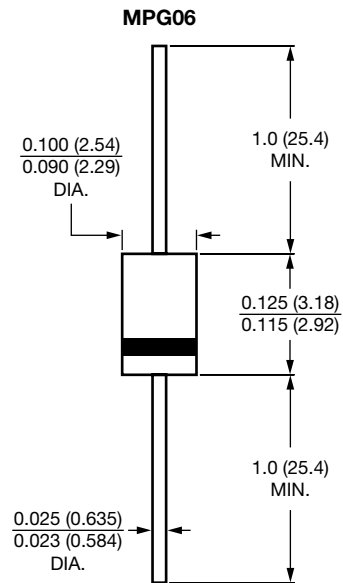


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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