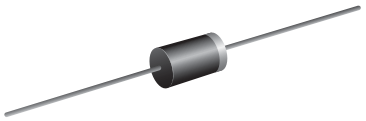
Miniature Fast Switching Plastic Rectifier



MPG06

FEATURES

- Glass passivated chip junction
- Fast switching for high efficiency
- Low leakage current, typical I_R less than 0.1 µA
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters, and freewheeling diodes for consumer, automotive, and telecommunication.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	50 V to 800 V
I_{FSM}	40 A
t_{rr}	150 ns, 200 ns, 250 ns
V_F	1.3 V
I_R	5.0 µA
T_J max.	150 °C

MECHANICAL DATA

Case: MPG06, molded epoxy over passivated chip
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified
Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified
("_X" denotes revision code e.g. A, B, ...)

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	RMPG06A	RMPG06B	RMPG06D	RMPG06G	RMPG06J	RMPG06K	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at T_A = 25 °C	$I_{F(AV)}$	1.0						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)										
PARAMATER	TEST CONDITIONS		SYMBOL	RMPG06A	RMPG06B	RMPG06D	RMPG06G	RMPG06J	RMPG06K	UNIT
Maximum instantaneous forward voltage	1.0 A		V_F	1.3						V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	5.0						μA
		T_A = 125 °C		50						
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	150				200	250	ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	6.6						pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	RMPG06A	RMPG06B	RMPG06D	RMPG06G	RMPG06J	RMPG06K	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	67						°C/W
	$R_{\theta JL}$ (1)	30						

Note

(1) Thermal resistance from junction to ambient and from junction to lead at 0.375" (9.5 mm) lead length, PCB mounted with 0.22" x 0.22" (5.5 mm x 5.5 mm) copper pads

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
RMPG06J-E3/54	0.202	54	5500	13" diameter paper tape and reel
RMPG06J-E3/73	0.202	73	3000	Ammo pack packaging
RMPG06JHE3/54 (1)	0.202	54	5500	13" diameter paper tape and reel
RMPG06JHE3/73 (1)	0.202	73	3000	Ammo pack packaging
RMPG06JHE3_A/54 (1)	0.202	54	5500	13" diameter paper tape and reel
RMPG06JHE3_A/73 (1)	0.202	73	3000	Ammo pack packaging

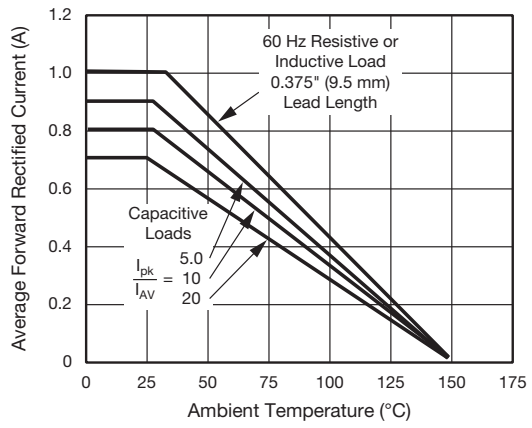
Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

Fig. 1 - Forward Current Derating Curve



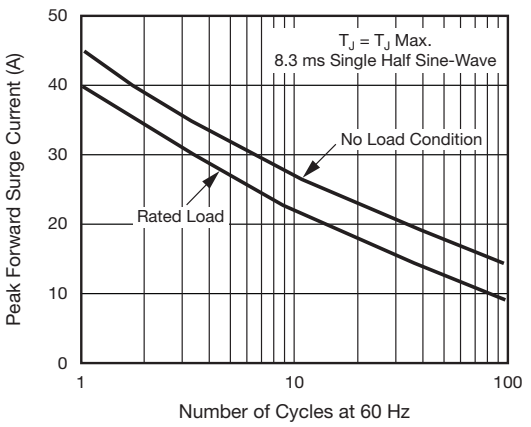


Fig. 2 - Maximum Peak Forward Surge Current

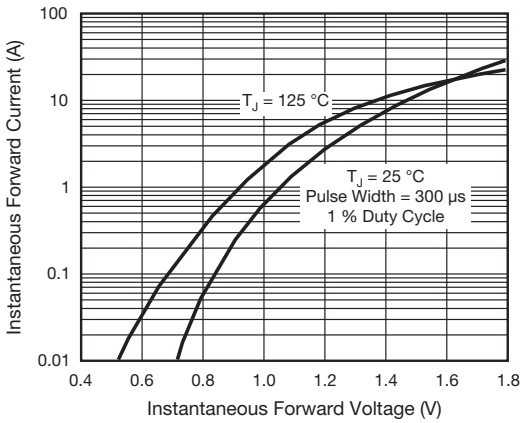


Fig. 3 - Typical Instantaneous Forward Characteristics

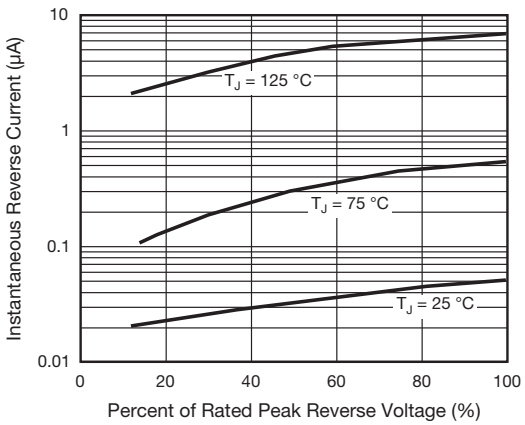


Fig. 4 - Typical Reverse Characteristics

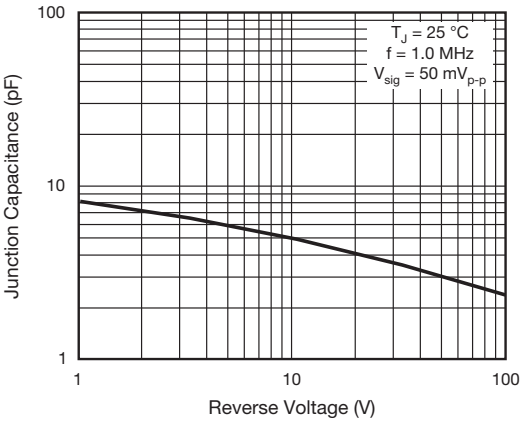


Fig. 5 - Typical Junction Capacitance

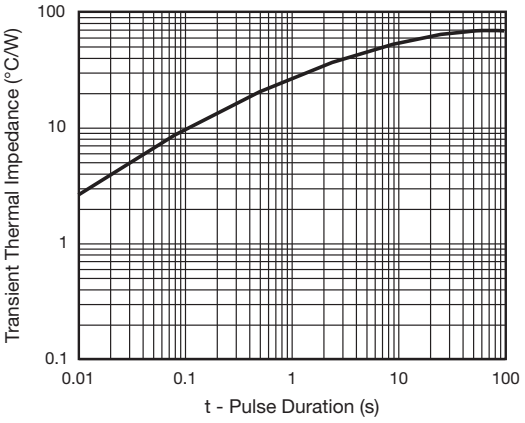
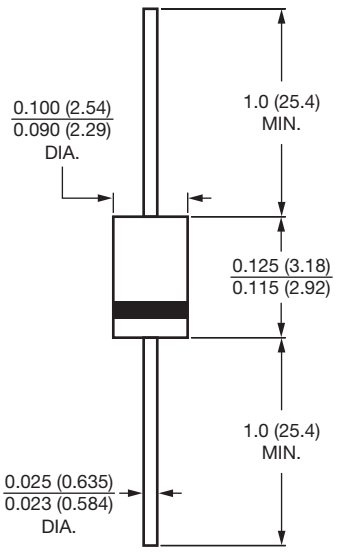


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

MPG06



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