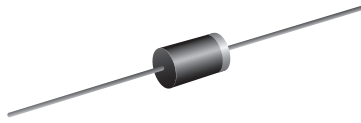




## Miniature Glass Passivated Junction Plastic Rectifier



MPG06

### FEATURES

- Glass passivated chip junction
- Low forward voltage drop
- Low leakage current, typical  $I_R$  less than 0.1  $\mu$ A
- 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](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters, and freewheeling diodes application.

### 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

PRIMARY CHARACTERISTICS	
Package	MPG06
$I_{F(AV)}$	1.0 A
$V_{RRM}$	50 V to 1000 V
$I_{FSM}$	40 A
$V_F$	1.1 V
$I_R$	5.0 $\mu$ A
$T_J$ max.	150 °C
Diode variations	Single

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)									
PARAMETER	SYMBOL	MPG06A	MPG06B	MPG06D	MPG06G	MPG06J	MPG06K	MPG06M	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 25\text{ °C}$	$I_{F(AV)}$	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** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	MPG06A	MPG06B	MPG06D	MPG06G	MPG06J	MPG06K	MPG06M	UNIT
Maximum instantaneous forward voltage	1.0 A	$V_F$				1.1				V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$	$I_R$				5.0				$\mu\text{A}$
	$T_A = 125\text{ }^\circ\text{C}$					50				
Typical reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$				0.6				$\mu\text{s}$
Typical junction capacitance	4.0 V, 1 MHz	$C_J$				10				pF

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

PARAMETER	SYMBOL	MPG06A	MPG06B	MPG06D	MPG06G	MPG06J	MPG06K	MPG06M	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$				67				$^\circ\text{C/W}$
	$R_{\theta JL}^{(1)}$				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
MPG06J-E3/54	0.202	54	5500	13" diameter paper tape and reel
MPG06J-E3/73	0.202	73	3000	Ammo pack packaging
MPG06JHE3/54 <sup>(1)</sup>	0.202	54	5500	13" diameter paper tape and reel
MPG06JHE3/73 <sup>(1)</sup>	0.202	73	3000	Ammo pack packaging
MPG06JHE3_A/54 <sup>(1)</sup>	0.202	54	5500	13" diameter paper tape and reel
MPG06JHE3_A/73 <sup>(1)</sup>	0.202	73	3000	Ammo pack packaging

**Note**

(1) AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

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

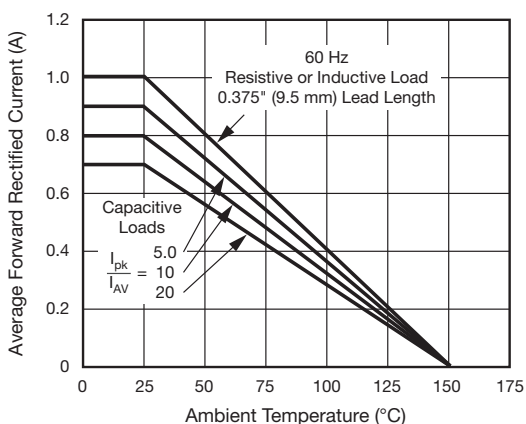


Fig. 1 - Forward Current Derating Curve

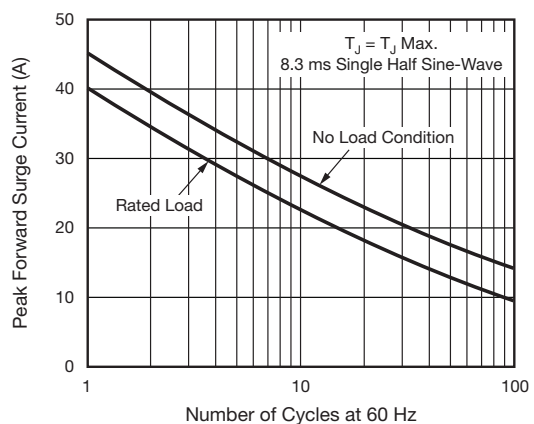


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

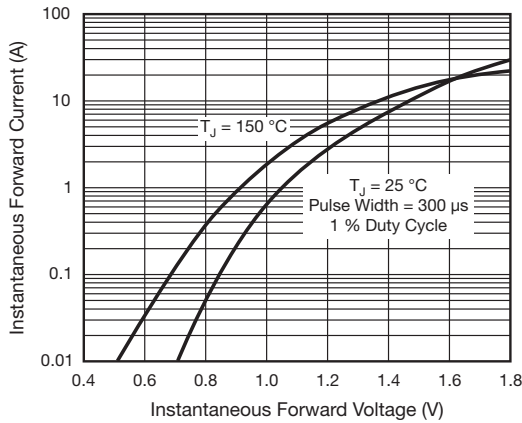


Fig. 3 - Typical Instantaneous Forward Characteristics

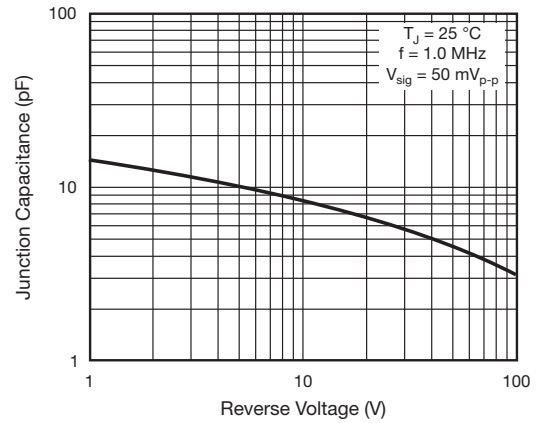


Fig. 5 - Typical Junction Capacitance

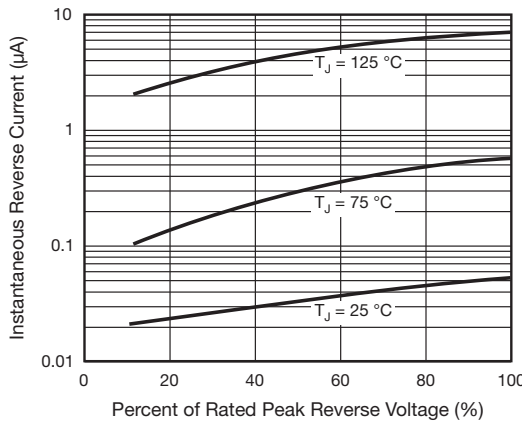


Fig. 4 - Typical Reverse Characteristics

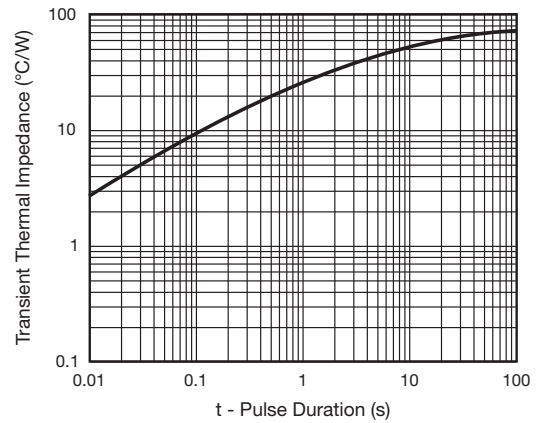
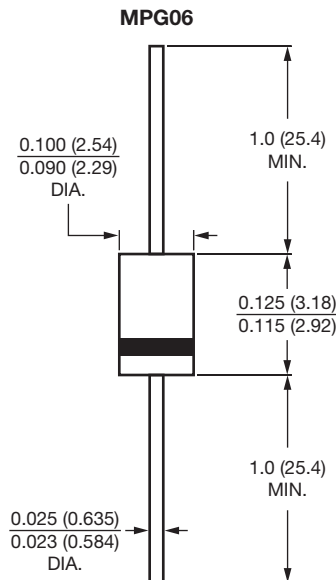


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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