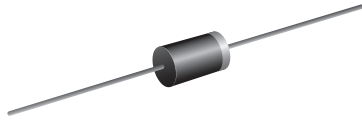


Miniature Glass Passivated Junction Plastic Rectifier



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 $275^\circ C$ max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



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

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 | |
|-------------------------|----------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 50 V to 1000 V |
| I_{FSM} | 40 A |
| V_F | 1.1 V |
| I_R | $5.0 \mu A$ |
| $T_J \text{ max.}$ | $150^\circ C$ |

| MAXIMUM RATINGS ($T_A = 25^\circ C$ 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 $T_A = 25^\circ C$ | $I_{F(AV)}$ | 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 | | | | | | | $^\circ C$ |

MPG06A thru MPG06M

Vishay General Semiconductor



| 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 | | | μA |
| | $T_A = 125\text{ }^\circ\text{C}$ | | | | | | 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} | | | | | 1.6 | | | μs |
| 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 (1) | 0.202 | 54 | 5500 | 13" diameter paper tape and reel |
| MPG06JHE3/73 (1) | 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)

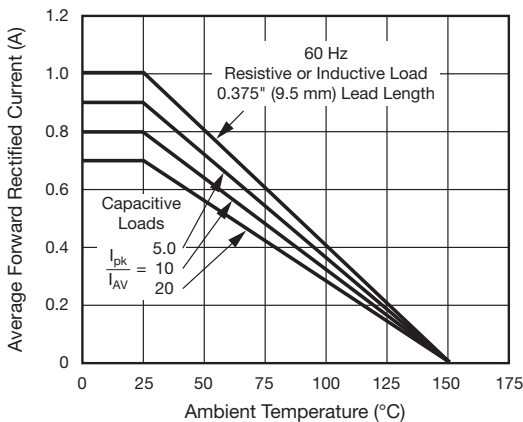


Fig. 1 - Forward Current Derating Curve

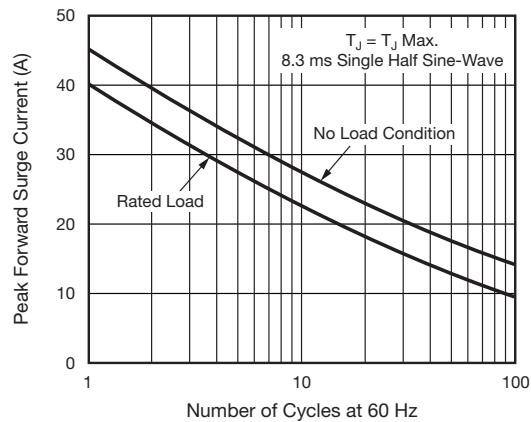


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

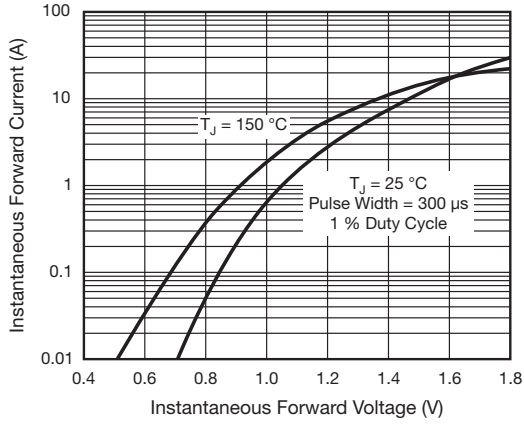


Fig. 3 - Typical Instantaneous Forward Characteristics

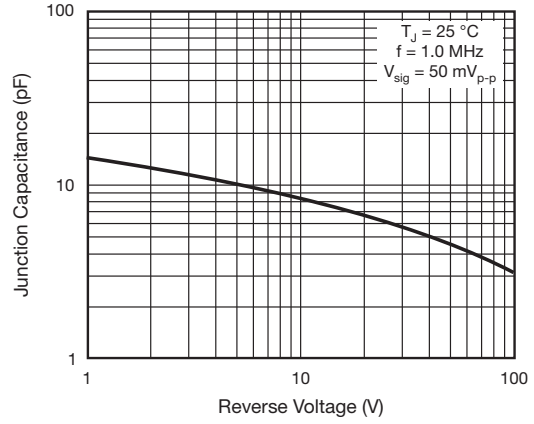


Fig. 5 - Typical Junction Capacitance

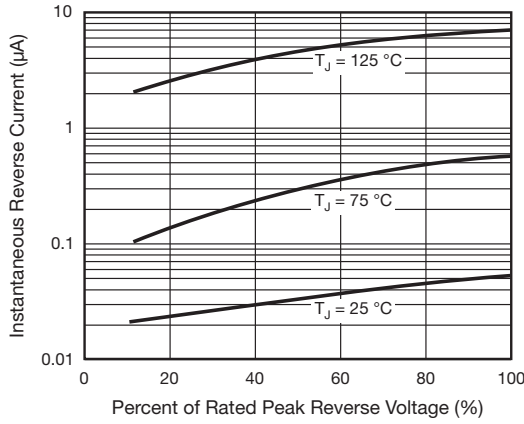


Fig. 4 - Typical Reverse Characteristics

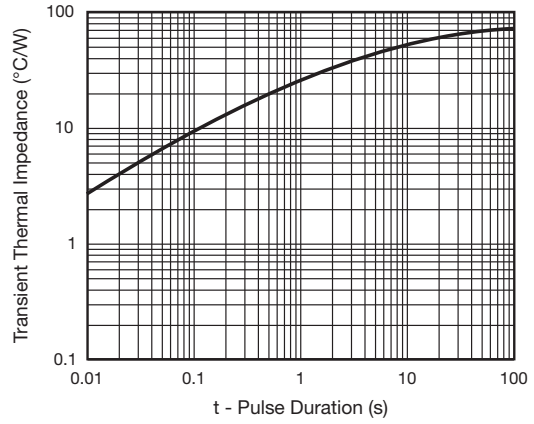
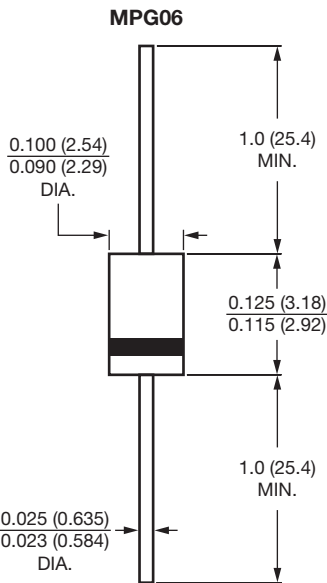


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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