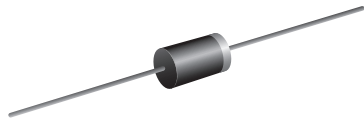




## Miniature Glass Passivated Junction Plastic Rectifier



MPG06

| PRIMARY CHARACTERISTICS |   |
|-------------------------|---|
| $I_{F(AV)}$             | 1.0 A   |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 40 A  |
| $V_F$ at $I_F = 1.0$ A  | 1.1 V   |
| $I_R$                   | 5.0 $\mu$ A                                     |
| $T_J$ max.              | 150 °C  |
| Package                 | MPG06   |
| Diode variations        | Single die                                      |

### FEATURES

- Glass passivated pellet 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\_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         | 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 $T_A = 25$ °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_A/54 (1) | 0.202           | 54                     | 5500          | 13" diameter paper tape and reel |
| MPG06JHE3_A/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)

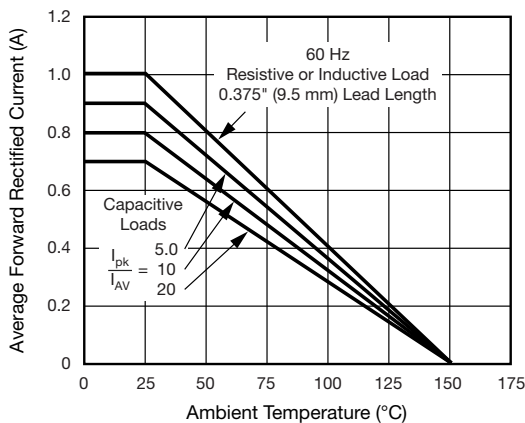


Fig. 1 - Forward Current Derating Curve

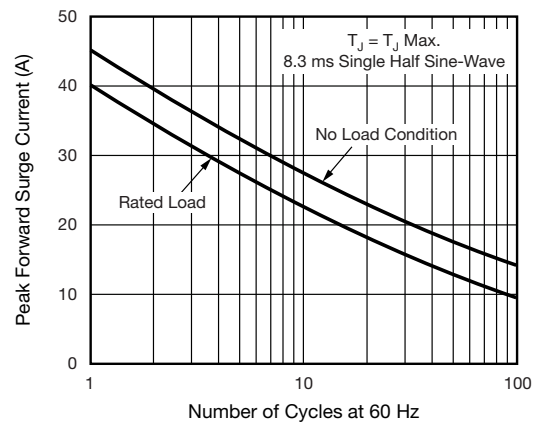


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

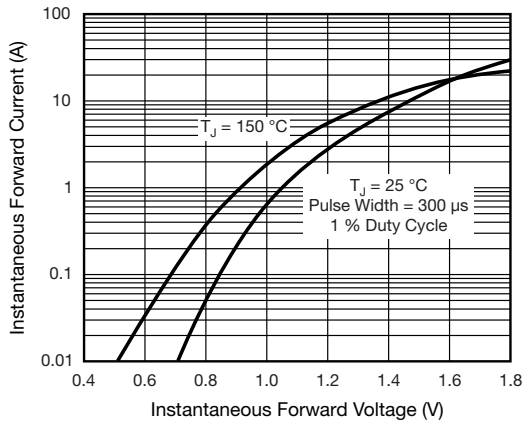


Fig. 3 - Typical Instantaneous Forward Characteristics

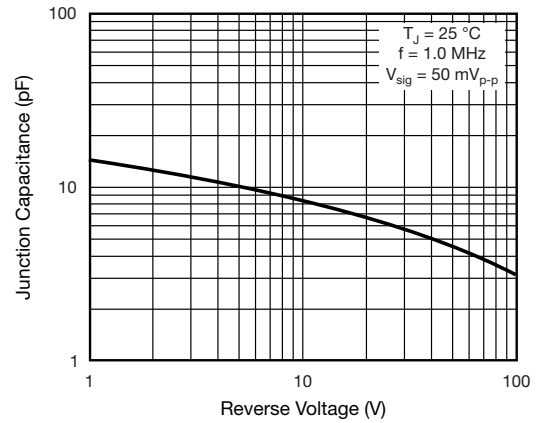


Fig. 5 - Typical Junction Capacitance

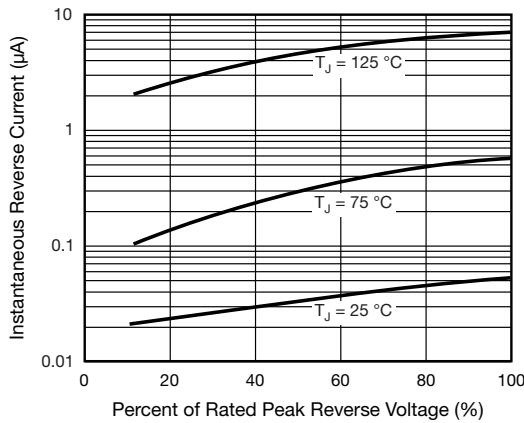


Fig. 4 - Typical Reverse Characteristics

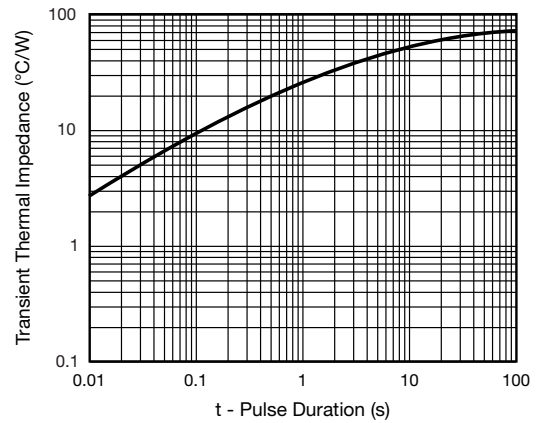
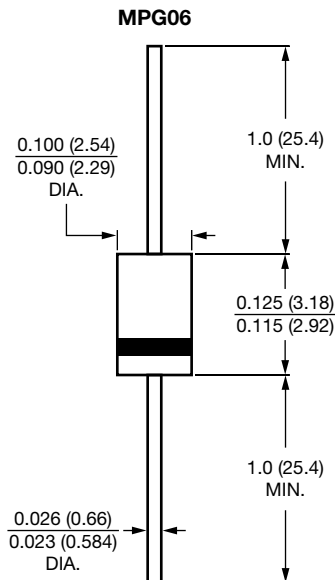


Fig. 6 - Typical Transient Thermal Impedance

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





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