

## RMPG06A, RMPG06B, RMPG06D, RMPG06G, RMPG06J, RMPG06K

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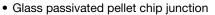
Vishay General Semiconductor

# Miniature Fast Switching Plastic Rectifier



| PRIMARY CHARACTERISTICS |  |  |  |  |  |  |
|-------------------------|--|--|--|--|--|--|
| I <sub>F(AV)</sub>      | 1.0 A                                      |  |  |  |  |  |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 400 V, 600 V,<br>800 V |  |  |  |  |  |
| I <sub>FSM</sub>        | 40 A                                       |  |  |  |  |  |
| t <sub>rr</sub>         | 150 ns, 200 ns, 250 ns                     |  |  |  |  |  |
| $V_{F}$                 | 1.3 V                                      |  |  |  |  |  |
| I <sub>R</sub>          | 5.0 μA                                     |  |  |  |  |  |
| $T_J$ max.              | 150 °C                                     |  |  |  |  |  |
| Package                 | MPG06                                      |  |  |  |  |  |
| Diode variation         | Single die                                 |  |  |  |  |  |

#### **FEATURES**





- · Fast switching for high efficiency
- Low leakage current, typical I<sub>R</sub> less than 0.1 μA
- High forward surge capability

COMPLIANT Solder dip 275 °C max. 10 s, per JESD 22-B106

**RoHS** 

- AEC-Q101 qualified
- · Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

#### **TYPICAL APPLICATIONS**

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

#### **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 <sub>A</sub> = 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     | ٧    |
| Maximum RMS voltage   | V <sub>RMS</sub>                  | 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 <sub>A</sub> = 25 °C | I <sub>F(AV)</sub>                | 1.0         |         |         |         |         |         | А    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load              | I <sub>FSM</sub>                  | 40          |         |         |         |         |         | Α    |
| Operating junction and storage temperature range  | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 |         |         |         |         | °C      |      |



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| <b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted) |                            |                                      |                  |             |         |         |         |         |         |      |
|---|----------------------------|--------------------------------------|------------------|-------------|---------|---------|---------|---------|---------|------|
| PARAMETER   | TEST (                     | CONDITIONS                           | SYMBOL           | RMPG06A     | RMPG06B | RMPG06D | RMPG06G | RMPG06J | RMPG06K | UNIT |
| Maximum<br>instantaneous<br>forward voltage                                       | 1.0 A                      |                                      | V <sub>F</sub>   | 1.3         |         |         |         | V       |         |      |
| Maximum DC reverse current at rated DC  |                            | T <sub>A</sub> = 25 °C               | - I <sub>R</sub> | 5.0         |         |         |         | μA      |         |      |
| blocking voltage  |                            | T <sub>A</sub> = 125 °C              |                  | 50          |         |         |         |         |         |      |
| Typical reverse recovery time   | $I_F = 0.5$ $I_{rr} = 0.2$ | 5 A, I <sub>R</sub> = 1.0 A,<br>25 A | t <sub>rr</sub>  | 150 200 250 |         |         |         | 250     | ns      |      |
| Typical junction capacitance  | 4.0 V, <sup>-</sup>        | 1 MHz                                | СЛ               | 6.6         |         |         |         | pF      |         |      |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |   |    |  |  |  |         |      |      |
|---|---|----|--|--|--|---------|------|------|
| PARAMETER   | ER SYMBOL RMPG06A RMPG06B RMPG06G RMPG06J RMPG06F |    |  |  |  | RMPG06K | UNIT |      |
| Typical thermal resistance  | R <sub>0JA</sub> (1)                              | 67 |  |  |  |         | °C/W |      |
| Typical thermal resistance  | R <sub>0JL</sub> (1)                              | 30 |  |  |  |         |      | C/VV |

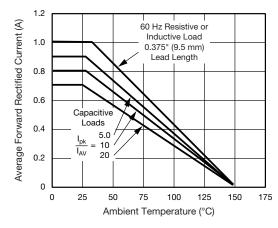
#### Note

<sup>(1)</sup> 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_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

### **RATINGS AND CHARACTERISTICS CURVES** (T<sub>A</sub> = 25 °C unless otherwise noted)





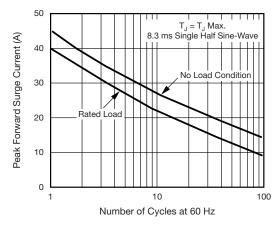


Fig. 2 - Maximum Peak Forward Surge Current

<sup>(1)</sup> AEC-Q101 qualified

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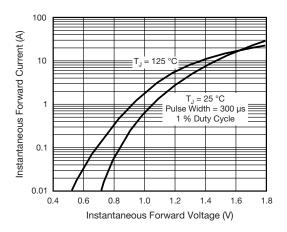


Fig. 3 - Typical Instantaneous Forward Characteristics

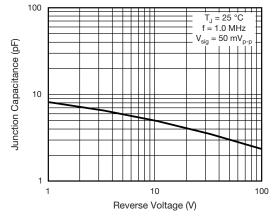


Fig. 5 - Typical Junction Capacitance

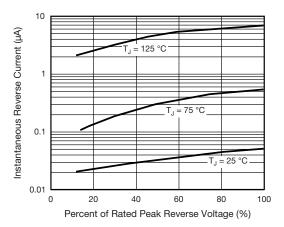


Fig. 4 - Typical Reverse Characteristics

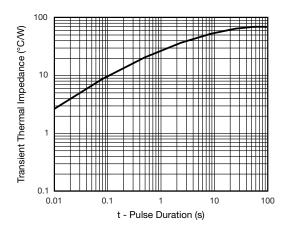
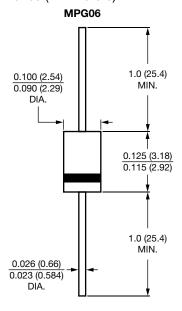


Fig. 6 - Typical Transient Thermal Impedance

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





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