

# ANTREX Electronics

## Electronic Components Sourcing Information

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### Product Reference Information

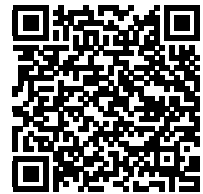
|                      |                                                |
|----------------------|------------------------------------------------|
| <b>Part Number:</b>  | MPG06MHE3_A/54                                 |
| <b>Manufacturer:</b> | Vishay General Semiconductor - Diodes Division |
| <b>Package:</b>      | MPG06, Axial                                   |
| <b>Availability:</b> | Please confirm with sales                      |

#### Product Page:

<https://antrexco.com/product/details/vishay-general-semiconductor-diodes-division/mpg06mhe3-a-54.html>

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### Quality & Trust

New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

#### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

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## 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 ( $T_A = 25$  °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 <sub>F</sub>  | 1.1    |        |        |        |        |        |        | V    |
| Maximum DC reverse current at rated DC blocking voltage |                                                                          | T <sub>A</sub> = 25 °C  | I <sub>R</sub>  | 5.0    |        |        |        |        |        |        | μA   |
|                                                         |                                                                          | T <sub>A</sub> = 125 °C |                 | 50     |        |        |        |        |        |        |      |
| Typical reverse recovery time                           | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A |                         | t <sub>rr</sub> | 0.6    |        |        |        |        |        |        | μs   |
| Typical junction capacitance                            | 4.0 V, 1 MHz                                                             |                         | C <sub>J</sub>  | 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 <sub>θJA</sub> <sup>(1)</sup> | 67     |        |        |        |        |        |        | °C/W |
|                            | R <sub>θJL</sub> <sup>(1)</sup> | 30     |        |        |        |        |        |        |      |

### 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                    |
|-------------------------------|-----------------|------------------------|---------------|----------------------------------|
| 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

<sup>(1)</sup> 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

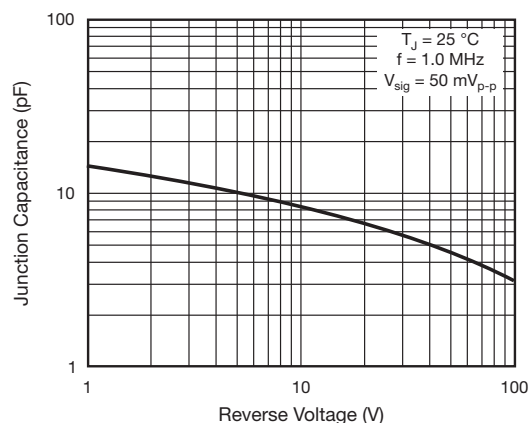


Fig. 5 - Typical Junction Capacitance



Fig. 4 - Typical Reverse Characteristics

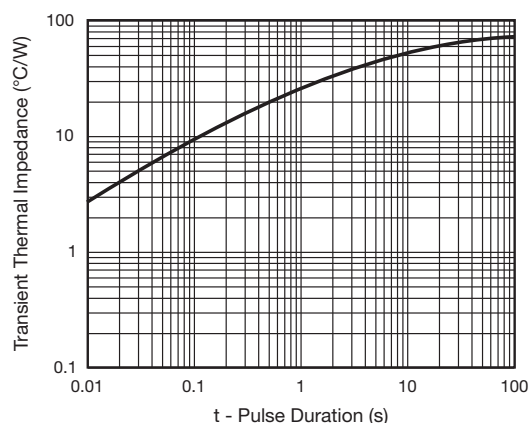


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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