

# ANTREX Electronics

Electronic Components Sourcing Information

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## Product Reference Information

**Part Number:** BYD13KGP-E3/73  
**Manufacturer:** Vishay General Semiconductor - Diodes Division  
**Package:** DO-204AL, DO-41, Axial  
**Availability:** Please confirm with sales

### Product Page:

<https://antrexco.com/product/details/vishay-general-semiconductor-diodes-division/byd13kgp-e3-73.html>

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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.

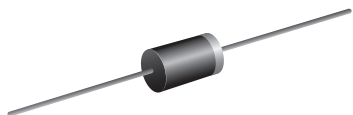
The original manufacturer datasheet follows from the next page.

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## Avalanche Glass Passivated Junction Rectifier

SUPERECTIFIER®



DO-204AL (DO-41)

## FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Avalanche surge capability guaranteed
- Low forward voltage drop
- Low leakage current, typical  $I_R$  less than  $0.1 \mu A$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- 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

## PRIMARY CHARACTERISTICS

|             |                 |
|-------------|-----------------|
| $I_{F(AV)}$ | 1.0 A           |
| $V_{RRM}$   | 200 V to 1000 V |
| $I_{FSM}$   | 30 A            |
| $E_{RSM}$   | 7 mJ            |
| $V_F$       | 1.1 V, 1.2 V    |
| $I_R$       | $5.0 \mu A$     |
| $T_J$ max.  | $175^\circ C$   |

## TYPICAL APPLICATIONS

For use in general purpose rectification of power supply, inverters, converters and freewheeling applications for consumer, automotive, and telecommunication.

## MECHANICAL DATA

**Case:** DO-204AL, molded epoxy over glass body  
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

MAXIMUM RATINGS ( $T_A = 25^\circ C$  unless otherwise noted)

| PARAMETER                                                                                                       | SYMBOL         | BYD13DGP      | BYD13GGP | BYD13JGP | BYD13KGP | BYD13MGP | UNIT       |
|-----------------------------------------------------------------------------------------------------------------|----------------|---------------|----------|----------|----------|----------|------------|
| Device marking code                                                                                             |                | 13DGP         | 13GGP    | 13JGP    | 13KGP    | 13MGP    |            |
| Maximum repetitive peak reverse voltage                                                                         | $V_{RRM}$      | 200           | 400      | 600      | 800      | 1000     | V          |
| Maximum DC blocking voltage                                                                                     | $V_{DC}$       | 200           | 400      | 600      | 800      | 1000     | V          |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length (fig. 1)                               | $I_{F(AV)}$    | 1.0           |          |          |          |          | A          |
| Peak forward surge current 8.3 ms single<br>half sine-wave superimposed on rated load                           | $I_{FSM}$      | 30            |          |          |          |          | A          |
| Non-repetitive peak reverse avalanche energy<br>at $L = 120$ mH, $T_J = T_J$ maximum prior to surge             | $E_{RSM}$      | 7             |          |          |          |          | mJ         |
| Maximum full load reverse current,<br>full cycle average, 0.375" (9.5 mm)<br>lead lengths at $T_A = 75^\circ C$ | $I_{R(AV)}$    | 30            |          |          |          |          | $\mu A$    |
| Operating junction and storage<br>temperature range                                                             | $T_J, T_{STG}$ | - 65 to + 175 |          |          |          |          | $^\circ C$ |

## BYD13DGP thru BYD13MGP

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                                                          |                         |                               |          |          |          |          |          |      |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|-------------------------------|----------|----------|----------|----------|----------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                          |                         | SYMBOL                        | BYD13DGP | BYD13GGP | BYD13JGP | BYD13KGP | BYD13MGP | UNIT |
| Maximum instantaneous forward voltage                                      | 1.0 A                                                                    |                         | V <sub>F</sub> <sup>(1)</sup> | 1.1      |          |          | 1.2      |          | 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>               | 3.0      |          |          |          |          | μs   |
| Typical junction capacitance                                               | 4.0 V, 1 MHz                                                             |                         | C <sub>J</sub>                | 8.0      |          |          | 7.0      |          | pF   |

**Note**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                       |  |          |          |          |          |          |                      |
|--------------------------------------------------------------------------------------|-----------------------|--|----------|----------|----------|----------|----------|----------------------|
| PARAMETER                                                                            | SYMBOL                |  | BYD13DGP | BYD13GGP | BYD13JGP | BYD13KGP | BYD13MGP | UNIT                 |
| Typical thermal resistance                                                           | $R_{\theta JA}^{(1)}$ |  | 55       |          |          |          |          | $^{\circ}\text{C/W}$ |

**Note**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| BYD13JGP-E3/54                 | 0.335           | 54                     | 5500          | 13" diameter paper tape and reel |
| BYD13JGP-E3/73                 | 0.335           | 73                     | 3000          | Ammo pack packaging              |
| BYD13JGPHE3/54 <sup>(1)</sup>  | 0.335           | 54                     | 5500          | 13" diameter paper tape and reel |
| BYD13JGPHE3/73 <sup>(1)</sup>  | 0.335           | 73                     | 3000          | Ammo pack packaging              |

**Note**

(1) AEC-Q101 qualified

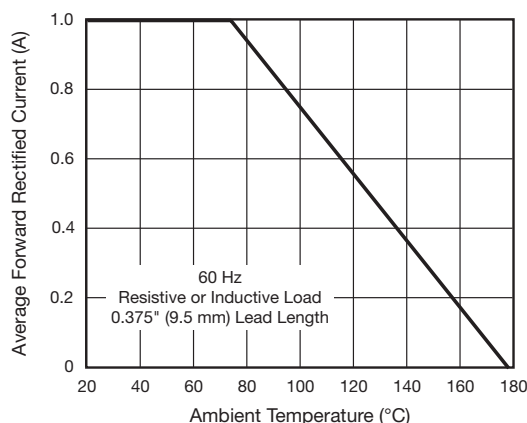
**RATINGS AND CHARACTERISTICS CURVES** $(T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

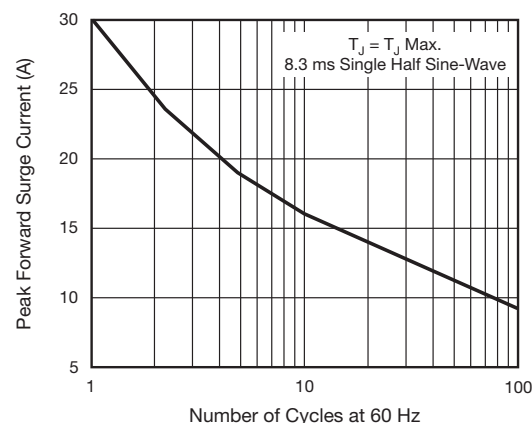


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current



# BYD13DGP thru BYD13MGP

Vishay General Semiconductor

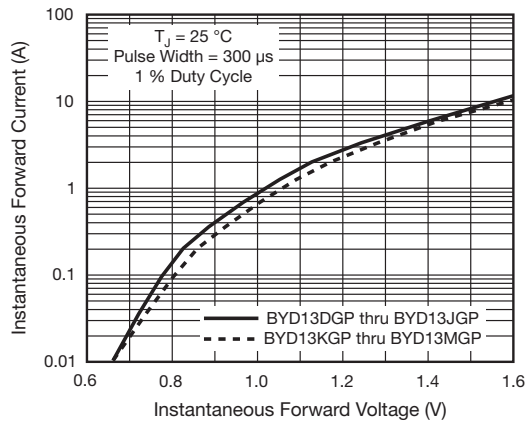


Fig. 3 - Typical Instantaneous Forward Characteristics

BYD13DGP.....200 V  
 BYD13GGP.....400 V  
 BYD13JGP.....600 V  
 BYD13KGP.....800 V  
 BYD13MGP.....1000 V

Fig. 5 - Maximum Repetitive Peak Reverse Voltage,  $V_{RRM}$

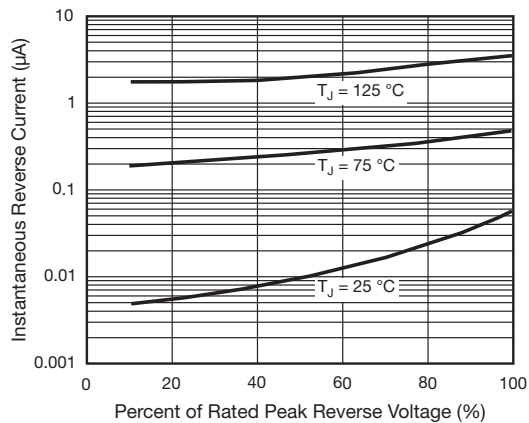


Fig. 4 - Typical Reverse Characteristics

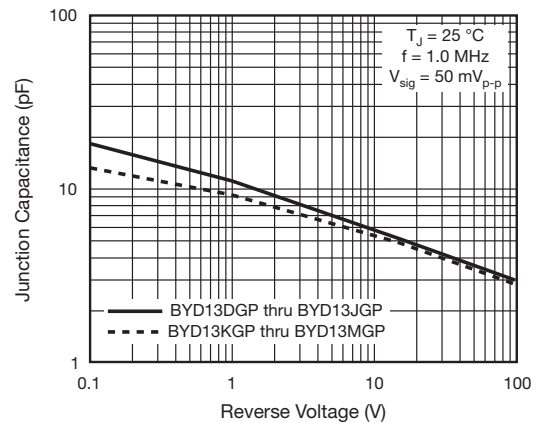
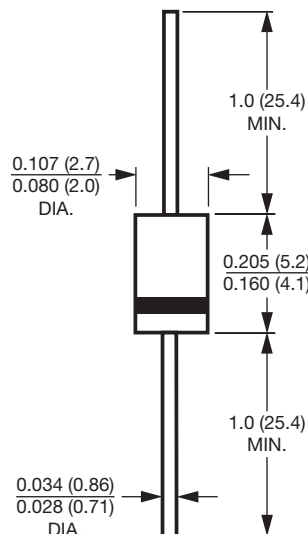


Fig. 6 - Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AL (DO-41)





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