

# Surface Mount Glass Passivated Junction Rectifier

## SUPERECTIFIER®



DO-213AA (GL34)

## FEATURES

- Superectifier structure for high reliability condition
- Ideal for automated placement
- Low forward voltage drop
- Low leakage current
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?999912](http://www.vishay.com/doc?999912)



**RoHS**  
COMPLIANT

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** DO-213AA, 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:** Two bands indicate cathode end - 1<sup>st</sup> band denotes device type and 2<sup>nd</sup> band denotes repetitive peak reverse voltage rating

| PRIMARY CHARACTERISTICS |                                  |
|-------------------------|----------------------------------|
| $I_{F(AV)}$             | 0.5 A                            |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 400 V, 600 V |
| $I_{FSM}$               | 10 A                             |
| $V_F$                   | 1.2 V, 1.3 V                     |
| $I_R$                   | 5.0 $\mu$ A                      |
| $T_J$ max.              | 175 °C                           |
| Package                 | DO-213AA (GL34)                  |
| Diode variations        | Single die                       |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                     |                |               |       |        |        |       |         |
|------------------------------------------------------------------------------------|----------------|---------------|-------|--------|--------|-------|---------|
| PARAMETER                                                                          | SYMBOL         | GL34A         | GL34B | GL34D  | GL34G  | GL34J | UNIT    |
| STANDARD RECOVERY DEVICE: 1 <sup>ST</sup> BAND IS WHITE                            |                |               |       |        |        |       |         |
| Polarity color bands (2 <sup>nd</sup> band)                                        |                | Gray          | Red   | Orange | Yellow | Green |         |
| Max. repetitive peak reverse voltage                                               | $V_{RRM}$      | 50            | 100   | 200    | 400    | 600   | V       |
| Max. RMS voltage                                                                   | $V_{RMS}$      | 35            | 70    | 140    | 280    | 420   | V       |
| Max. DC blocking voltage                                                           | $V_{DC}$       | 50            | 100   | 200    | 400    | 600   | V       |
| Max. average forward rectified current at $T_L = 75\text{ °C}$                     | $I_{F(AV)}$    | 0.5           |       |        |        |       | A       |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 10            |       |        |        |       | A       |
| Max. full load reverse current, full cycle average at $T_A = 55\text{ °C}$         | $I_{R(AV)}$    | 30            |       |        |        |       | $\mu$ A |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | - 65 to + 175 |       |        |        |       | °C      |

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

| PARAMETER                                            | TEST CONDITIONS                                                          |                         | SYMBOL          | GL34A | GL34B | GL34D | GL34G | GL34J | UNIT |
|------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|-----------------|-------|-------|-------|-------|-------|------|
| Max. instantaneous forward voltage                   | 0.5 A                                                                    |                         | V <sub>F</sub>  | 1.2   |       |       |       | 1.3   | V    |
| Max. 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> | 1.5   |       |       |       |       | μs   |
| Typical junction capacitance                         | 4.0 V, 1 MHz                                                             |                         | C <sub>J</sub>  | 4.0   |       |       |       |       | pF   |

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

| PARAMETER                  | SYMBOL                          | GL34A | GL34B | GL34D | GL34G | GL34J | UNIT |
|----------------------------|---------------------------------|-------|-------|-------|-------|-------|------|
| Maximum thermal resistance | R <sub>θJA</sub> <sup>(1)</sup> | 150   |       |       |       |       | °C/W |
|                            | R <sub>θJT</sub> <sup>(2)</sup> | 70    |       |       |       |       |      |

**Notes**

- (1) Thermal resistance from junction to ambient, 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads to each terminal  
(2) Thermal resistance from junction to terminal, 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads to each terminal

**ORDERING INFORMATION** (Example)

| PREFERRED P/N              | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
|----------------------------|-----------------|------------------------|---------------|------------------------------------|
| GL34G-E3/98                | 0.036           | 98                     | 2500          | 7" diameter plastic tape and reel  |
| GL34G-E3/83                | 0.036           | 83                     | 9000          | 13" diameter plastic tape and reel |
| GL34GHE3/98 <sup>(1)</sup> | 0.036           | 98                     | 2500          | 7" diameter plastic tape and reel  |
| GL34GHE3/83 <sup>(1)</sup> | 0.036           | 83                     | 9000          | 13" diameter plastic tape and reel |

**Note**

- (1) AEC-Q101 qualified

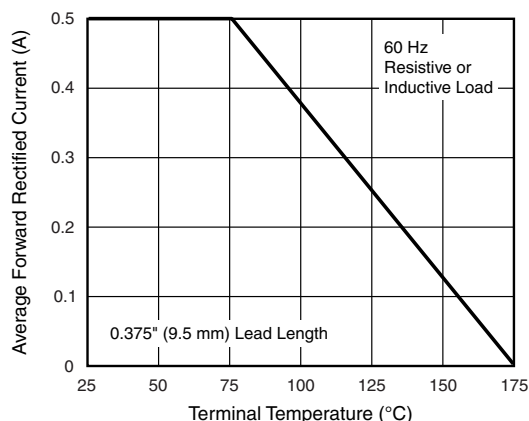
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

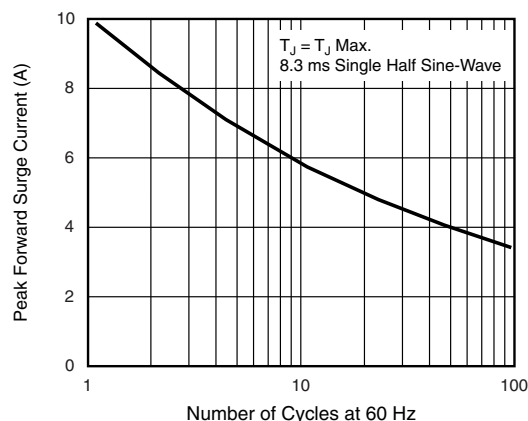


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

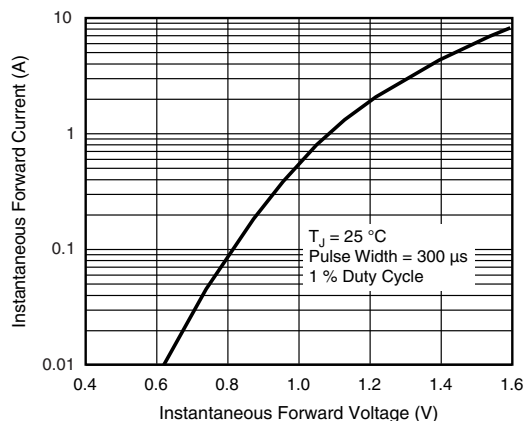


Fig. 3 - Typical Instantaneous Forward Characteristics

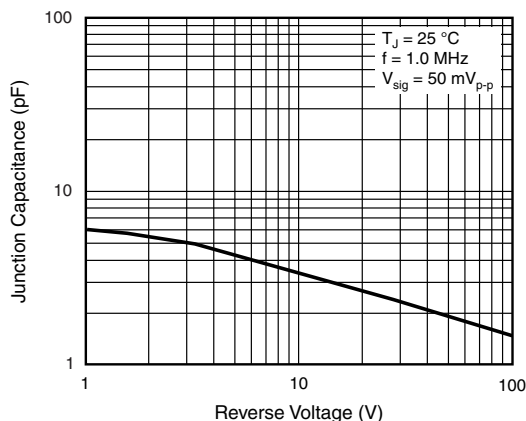


Fig. 5 - Typical Junction Capacitance

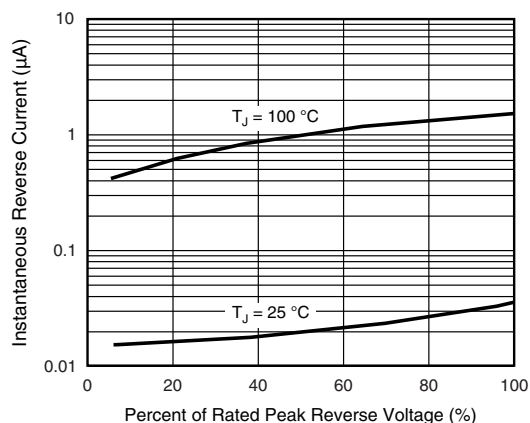
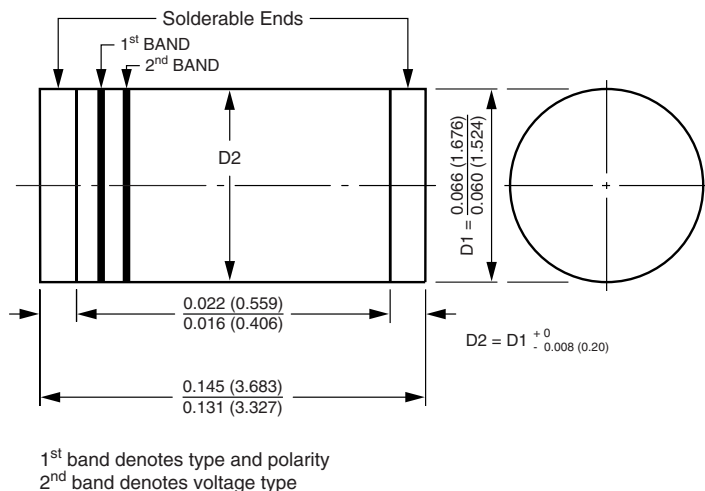


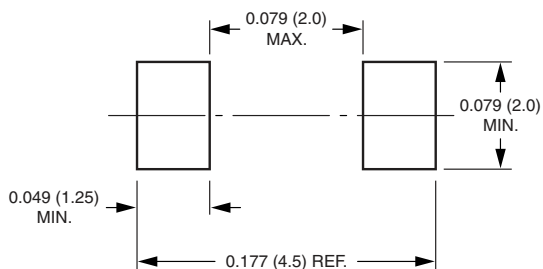
Fig. 4 - Typical Reverse Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-213AA (GL34)



#### Mounting Pad Layout





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