

# Surface Mount Glass Passivated Ultrafast Rectifier

## SUPERECTIFIER®



DO-213AA (GL34)

## FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- 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?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

## TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive and telecommunication.

## PRIMARY CHARACTERISTICS

|                  |                 |
|------------------|-----------------|
| $I_{F(AV)}$      | 0.5 A           |
| $V_{RRM}$        | 50 V to 400 V   |
| $I_{FSM}$        | 10 A            |
| $t_{rr}$         | 50 ns           |
| $V_F$            | 1.25 V, 1.35 V  |
| $T_J$ max.       | 175 °C          |
| Package          | DO-213AA (GL34) |
| Diode variations | Single die      |

## 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

## MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                          | SYMBOL         | BYM07-50      | BYM07-100 | BYM07-150 | BYM07-200 | BYM07-300 | BYM07-400 | UNIT |
|------------------------------------------------------------------------------------|----------------|---------------|-----------|-----------|-----------|-----------|-----------|------|
| Fast efficient device: 1 <sup>st</sup> band is green                               |                | EGL34A        | EGL34B    | EGL34C    | EGL34D    | EGL34F    | EGL34G    |      |
| Polarity color bands (2 <sup>nd</sup> band)                                        |                | Gray          | Red       | Pink      | Orange    | Brown     | Yellow    |      |
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$      | 50            | 100       | 150       | 200       | 300       | 400       | V    |
| Maximum RMS voltage                                                                | $V_{RMS}$      | 35            | 70        | 105       | 140       | 210       | 280       | V    |
| Maximum DC blocking voltage                                                        | $V_{DC}$       | 50            | 100       | 150       | 200       | 300       | 400       | V    |
| Maximum average forward rectified current at $T_T = 75$ °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    |
| Maximum full load reverse current, full cycle average at $T_A = 55$ °C             | $I_{R(AV)}$    | 50            |           |           |           |           |           | μA   |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | - 65 to + 175 |           |           |           |           |           | °C   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                                                                |                               |          |           |           |           |           |           |      |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------|----------|-----------|-----------|-----------|-----------|-----------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                                | SYMBOL                        | BYM07-50 | BYM07-100 | BYM07-150 | BYM07-200 | BYM07-300 | BYM07-400 | UNIT |
|                                                                            |                                                                                |                               | EGL34A   | EGL34B    | EGL34C    | EGL34D    | EGL34F    | EGL34G    |      |
| Maximum DC reverse current at rated DC blocking voltage                    | T <sub>A</sub> = 25 °C                                                         | I <sub>R</sub> <sup>(1)</sup> | 5.0      |           |           |           |           |           | μA   |
|                                                                            | T <sub>A</sub> = 125 °C                                                        |                               | 50       |           |           |           |           |           |      |
| Maximum instantaneous forward voltage                                      | 0.5 A                                                                          | V <sub>F</sub> <sup>(1)</sup> | 1.25     |           |           |           | 1.35      |           | V    |
| Max. reverse recovery time                                                 | I <sub>F</sub> = 0.5 A,<br>I <sub>R</sub> = 1.0 A,<br>I <sub>rr</sub> = 0.25 A | t <sub>rr</sub>               | 50       |           |           |           |           |           | ns   |
| Typical junction capacitance                                               | 4.0 V, 1 MHz                                                                   | C <sub>J</sub>                | 7.0      |           |           |           |           |           | pF   |

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

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |          |           |           |           |           |           |      |
|-------------------------------------------------------------------------|---------------------------------|----------|-----------|-----------|-----------|-----------|-----------|------|
| PARAMETER                                                               | SYMBOL                          | BYM07-50 | BYM07-100 | BYM07-150 | BYM07-200 | BYM07-300 | BYM07-400 | UNIT |
|                                                                         |                                 | EGL34A   | EGL34B    | EGL34C    | EGL34D    | EGL34F    | EGL34G    |      |
| 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, 0.24" x 0.24" (6.0 mm x 6.0 mm) copper pads to each terminal

(2) Thermal resistance from junction to terminal, 0.24" x 0.24" (6.0 mm x 6.0 mm) copper pads to each terminal

| ORDERING INFORMATION (Example) |                 |                        |               |                                    |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| EGL34D-E3/98                   | 0.036           | 98                     | 2500          | 7" diameter plastic tape and reel  |
| EGL34D-E3/83                   | 0.036           | 83                     | 9000          | 13" diameter plastic tape and reel |
| EGL34DHE3/98 <sup>(1)</sup>    | 0.036           | 98                     | 2500          | 7" diameter plastic tape and reel  |
| EGL34DHE3/83 <sup>(1)</sup>    | 0.036           | 83                     | 9000          | 13" diameter plastic tape and reel |

**Note**

(1) AEC-Q101 qualified

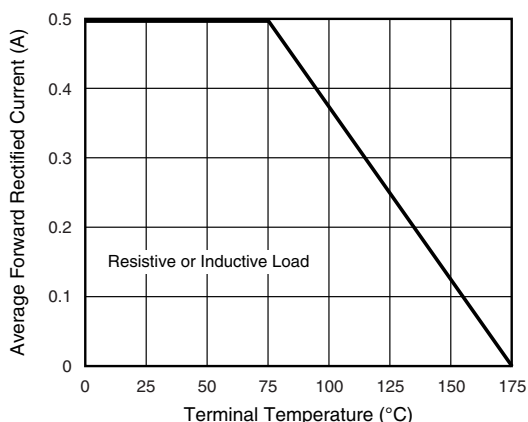
**RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)**

Fig. 1 - Forward Current Derating Curve

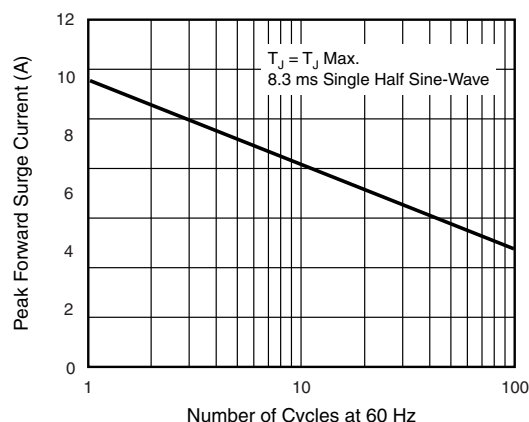


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

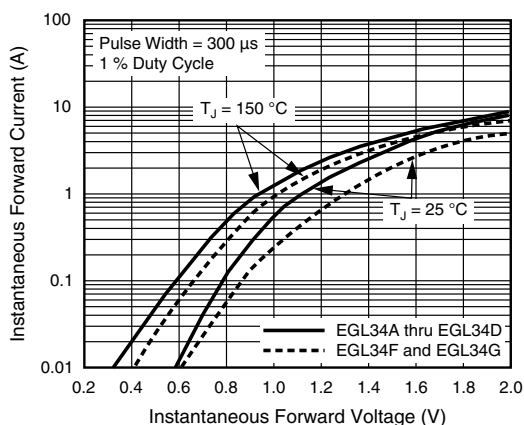


Fig. 3 - Typical Instantaneous Forward Characteristics

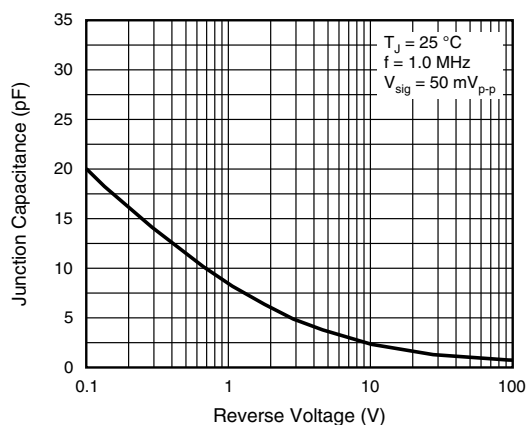


Fig. 5 - Typical Junction Capacitance

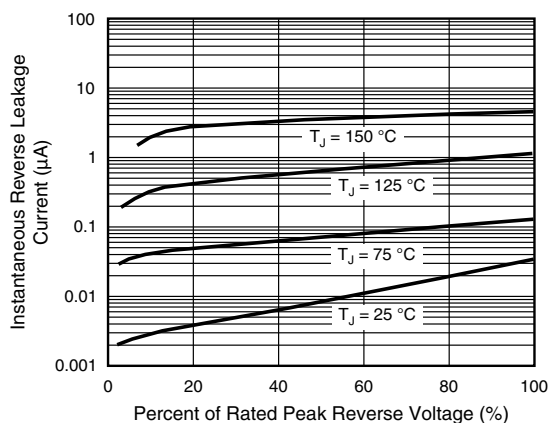


Fig. 4 - Typical Reverse Characteristics

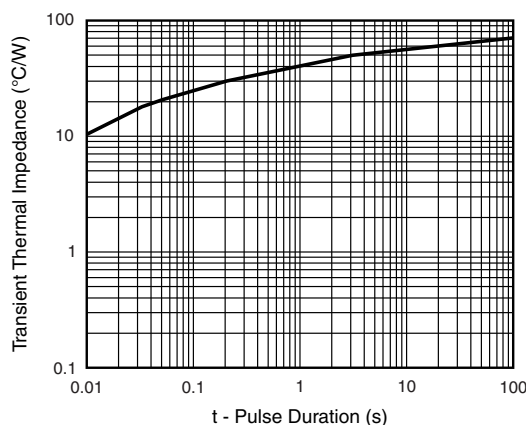
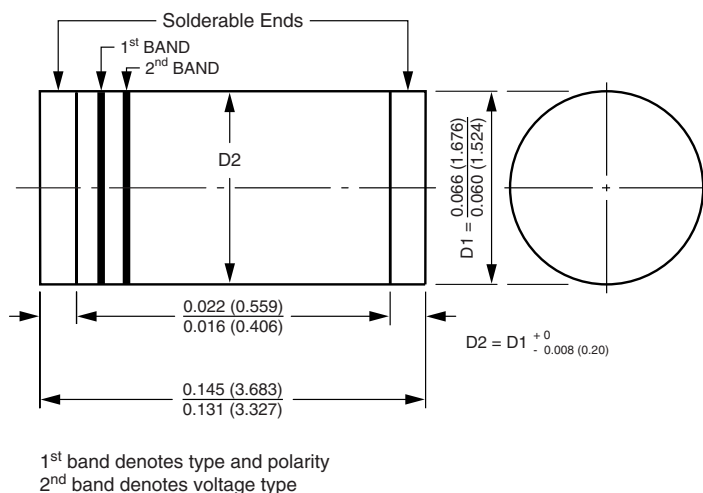


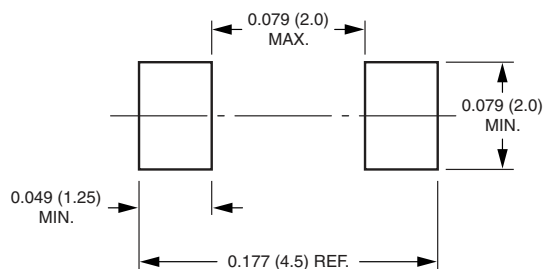
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-213AA (GL34)



### Mounting Pad Layout





## Disclaimer

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