# Surface Mount Glass Passivated Junction Fast Switching Rectifier


Patented*

*Glass-plastic encapsulation is covered by Patent No. 3,996,602, brazed-lead assembly to Patent No. 3,930,306

**DO-213AA (GL34)**

## FEATURES

- Superectifier structure for high reliability condition
- Patented glass-plastic encapsulation technique
- Ideal for automated placement
- Fast switching for high efficiency
- Meets environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020C, LF max peak of 260 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** DO-213AA, molded epoxy over glass body

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Two bands indicate cathode end - 1st band denotes device type and 2nd band denotes repetitive peak reverse voltage rating

| MAJOR RATINGS AND CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 0.5 V |
| $V_{RRM}$ | 50 V to 800 V |
| $I_{FSM}$ | 10 A |
| $t_{rr}$ | 150 ns, 250 ns |
| $V_F$ | 1.3 V |
| $T_j$ max. | 175 °C |

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

| PARAMETER<br>FAST SWITCHING DEVICE:<br>1ST BAND IS RED | SYMBOL | RGL34A | RGL34B | RGL34D | RGL34G | RGL34J | RGL34K | UNIT |
|---|---|---|---|---|---|---|---|---|
| Polarity color bands (2nd Band) | | Gray | Red | Orange | Yellow | Green | Blue | |
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | V |
| Maximum RMS voltage | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 560 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | V |
| Max. average forward rectified current at $T_T$ = 55 °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 $T_A$ = 55 °C | $I_{R(AV)}$ | 30 | | | | | | µA |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | - 65 to + 175 | | | | | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | **SYMBOL** | **RGL34** | **RGL34B** | **RGL34D** | **RGL34G** | **RGL34J** | **RGL34K** | **UNIT** |
| Maximum instantaneous forward voltage | at 0.5 A | $V_F$ | 1.3 | | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage | $T_A$ = 25 °C<br>$T_A$ = 125 °C | $I_R$ | 5.0<br>50 | | | | | | µA |
| Maximum reverse recovery time | at $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | $t_{rr}$ | 150 | | | | 250 | | ns |
| Typical junction capacitance | at 4.0 V, 1 MHz | $C_J$ | 4 | | | | | | pF |

| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **FAST SWITCHING DEVICE: 1ST BAND IS RED** | **SYMBOL** | **RGL34** | **RGL34B** | **RGL34D** | **RGL34G** | **RGL34J** | **RGL34K** | **UNIT** |
| Maximum thermal resistance | $R_{\theta JA}$<br>$R_{\theta JT}$ | 150 (1)<br>70 (2) | | | | | | °C/W |

**Note:**

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

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

| ORDERING INFORMATION | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **REFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| RGL34J-E3/98 | 0.036 | 98 | 2500 | 7" Diameter Plastic Tape & Reel |
| RGL34J-E3/83 | 0.036 | 83 | 9000 | 13" Diameter Plastic Tape & Reel |

## RATINGS AND CHARACTERISTICS CURVES

($T_A$ = 25 °C unless otherwise noted)

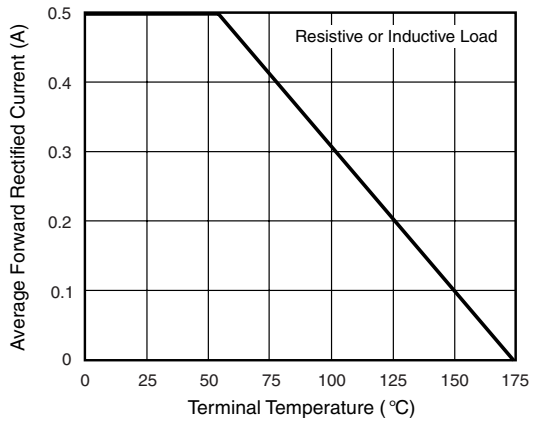



Figure 1. Forward Current Derating Curve

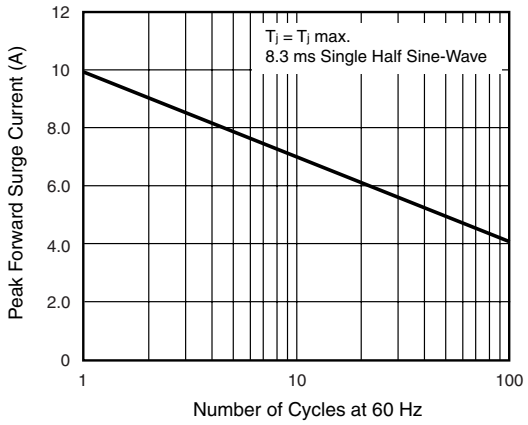



Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

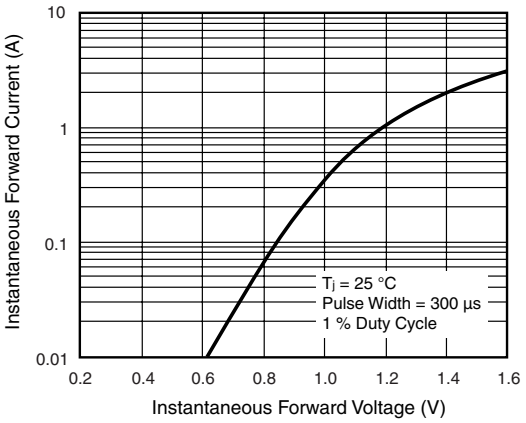



Figure 3. Typical Instantaneous Forward Characteristics

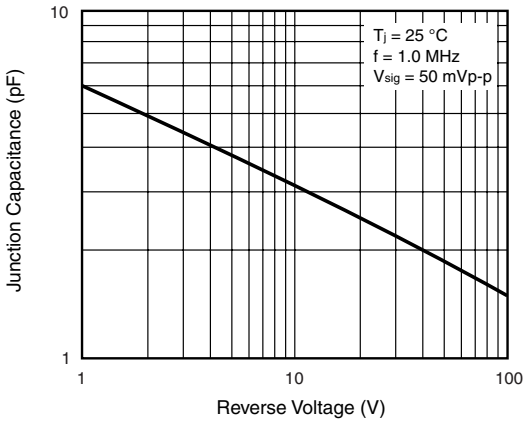



Figure 5. Typical Junction Capacitance

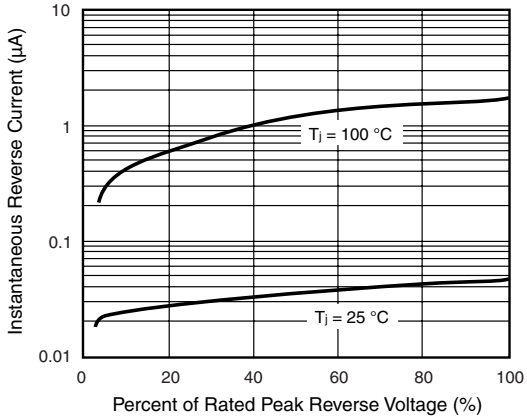
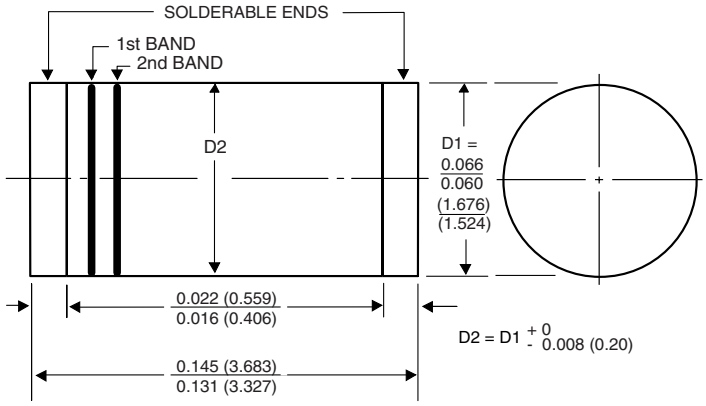



Figure 4. Typical Reverse Characteristics

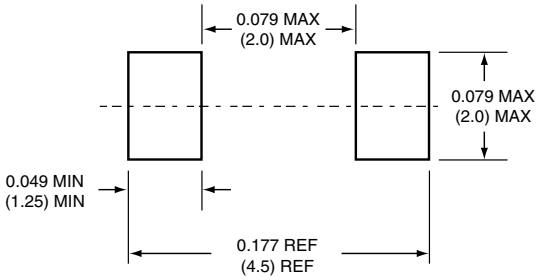
## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-213AA (GL34)




1st band denotes type and polarity
2nd band denotes voltage type

### Mounting Pad Layout



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