# 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-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

## TYPICAL APPLICATIONS

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

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 0.5 A |
| $V_{RRM}$ | 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 |

## 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-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC-Q101 qualified), meets JESD 201 class 2 whisker test

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

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

| PARAMETER<br>FAST SWITCHING DEVICE: 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 | 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 | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | | $t_{rr}$ | 150 | | | | 250 | | ns |
| Typical junction capacitance | 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 |

**Notes:**
(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** (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **REFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| RGL34J-E3/98 | 0.036 | 98 | 2500 | 7" diameter plastic tape and reel |
| RGL34J-E3/83 | 0.036 | 83 | 9000 | 13" diameter plastic tape and reel |
| RGL34JHE3/98 (1) | 0.036 | 98 | 2500 | 7" diameter plastic tape and reel |
| RGL34JHE3/83 (1) | 0.036 | 83 | 9000 | 13" diameter plastic tape and reel |

**Note:**
(1) Automotive grade AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

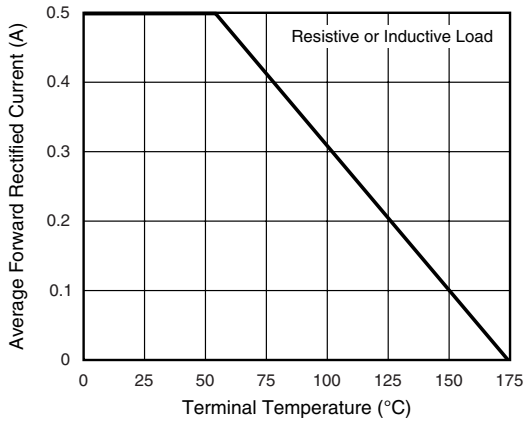



Figure 1. Forward Current Derating Curve

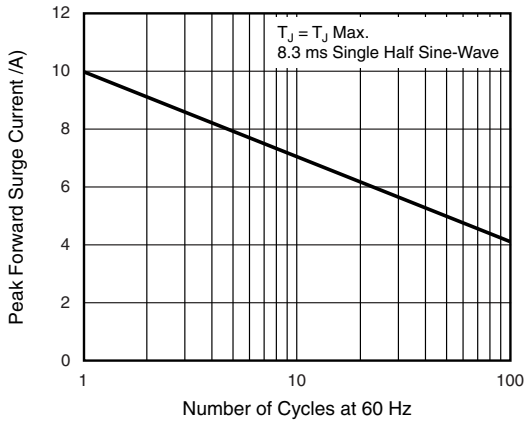



Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

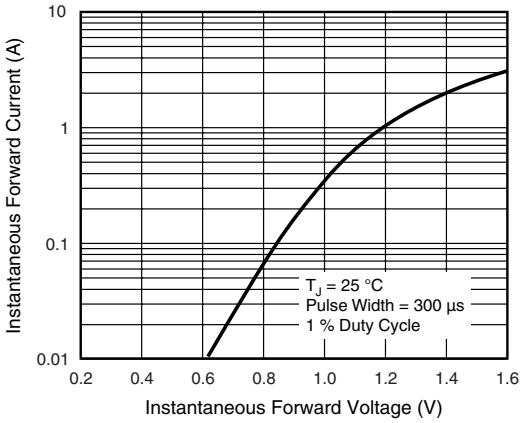



Figure 3. Typical Instantaneous Forward Characteristics

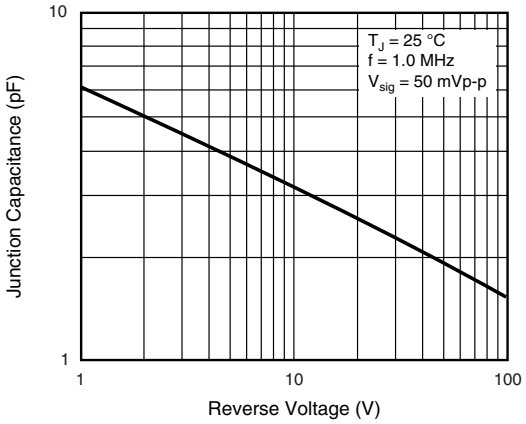



Figure 5. Typical Junction Capacitance

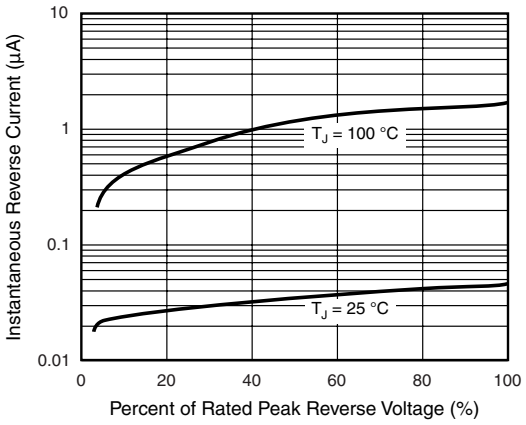
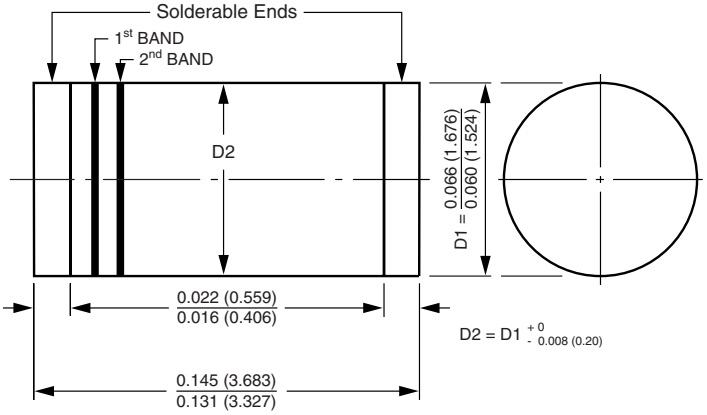


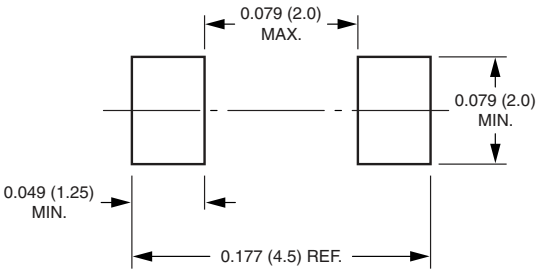

Figure 4. Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

**DO-213AA (GL34)**




**Mounting Pad Layout**




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

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All product specifications and data are subject to change without notice.

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