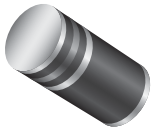
# Surface Mount Glass Passivated Junction Rectifier

SUPERECTIFIER®



DO-213AB

## FEATURES

- Superectifier structure for high reliability condition
- Ideal for automated placement
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

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-213AB, 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 - 1st band denotes device type and 2nd band denotes repetitive peak reverse voltage rating

| PRIMARY CHARACTERISTICS | | |
|---|---|---|
| $I_{F(AV)}$ | | 1.0 A |
| $V_{RRM}$ | BYM-50-1000 | 50 V to 1000 V |
| | GL41A-Y | 50 V to 1600 V |
| $I_{FSM}$ | | 30 A |
| $I_R$ | | 10 µA |
| $E_{AS}$ | | 5 mJ |
| $V_F$ | | 1.1 V, 1.2 V |
| $T_J$ max. | | 175 °C |

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

| PARAMETER | SYMBOL | BYM 10-50 | BYM 10-100 | BYM 10-200 | BYM 10-400 | BYM 10-600 | BYM 10-800 | BYM 10-1000 | | | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STANDARD RECOVERY DEVICE: 1ST BAND IS WHITE | | GL41A | GL41B | GL41D | GL41G | GL41J | GL41K | GL41M | GL41T | GL41Y | |
| Polarity color bands (2nd band) | | Gray | Red | Orange | Yellow | Green | Blue | Violet | White | Brown | |
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | 1300 | 1600 | V |
| Maximum RMS voltage | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | 910 | 1120 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | 1300 | 1600 | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | 1.0 | | | | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 30 | | | | | | | | | A |

| **MAXIMUM RATINGS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **BYM 10-50** | **BYM 10-100** | **BYM 10-200** | **BYM 10-400** | **BYM 10-600** | **BYM 10-800** | **BYM 10-1000** | | | **UNIT** |
| **STANDARD RECOVERY DEVICE: 1ST BAND IS WHITE** | | **GL41A** | **GL41B** | **GL41D** | **GL41G** | **GL41J** | **GL41K** | **GL41M** | **GL41T** | **GL41Y** | |
| Maximum full load reverse current full cycle average at $T_A$ = 75 °C | $I_{R(AV)}$ | 30 | | | | | | | | | µA |
| Non-repetitive peak reverse avalanche energy at $T_J$ = 25 °C, $I_{AS}$ = 1 A, L = 10 mH | $E_{AS}$ | 5 | | | | | | | - | | mJ |
| 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** | **BYM 10-50** | **BYM 10-100** | **BYM 10-200** | **BYM 10-400** | **BYM 10-600** | **BYM 10-800** | **BYM 10-1000** | | | **UNIT** |
| | | | **GL41A** | **GL41B** | **GL41D** | **GL41G** | **GL41J** | **GL41K** | **GL41M** | **GL41T** | **GL41Y** | |
| Maximum instantaneous forward voltage | 1.0 A | $V_F$ | 1.1 | | | | | 1.2 | | | | V |
| Maximum DC reverse current at rated DC blocking voltage | $T_A$ = 25 °C | $I_R$ | 10 | | | | | | | | | µA |
| | $T_A$ = 125 °C | | 50 | | | | | | | | | |
| Typical junction capacitance | 4.0 V, 1 MHz | $C_J$ | 8.0 | | | | | | | | | pF |

| **THERMAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **BYM 10-50** | **BYM 10-100** | **BYM 10-200** | **BYM 10-400** | **BYM 10-600** | **BYM 10-800** | **BYM 10-1000** | | | **UNIT** |
| | | **GL41A** | **GL41B** | **GL41D** | **GL41G** | **GL41J** | **GL41K** | **GL41M** | **GL41T** | **GL41Y** | |
| Typical thermal resistance | $R_{\theta JA}$ (1) | 75 | | | | | | | | | °C/W |
| | $R_{\theta JT}$ (2) | 30 | | | | | | | | | |

**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




For technical questions within your region, please contact one of the following:
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| ORDERING INFORMATION (Example) | | | | |
|---|---|---|---|---|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| BYM10-600-E3/96 | 0.114 | 96 | 1500 | 7" diameter plastic tape and reel |
| BYM10-600-E3/97 | 0.114 | 97 | 5000 | 13" diameter plastic tape and reel |
| GL41J-E3/96 | 0.114 | 96 | 1500 | 7" diameter plastic tape and reel |
| GL41J-E3/97 | 0.114 | 97 | 5000 | 13" diameter plastic tape and reel |
| BYM10-600HE3/96 (1) | 0.114 | 96 | 1500 | 7" diameter plastic tape and reel |
| BYM10-600HE3/97 (1) | 0.114 | 97 | 5000 | 13" diameter plastic tape and reel |
| GL41JHE3/96 (1) | 0.114 | 96 | 1500 | 7" diameter plastic tape and reel |
| GL41JHE3/97 (1) | 0.114 | 97 | 5000 | 13" diameter plastic tape and reel |

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

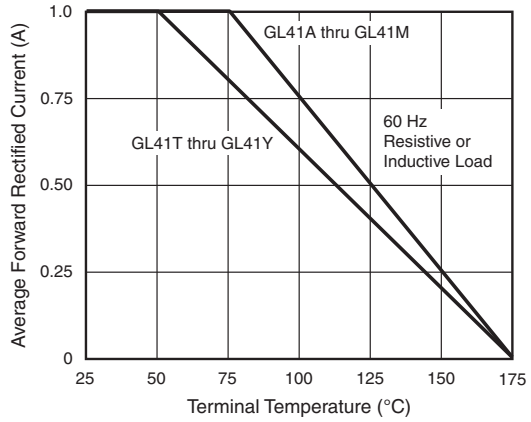


Fig. 1 - Forward Current Derating Curve

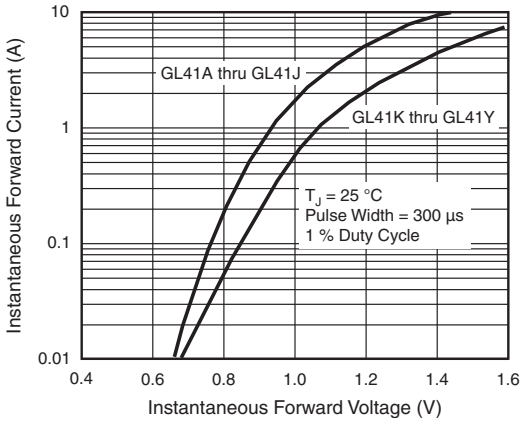


Fig. 3 - Typical Instantaneous Forward Characteristics

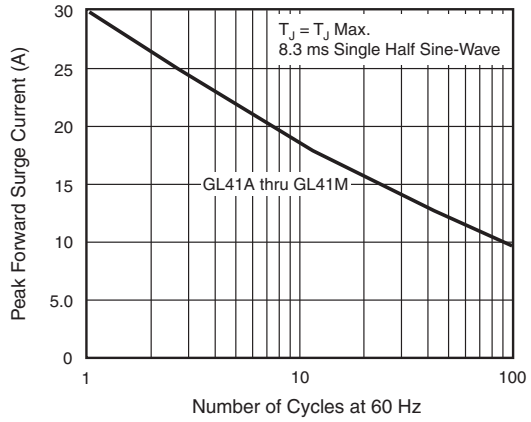


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

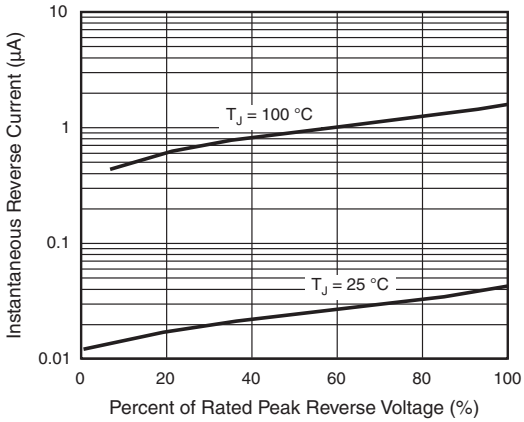


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current


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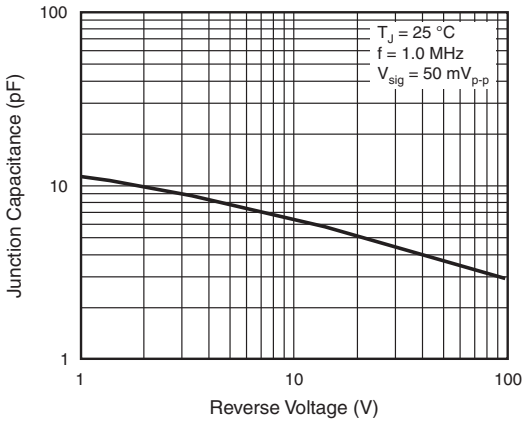



Fig. 5 - Typical Junction Capacitance

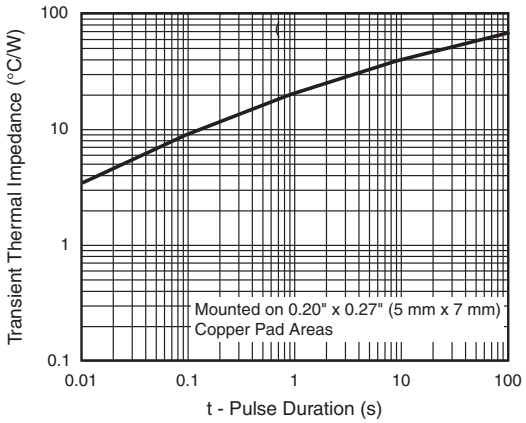
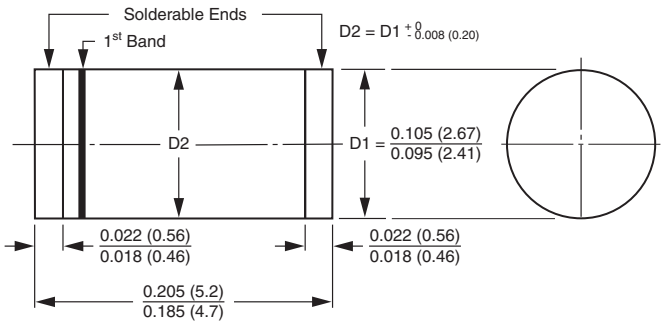



Fig. 6 - Typical Transient Thermal Impedance

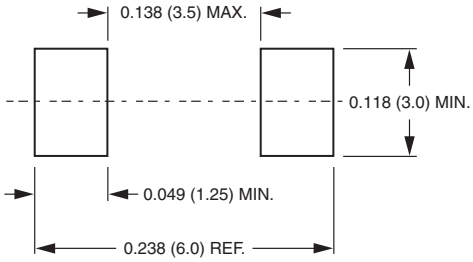
## **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

### DO-213AB




1st band denotes type and positive end (cathode)

### Mounting Pad Layout



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