

## Surface Mount Glass Passivated Junction Rectifier

**SUPERECTIFIER®**



**DO-213AB**

Patented\*

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

### FEATURES

- Superectifier structure for high reliability condition
- Patented glass-plastic encapsulation technique
- 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
- 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 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  
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

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

| MAXIMUM RATINGS ( $T_A = 25 \text{ }^\circ\text{C}$ 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    |

# BYM10-50 thru BYM10-1000, GL41A thru GL41Y



Vishay General Semiconductor

| MAXIMUM RATINGS (T <sub>A</sub> = 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 |      |
| Peak forward surge current<br>8.3 ms single half sine-wave<br>superimposed on rated load                       | I <sub>FSM</sub>                  | 30            |            |            |            |            |            |             |       |       | A    |
| Maximum full load reverse<br>current full cycle average<br>at T <sub>A</sub> = 75 °C                           | I <sub>R(AV)</sub>                | 30            |            |            |            |            |            |             |       |       | μA   |
| Non-repetitive peak reverse<br>avalanche energy at T <sub>J</sub> = 25 °C,<br>I <sub>AS</sub> = 1 A, L = 10 mH | E <sub>AS</sub>                   | 5             |            |            |            |            |            | -           |       |       | μA   |
| Operating junction and storage<br>temperature range                                                            | T <sub>J</sub> , T <sub>STG</sub> | - 65 to + 175 |            |            |            |            |            |             |       |       | °C   |

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 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<br>forward voltage                                   | 1.0 A                                             | V <sub>F</sub> | 1.1       |            |            |            |            | 1.2        |             |       |       | V    |    |
| Maximum DC<br>reverse current<br>at rated DC<br>blocking voltage           | T <sub>A</sub> = 25 °C<br>T <sub>A</sub> = 125 °C | I <sub>R</sub> |           |            |            |            |            |            | 10          | 50    |       |      | μA |
| Typical junction<br>capacitance                                            | 4.0 V, 1 MHz                                      | C <sub>J</sub> |           |            |            |            |            |            | 8.0         |       |       | pF   |    |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 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-           |                   |       | UNIT |      |
|                                                                         |                                      | GL41A     | GL41B      | GL41D      | GL41G      | GL41J      | GL41K      | GL41M             | GL41T             | GL41Y |      |      |
| Typical thermal resistance                                              | R <sub>θJA</sub><br>R <sub>θJT</sub> |           |            |            |            |            |            | 75 <sup>(1)</sup> | 30 <sup>(2)</sup> |       |      | °C/W |

**Notes:**

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



| ORDERING INFORMATION (Example) |                 |                  |               |                                    |
|--------------------------------|-----------------|------------------|---------------|------------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | REFERRED PACKAGE | 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 <sup>(1)</sup> | 0.114           | 96               | 1500          | 7" diameter plastic tape and reel  |
| BYM10-600HE3/97 <sup>(1)</sup> | 0.114           | 97               | 5000          | 13" diameter plastic tape and reel |
| GL41JHE3/96 <sup>(1)</sup>     | 0.114           | 96               | 1500          | 7" diameter plastic tape and reel  |
| GL41JHE3/97 <sup>(1)</sup>     | 0.114           | 97               | 5000          | 13" diameter plastic tape and reel |

**Note:**

(1) Automotive grade AEC Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

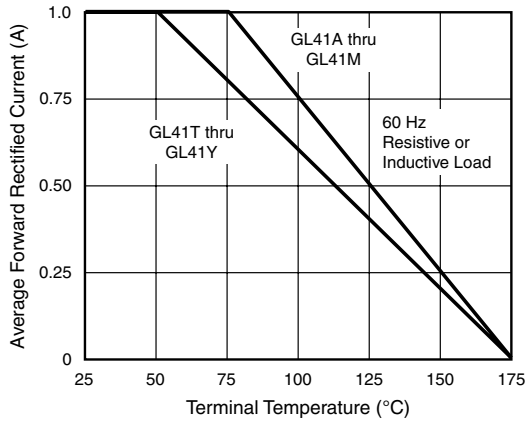


Figure 1. Forward Current Derating Curve

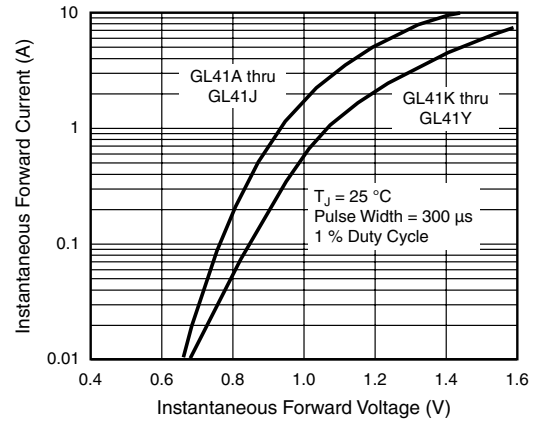


Figure 3. Typical Instantaneous Forward Characteristics

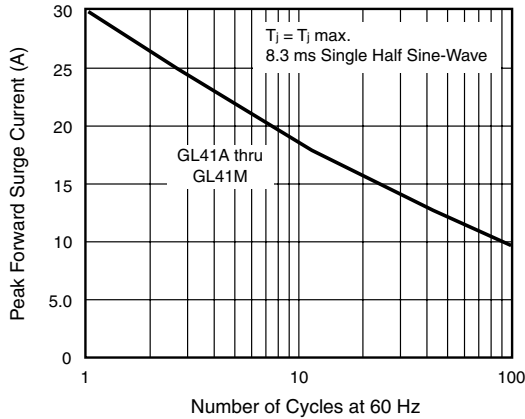


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

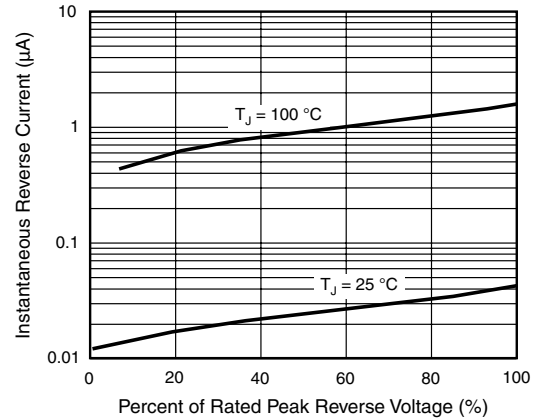


Figure 4. Maximum Non-Repetitive Peak Forward Surge Current

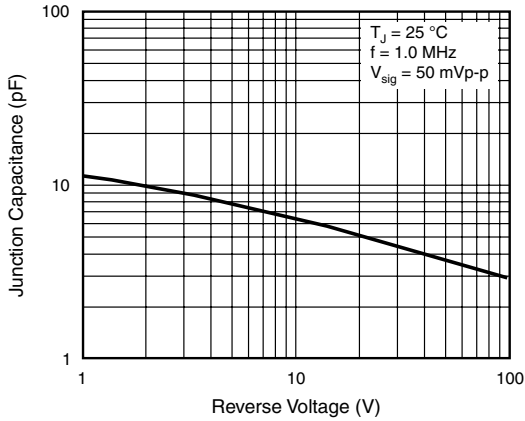


Figure 5. Typical Junction Capacitance

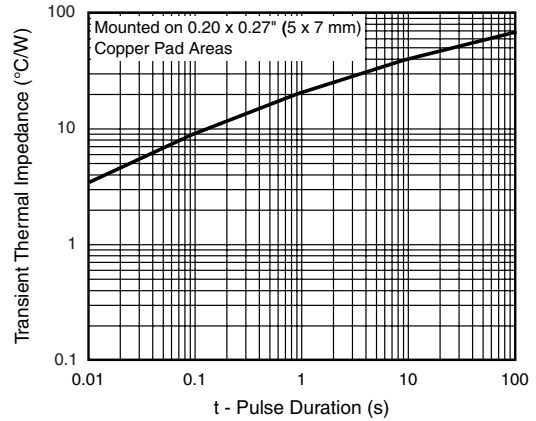
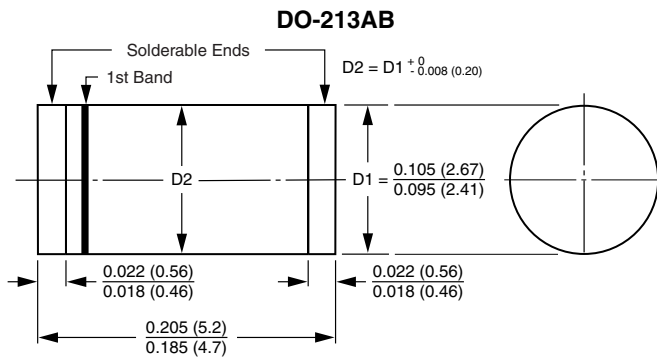


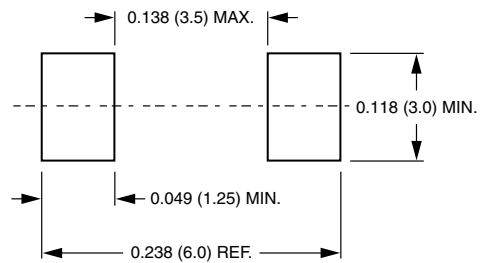
Figure 6. Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



1st band denotes type and positive end (cathode)

## Mounting Pad Layout





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