

# 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 MSL level 1, per J-STD-020, LF maximum peak of 250 °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 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 - 1<sup>st</sup> band denotes device type and 2<sup>nd</sup> band denotes repetitive peak reverse voltage rating

## PRIMARY CHARACTERISTICS

|                              |                                |
|------------------------------|--------------------------------|
| $I_{F(AV)}$                  | 1.0 A                          |
| $V_{RRM}$ (BYM10-xxx, GL41x) | 50 V to 1000 V, 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                   |
| $T_J$ max.                   | 175 °C                         |
| Package                      | DO-213AB                       |
| Diode variations             | Single die                     |

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

| PARAMETER                                                                                                      | SYMBOL                            | BYM<br>10-50  | BYM<br>10-100 | BYM<br>10-200 | BYM<br>10-400 | BYM<br>10-600 | BYM<br>10-800 | BYM<br>10-1000 |       |       | UNIT |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|-------|-------|------|
| STANDARD RECOVERY<br>DEVICE: 1 <sup>ST</sup> BAND IS WHITE                                                     |                                   | GL41A         | GL41B         | GL41D         | GL41G         | GL41J         | GL41K         | GL41M          | GL41T | GL41Y |      |
| Polarity color bands (2 <sup>nd</sup> band)                                                                    |                                   | Gray          | Red           | Orange        | Yellow        | Green         | Blue          | Violet         | White | Brown |      |
| Max. repetitive peak reverse voltage                                                                           | V <sub>RRM</sub>                  | 50            | 100           | 200           | 400           | 600           | 800           | 1000           | 1300  | 1600  | V    |
| Max. RMS voltage                                                                                               | V <sub>RMS</sub>                  | 35            | 70            | 140           | 280           | 420           | 560           | 700            | 910   | 1120  | V    |
| Max. DC blocking voltage                                                                                       | V <sub>DC</sub>                   | 50            | 100           | 200           | 400           | 600           | 800           | 1000           | 1300  | 1600  | V    |
| Max. average forward rectified current (fig. 1)                                                                | I <sub>F(AV)</sub>                | 1.0           |               |               |               |               |               |                |       |       | A    |
| Peak forward surge current<br>8.3 ms single half sine-wave                                                     | I <sub>FSM</sub>                  | 30            |               |               |               |               |               |                |       |       | A    |
| Max. full load reverse current<br>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             |               |               |               |               |               |                | -     |       | mJ   |
| 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 |      |    |
| Max. instantaneous forward voltage                                         | 1.0 A                   | V <sub>F</sub> | 1.1       |            |            |            |            |            | 1.2         |       |       |      | V  |
| Max. DC reverse current at rated DC blocking voltage                       | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 10        |            |            |            |            |            |             |       |       |      | μA |
|                                                                            | T <sub>A</sub> = 125 °C |                | 50        |            |            |            |            |            |             |       |       |      |    |
| Typical junction 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<br>10-50 | BYM<br>10-100 | BYM<br>10-200 | BYM<br>10-400 | BYM<br>10-600 | BYM<br>10-800 | BYM<br>10-1000 |       |       | UNIT |
|                                                                         |                                 | GL41A        | GL41B         | GL41D         | GL41G         | GL41J         | GL41K         | GL41M          | GL41T | GL41Y |      |
| Typical thermal resistance                                              | R <sub>θJA</sub> <sup>(1)</sup> | 75           |               |               |               |               |               |                |       |       | °C/W |
|                                                                         | R <sub>θJT</sub> <sup>(2)</sup> | 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

| 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 <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) AEC-Q101 qualified

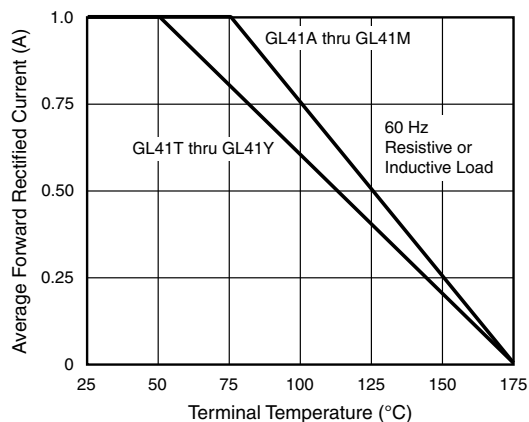
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

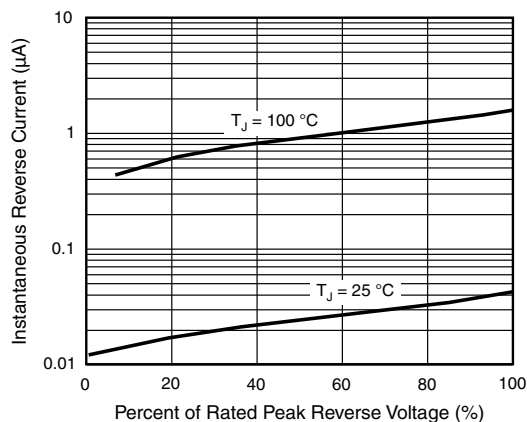


Fig. 4 - Typical Reverse Characteristics

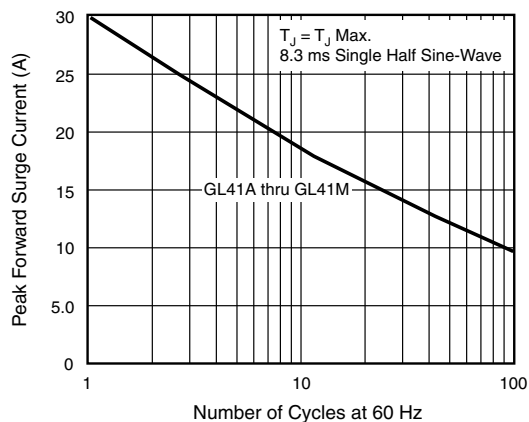


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

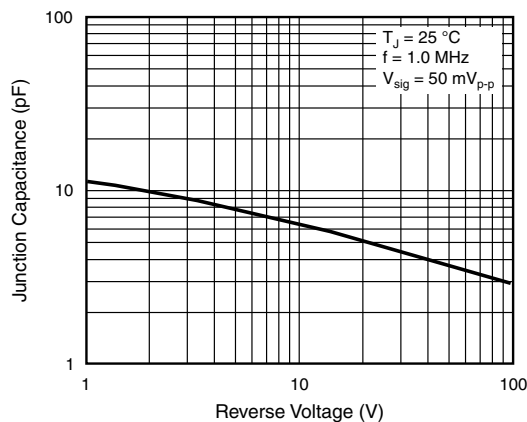


Fig. 5 - Typical Junction Capacitance

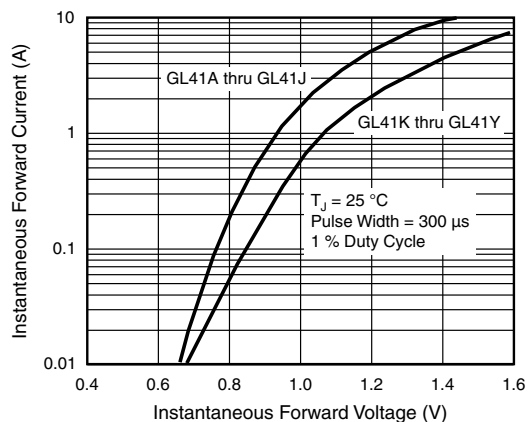


Fig. 3 - Typical Instantaneous Forward Characteristics

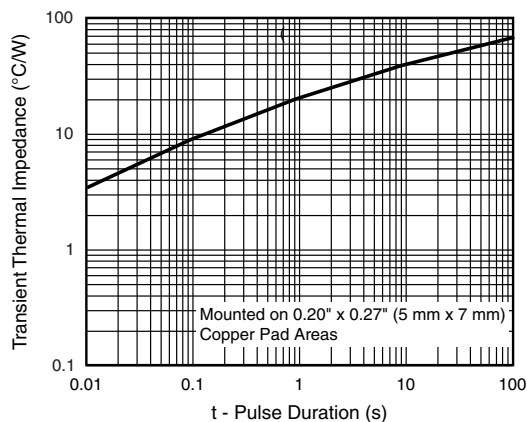
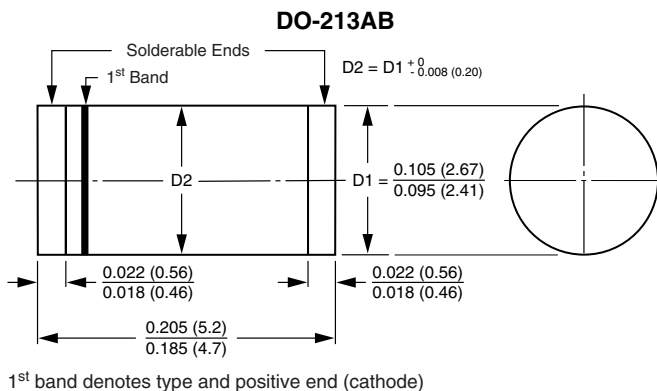


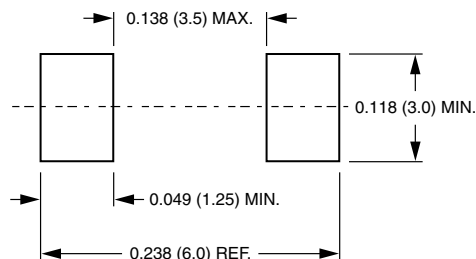
Fig. 6 - Typical Transient Thermal Impedance



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



**Mounting Pad Layout**





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