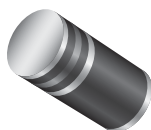


## Surface Mount Glass Passivated Ultrafast Rectifier

SUPERECTIFIER®



DO-213AB (GL41)

### FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- 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 high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, 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         |
| $V_{RRM}$               | 50 V to 400 V |
| $I_{FSM}$               | 30 A          |
| $t_{rr}$                | 50 ns         |
| $V_F$                   | 1.0 V, 1.25 V |
| $T_J \text{ max.}$      | 175 °C        |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                     |                |               |           |           |           |           |           |      |
|------------------------------------------------------------------------------------|----------------|---------------|-----------|-----------|-----------|-----------|-----------|------|
| PARAMETER                                                                          | SYMBOL         | BYM12-50      | BYM12-100 | BYM12-150 | BYM12-200 | BYM12-300 | BYM12-400 | UNIT |
| FAST EFFICIENT DEVICE:<br>1 <sup>ST</sup> BAND IS GREEN                            |                | EGL41A        | EGL41B    | EGL41C    | EGL41D    | EGL41F    | EGL41G    |      |
| Polarity color bands (2 <sup>nd</sup> band)                                        |                | Gray          | Red       | Pink      | Orange    | Brown     | Yellow    |      |
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$      | 50            | 100       | 150       | 200       | 300       | 400       | V    |
| Maximum RMS voltage                                                                | $V_{RMS}$      | 35            | 70        | 105       | 140       | 210       | 280       | V    |
| Maximum DC blocking voltage                                                        | $V_{DC}$       | 50            | 100       | 150       | 200       | 300       | 400       | V    |
| Maximum average forward rectified current at $T_J = 75\text{ °C}$                  | $I_{F(AV)}$    | 1.0           |           |           |           |           |           | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 30            |           |           |           |           |           | A    |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | - 65 to + 175 |           |           |           |           |           | °C   |

# BYM12-50 thru BYM12-400, EGL41A thru EGL41G

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                                                                |                               |          |           |           |           |           |           |      |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------|----------|-----------|-----------|-----------|-----------|-----------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                                | SYMBOL                        | BYM12-50 | BYM12-100 | BYM12-150 | BYM12-200 | BYM12-300 | BYM12-400 | UNIT |
|                                                                            |                                                                                |                               | EGL41A   | EGL41B    | EGL41C    | EGL41D    | EGL41F    | EGL41G    |      |
| Max. instantaneous forward voltage                                         | 1.0 A                                                                          | V <sub>F</sub> <sup>(1)</sup> | 1.0      |           |           |           | 1.25      |           | V    |
| Max. DC reverse current at rated DC blocking voltage                       | T <sub>A</sub> = 25 °C                                                         | I <sub>R</sub> <sup>(1)</sup> | 5.0      |           |           |           |           |           | μA   |
|                                                                            | T <sub>A</sub> = 125 °C                                                        |                               | 50       |           |           |           |           |           |      |
| Max. reverse recovery time                                                 | I <sub>F</sub> = 0.5 A,<br>I <sub>R</sub> = 1.0 A,<br>I <sub>rr</sub> = 0.25 A | t <sub>rr</sub>               | 50       |           |           |           |           |           | ns   |
| Typical junction capacitance                                               | 4.0 V, 1 MHz                                                                   | C <sub>J</sub>                | 20       |           |           |           | 14        |           | pF   |

## Note

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |          |           |           |           |           |           |      |
|-------------------------------------------------------------------------|---------------------------------|----------|-----------|-----------|-----------|-----------|-----------|------|
| PARAMETER                                                               | SYMBOL                          | BYM12-50 | BYM12-100 | BYM12-150 | BYM12-200 | BYM12-300 | BYM12-400 | UNIT |
|                                                                         |                                 | EGL41A   | EGL41B    | EGL41C    | EGL41D    | EGL41F    | EGL41G    |      |
| Maximum thermal resistance                                              | R <sub>θJA</sub> <sup>(1)</sup> | 60       |           |           |           |           |           | °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                      |
| EGL41D-E3/96                   | 0.114           | 96                     | 1500          | 7" diameter plastic tape and reel  |
| EGL41D-E3/97                   | 0.114           | 97                     | 5000          | 13" diameter plastic tape and reel |
| EGL41DHE3/96 <sup>(1)</sup>    | 0.114           | 96                     | 1500          | 7" diameter plastic tape and reel  |
| EGL41DHE3/97 <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)

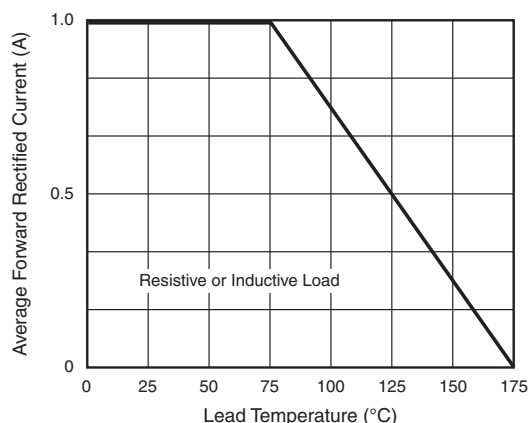


Fig. 1 - Maximum Forward Current Derating Curve

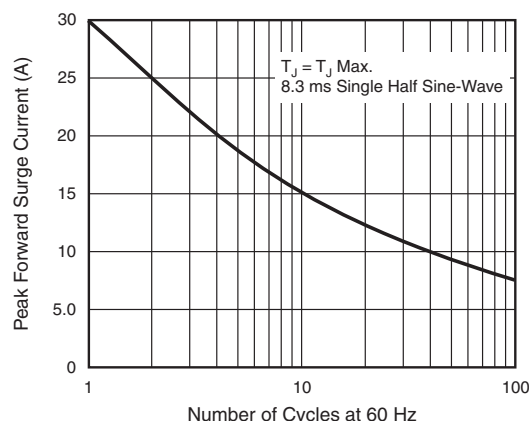


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

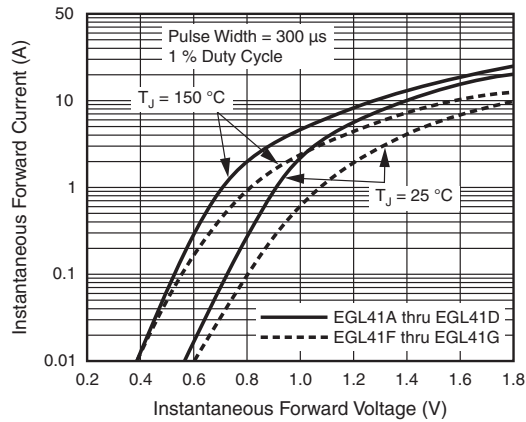


Fig. 3 - Typical Instantaneous Forward Characteristics

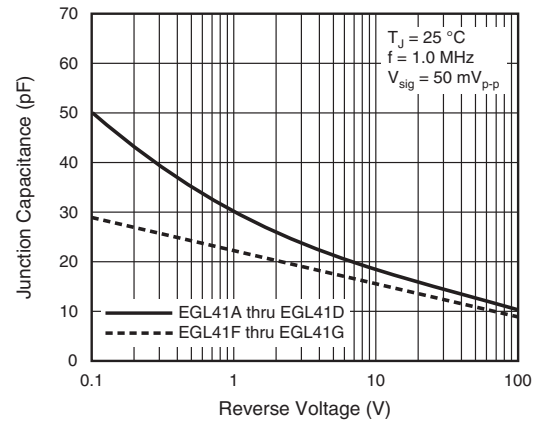


Fig. 5 - Typical Junction Capacitance

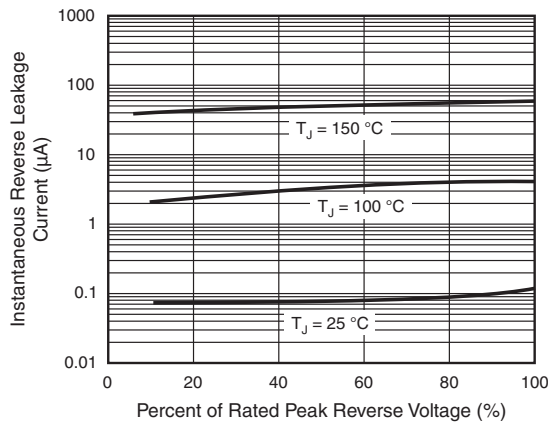


Fig. 4 - Typical Reverse Leakage Characteristics

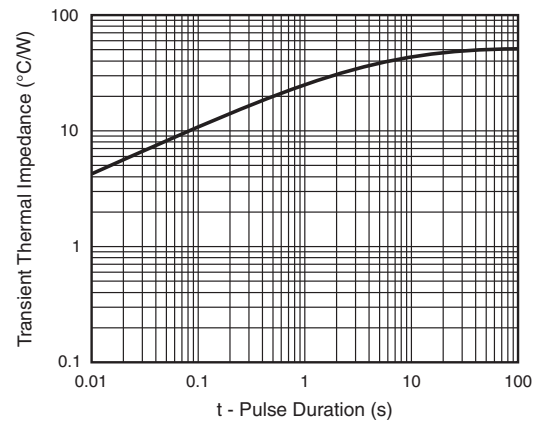
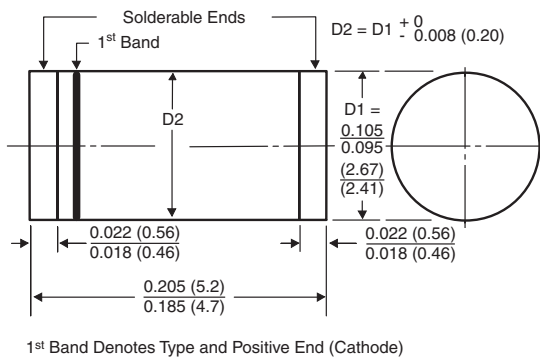


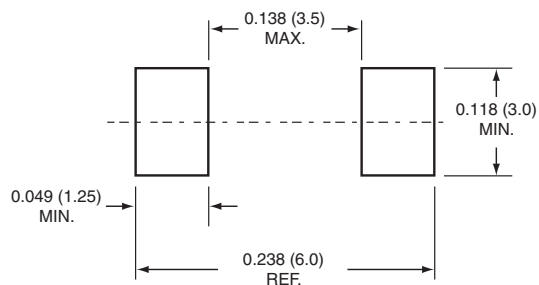
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-213AB (GL41)



### Mounting Pad Layout





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