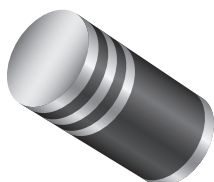


# Surface Mount Schottky Barrier Rectifier



**GL41 (DO-213AB)**

## FEATURES

- MELF Schottky rectifier
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- High 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

## LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS |                              |
|-------------------------|------------------------------|
| $I_{F(AV)}$             | 1.0 A                        |
| $V_{RRM}$               | 20 V, 30 V, 40 V, 50 V, 60 V |
| $I_{FSM}$               | 30 A                         |
| $V_F$                   | 0.50 V, 0.70 V               |
| $T_J$ max.              | 125 °C, 150 °C               |
| Package                 | GL41 (DO-213AB)              |
| Circuit configuration   | Single                       |

## TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications

## MECHANICAL DATA

**Case:** GL41 (DO-213AB)

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 2<sup>nd</sup> band denotes voltage type

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)                    |                    |             |          |          |             |          |      |
|------------------------------------------------------------------------------------|--------------------|-------------|----------|----------|-------------|----------|------|
| PARAMETER                                                                          | SYMBOL             | BYM13-20    | BYM13-30 | BYM13-40 | BYM13-50    | BYM13-60 | UNIT |
| DENOTES SCHOTTKY DEVICES:<br>1 <sup>st</sup> BAND IS ORANGE                        |                    | SGL41-20    | SGL41-30 | SGL41-40 | SGL41-50    | SGL41-60 |      |
| Polarity color bands (2 <sup>nd</sup> band) voltage type                           |                    | Gray        | Red      | Orange   | Yellow      | Green    |      |
| Maximum repetitive peak reverse voltage                                            | V <sub>RRM</sub>   | 20          | 30       | 40       | 50          | 60       | V    |
| Maximum RMS voltage                                                                | V <sub>RMS</sub>   | 14          | 21       | 28       | 35          | 42       | V    |
| Maximum DC blocking voltage                                                        | V <sub>DC</sub>    | 20          | 30       | 40       | 50          | 60       | V    |
| Maximum average forward rectified current (fig. 1)                                 | I <sub>F(AV)</sub> | 1.0         |          |          |             |          | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>   | 30          |          |          |             |          | A    |
| Voltage rate of change (rated V <sub>R</sub> )                                     | dV/dt              | 10 000      |          |          |             |          | V/μs |
| Operating junction temperature range                                               | T <sub>J</sub>     | -55 to +125 |          |          | -55 to +150 |          | °C   |
| Storage temperature range                                                          | T <sub>STG</sub>   | -55 to +150 |          |          |             |          | °C   |

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

| PARAMETER                                                           | TEST CONDITIONS |                         | SYMBOL         | BYM13-20 | BYM13-30 | BYM13-40 | BYM13-50 | BYM13-60 | UNIT |
|---------------------------------------------------------------------|-----------------|-------------------------|----------------|----------|----------|----------|----------|----------|------|
|                                                                     |                 |                         |                | SGL41-20 | SGL41-30 | SGL41-40 | SGL41-50 | SGL41-60 |      |
| Maximum instantaneous forward voltage <sup>(1)</sup>                | 1.0 A           |                         | V <sub>F</sub> | 0.50     | 0.50     | 0.50     | 0.70     | 0.70     | V    |
| Maximum reverse current at rated DC blocking voltage <sup>(1)</sup> |                 | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 0.5      |          |          |          | mA       |      |
|                                                                     |                 | T <sub>A</sub> = 100 °C |                | 10       |          | 5.0      |          |          |      |
| Typical junction capacitance                                        | 4.0 V, 1.0 MHz  |                         | C <sub>J</sub> | 110      |          |          | 80       |          | pF   |

**Note**

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

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

| PARAMETER                                 | SYMBOL           | BYM13-20 | BYM13-30 | BYM13-40 | BYM13-50 | BYM13-60 | UNIT |
|-------------------------------------------|------------------|----------|----------|----------|----------|----------|------|
|                                           |                  | SGL41-20 | SGL41-30 | SGL41-40 | SGL41-50 | SGL41-60 |      |
| Maximum thermal resistance <sup>(1)</sup> | R <sub>θJA</sub> | 75       |          |          |          |          | °C/W |
|                                           | R <sub>θJT</sub> | 30       |          |          |          |          |      |

**Note**

<sup>(1)</sup> Thermal resistance 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                      |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| SGL41-40-E3/96                 | 0.137           | 96                     | 1500          | 7" diameter plastic tape and reel  |
| SGL41-40-E3/97                 | 0.137           | 97                     | 5000          | 13" diameter plastic tape and reel |
| BYM13-40-E3/96                 | 0.137           | 96                     | 1500          | 7" diameter plastic tape and reel  |
| BYM13-40-E3/97                 | 0.137           | 97                     | 5000          | 13" diameter plastic tape and reel |
| SGL41-40HE3_A/H <sup>(1)</sup> | 0.137           | H                      | 1500          | 7" diameter plastic tape and reel  |
| SGL41-40HE3_A/I <sup>(1)</sup> | 0.137           | I                      | 5000          | 13" diameter plastic tape and reel |
| BYM13-40HE3_A/H <sup>(1)</sup> | 0.137           | H                      | 1500          | 7" diameter plastic tape and reel  |
| BYM13-40HE3_A/I <sup>(1)</sup> | 0.137           | I                      | 5000          | 13" diameter plastic tape and reel |

**Note**

<sup>(1)</sup> AEC-Q101 qualified

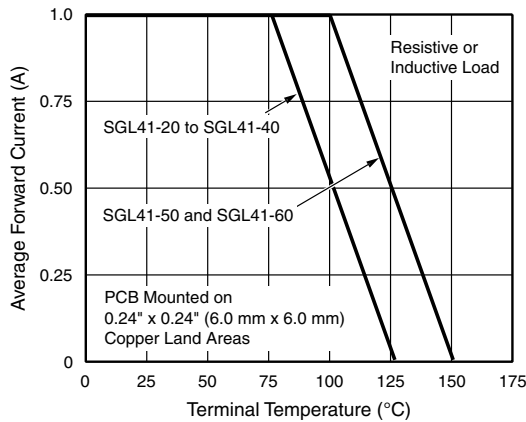
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

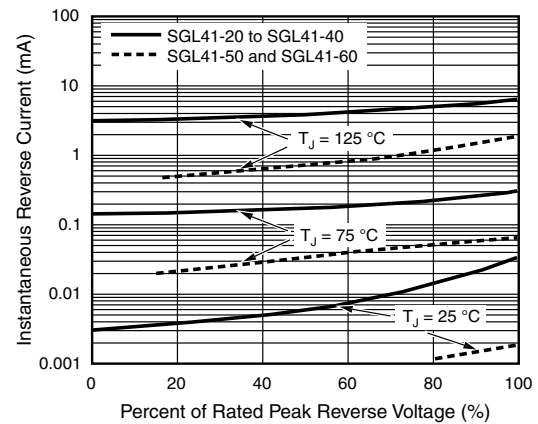


Fig. 4 - Typical Reverse Characteristics

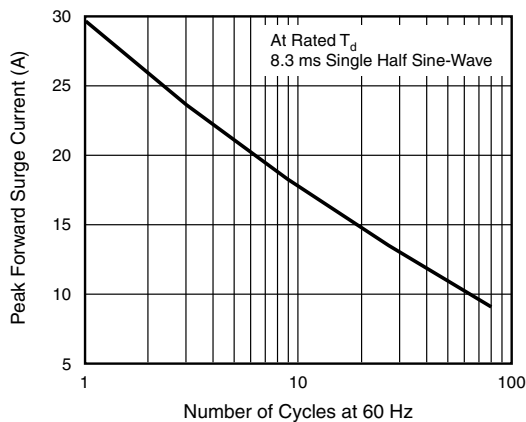


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

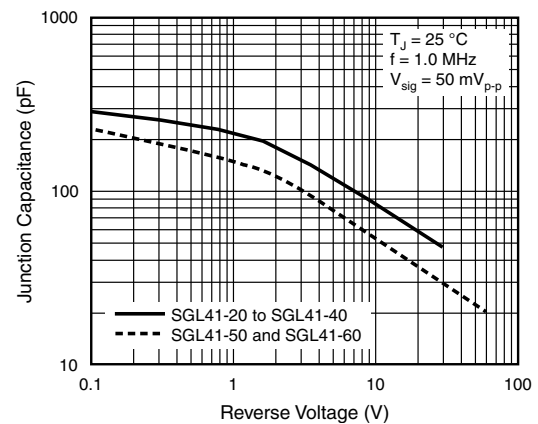


Fig. 5 - Typical Junction Capacitance

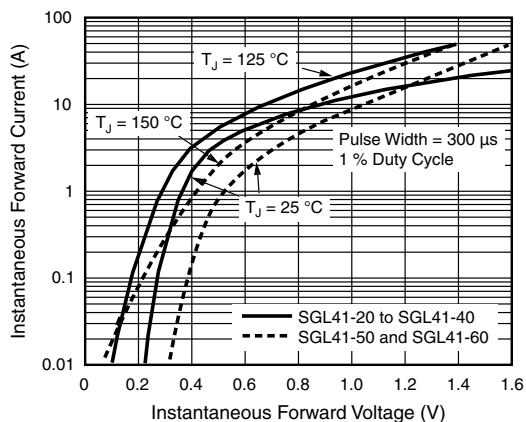
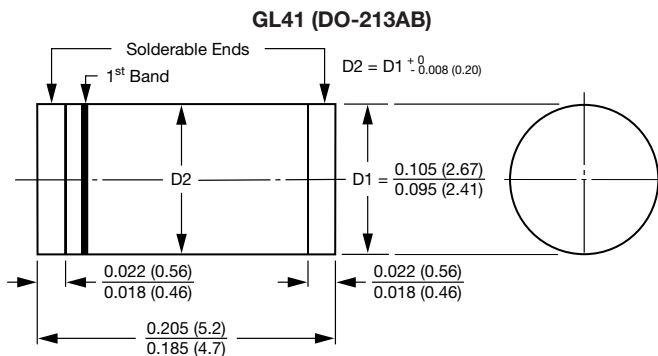


Fig. 3 - Typical Instantaneous Forward Characteristics

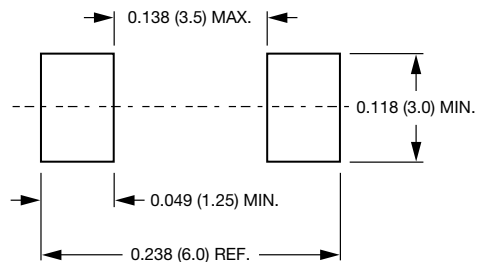


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)



1<sup>st</sup> band denotes type and positive end (cathode)

**Mounting Pad Layout**





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