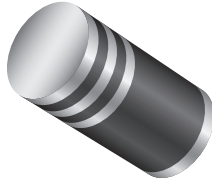


## Surface Mount Schottky Barrier Rectifier


**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 ( $T_A = 25\text{ °C}$ unless otherwise noted)

| PARAMETER  | SYMBOL      | BYM13-20        | BYM13-30        | BYM13-40        | BYM13-50        | BYM13-60        | UNIT |
|--|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|------|
| <b>DENOTES SCHOTTKY DEVICES:<br/>1<sup>st</sup> BAND IS ORANGE</b>                 |             | <b>SGL41-20</b> | <b>SGL41-30</b> | <b>SGL41-40</b> | <b>SGL41-50</b> | <b>SGL41-60</b> |      |
| Polarity color bands (2 <sup>nd</sup> band) voltage type                           |             | Gray            | Red             | Orange          | Yellow          | Green           |      |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$   | 20              | 30              | 40              | 50              | 60              | V    |
| Maximum RMS voltage  | $V_{RMS}$   | 14              | 21              | 28              | 35              | 42              | V    |
| Maximum DC blocking voltage  | $V_{DC}$    | 20              | 30              | 40              | 50              | 60              | 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    |
| Voltage rate of change (rated $V_R$ )  | dV/dt       | 10 000          |                 |                 |                 |                 | V/μs |
| Operating junction temperature range   | $T_J$       | -55 to +125     |                 |                 | -55 to +150     |                 | °C   |
| Storage temperature range  | $T_{STG}$   | -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                             | $V_F$  | 0.50     | 0.50     | 0.50     | 0.70     | 0.70     | V    |
| Maximum reverse current at rated DC blocking voltage <sup>(1)</sup>                   | $T_A = 25\text{ }^\circ\text{C}$  | $I_R$  | 0.5      |          |          |          |          | mA   |
|   | $T_A = 100\text{ }^\circ\text{C}$ |        | 10       |          | 5.0      |          |          |      |
| Typical junction capacitance  | 4.0 V, 1.0 MHz                    | $C_J$  | 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>  | $R_{\theta JA}$ | 75       |          |          |          |          | $^\circ\text{C/W}$ |
|  | $R_{\theta JT}$ | 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)

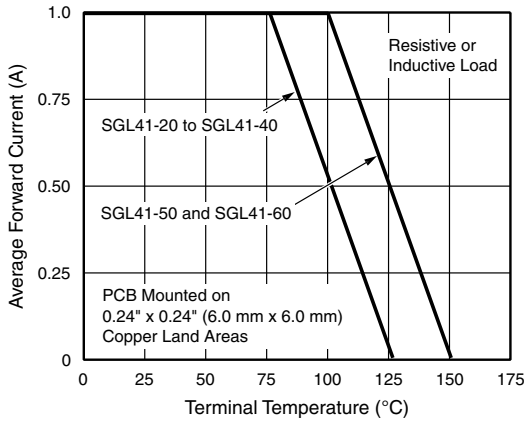


Fig. 1 - Forward Current Derating Curve

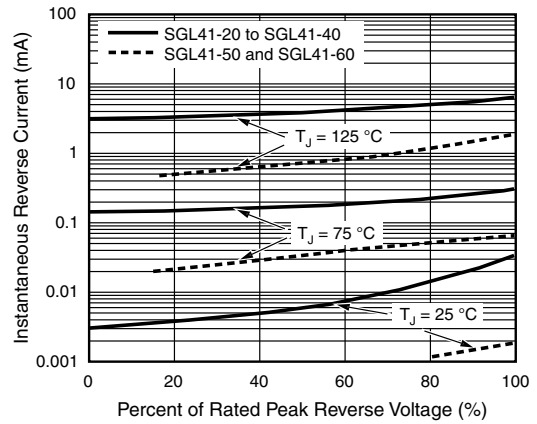


Fig. 4 - Typical Reverse Characteristics

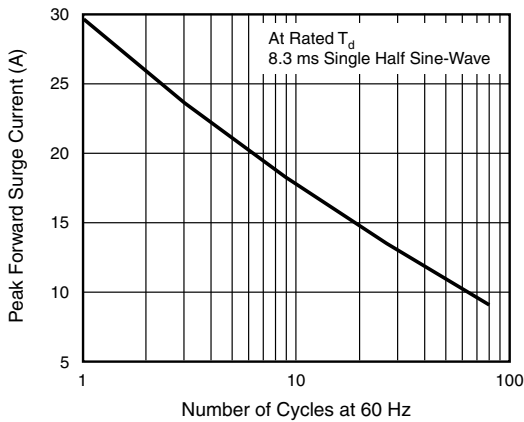


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

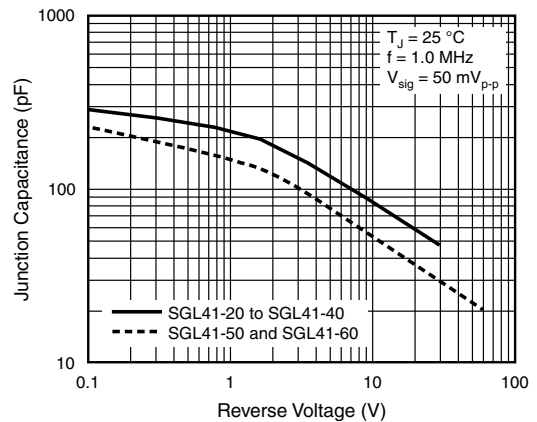


Fig. 5 - Typical Junction Capacitance

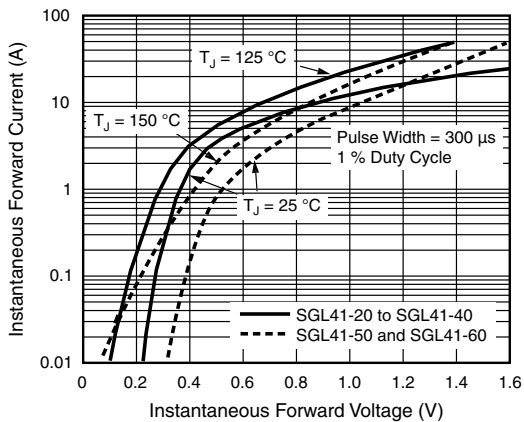
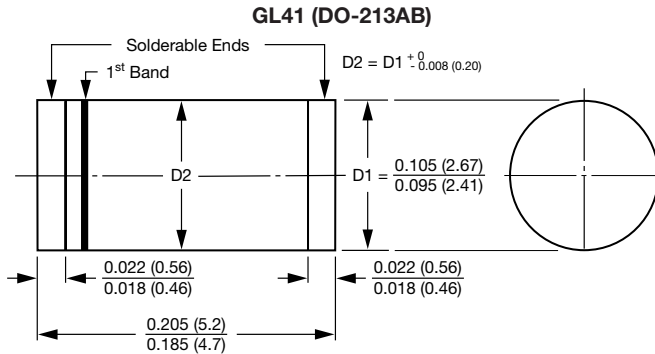


Fig. 3 - Typical Instantaneous Forward Characteristics

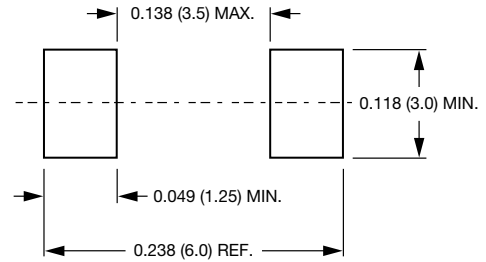


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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

Mounting Pad Layout





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