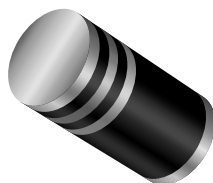


## Surface Mount Schottky Barrier Rectifier



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-020C, LF max peak of 250 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### MAJOR RATINGS AND CHARACTERISTICS

|             |                |
|-------------|----------------|
| $I_{F(AV)}$ | 1.0 A          |
| $V_{RRM}$   | 20 V to 60 V   |
| $I_{FSM}$   | 30 A           |
| $V_F$       | 0.50 V, 0.70 V |
| $T_j$ max.  | 125 °C, 150 °C |

### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, free-wheeling, dc-to-dc converters, and polarity protection applications

### MECHANICAL DATA

**Case:** DO-213AB

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Two bands indicate cathode end 1st band denotes device type 2nd band denotes voltage type

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

| 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: 1st band is orange                                       |                    | SGL41-20      | SGL41-30 | SGL41-40 | SGL41-50      | SGL41-60 |      |
| Polarity color bands (2nd 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 (see Fig.                                | 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              | 10000         |          |          |               |          | 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 <sub>A</sub> = 25 °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>                       | at 1.0 A                                          | V <sub>F</sub> | 0.50     |          |          | 0.70     |          | V    |
| Maximum reverse current at rated DC blocking voltage <sup>(1)</sup>        | T <sub>A</sub> = 25 °C<br>T <sub>A</sub> = 100 °C | I <sub>R</sub> | 0.5      |          |          |          |          | mA   |
|                                                                            |                                                   |                | 10       |          |          | 5.0      |          |      |
| Typical junction capacitance                                               | at 4.0 V, 1.0 MHz                                 | C <sub>J</sub> | 110      |          |          | 80       |          | 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           | 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:**

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

| <b>ORDERING INFORMATION</b> |                 |                        |               |                                  |
|-----------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N               | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| SGL41-40-E3/96              | 0.114           | 96                     | 1500          | 7" Diameter Plastic Tape & Reel  |
| GL41-40-E3/97               | 0.114           | 97                     | 5000          | 13" Diameter Plastic Tape & Reel |
| BYM13-40-E3/96              | 0.114           | 96                     | 1500          | 7" Diameter Plastic Tape & Reel  |
| BYM13-40-E3/97              | 0.114           | 97                     | 5000          | 13" Diameter Plastic Tape & Reel |

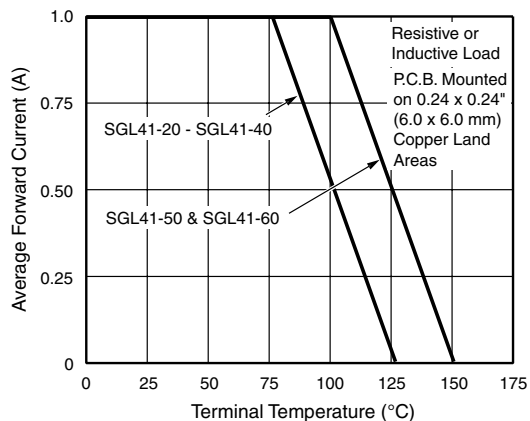
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Figure 1. Forward Current Derating Curve

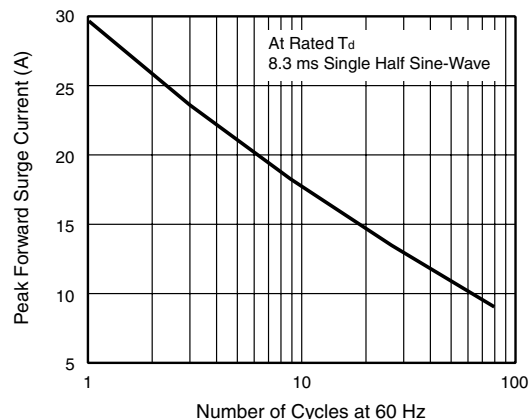


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

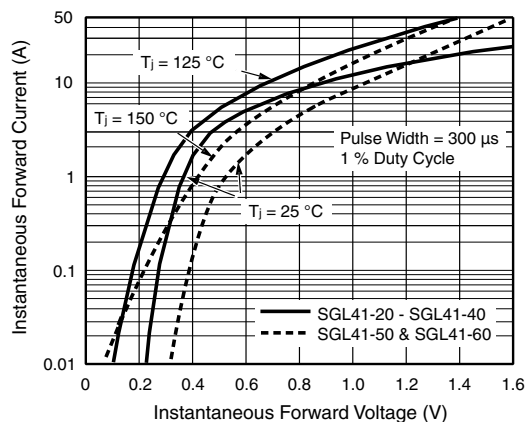


Figure 3. Typical Instantaneous Forward Characteristics

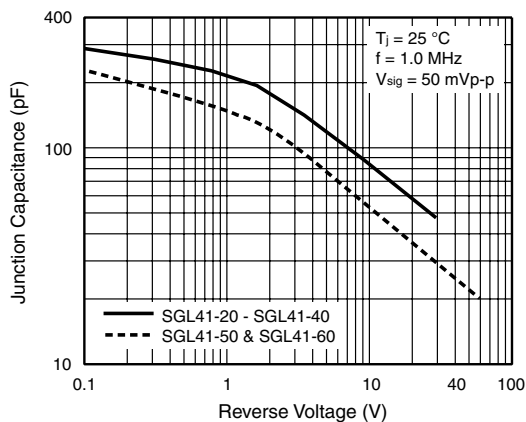


Figure 5. Typical Junction Capacitance

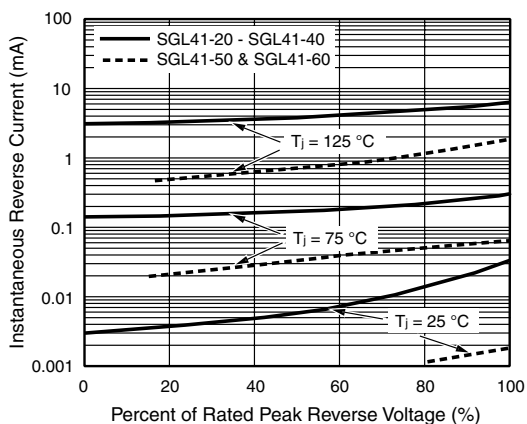
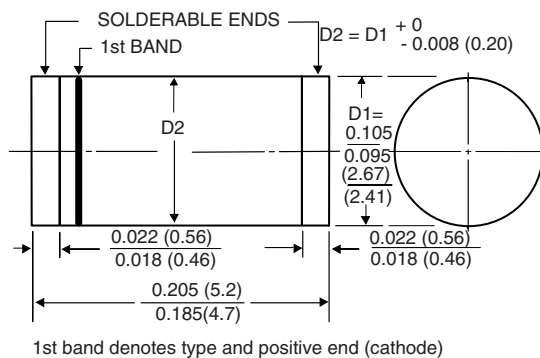


Figure 4. Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-213AB





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