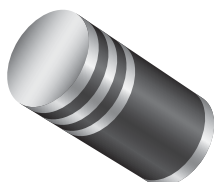


Surface Mount Schottky Barrier Rectifier



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-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: 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 1st band denotes device type 2nd band denotes voltage type

| PRIMARY 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 |

| MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted) | | | | | | | |
|--|--------------------|---------------|----------|----------|---------------|----------|------|
| PARAMETER | SYMBOL | BYM13-20 | BYM13-30 | BYM13-40 | BYM13-50 | BYM13-60 | UNIT |
| DENOTES SCHOTTKY DEVICES: 1 st BAND IS ORANGE | | SGL41-20 | SGL41-30 | SGL41-40 | SGL41-50 | SGL41-60 | |
| Polarity color bands (2 nd 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 °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 ⁽¹⁾ | 1.0 A | | V _F | 0.50 | | | 0.70 | | V |
| Maximum reverse current at rated DC blocking voltage ⁽¹⁾ | | T _A = 25 °C | I _R | 0.5 | | | | | mA |
| | | T _A = 100 °C | | 10 | | | 5.0 | | |
| Typical junction capacitance | 4.0 V, 1.0 MHz | | C _J | 110 | | | 80 | | pF |

Note

⁽¹⁾ Pulse test: 300 μ s pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS (T _A = 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 ⁽¹⁾ | R _{θJA} | 75 | | | | | °C/W |
| | R _{θJT} | 30 | | | | | |

Note

⁽¹⁾ 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 |
| SGL41-40HE3/96 ⁽¹⁾ | 0.137 | 96 | 1500 | 7" diameter plastic tape and reel |
| SGL41-40HE3/97 ⁽¹⁾ | 0.137 | 97 | 5000 | 13" diameter plastic tape and reel |
| BYM13-40HE3/96 ⁽¹⁾ | 0.137 | 96 | 1500 | 7" diameter plastic tape and reel |
| BYM13-40HE3/97 ⁽¹⁾ | 0.137 | 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)

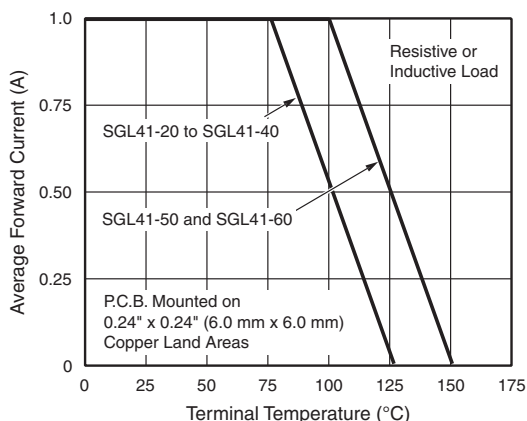


Fig. 1 - Forward Current Derating Curve

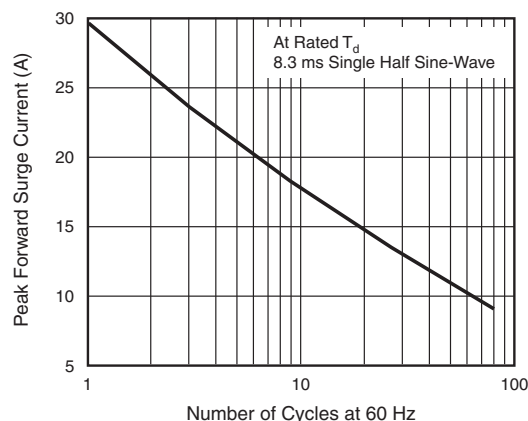


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

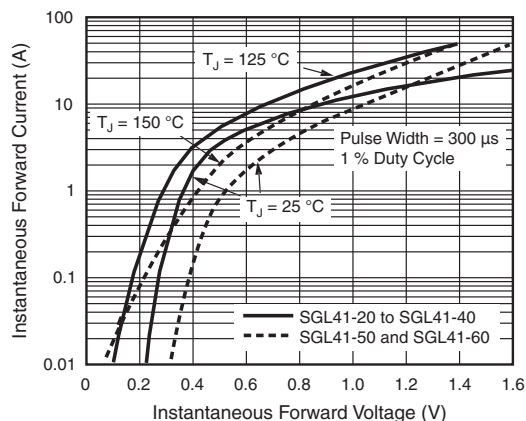


Fig. 3 - Typical Instantaneous Forward Characteristics

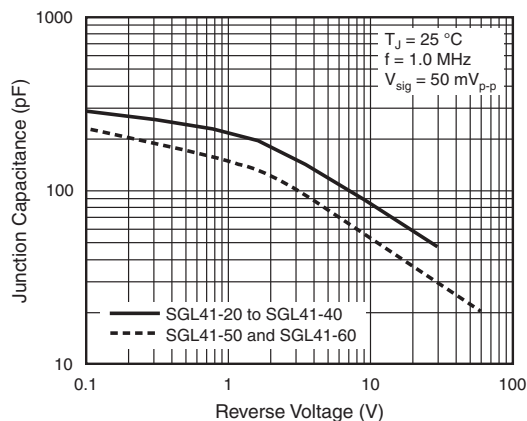


Fig. 4 - Typical Junction Capacitance

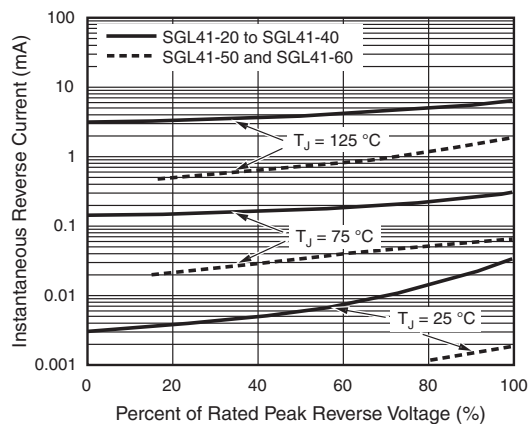
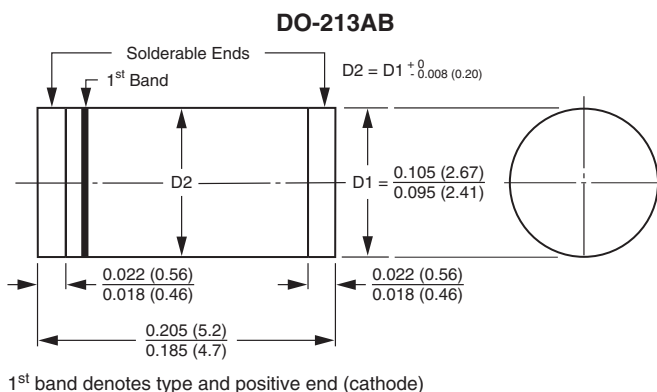
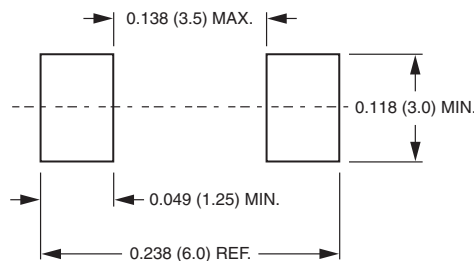


Fig. 2 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Mounting Pad Layout





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