

# Surface-Mount Schottky Barrier Rectifier



SMC (DO-214AB)

Cathode  Anode

## LINKS TO ADDITIONAL RESOURCES



## FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Very low forward voltage drop
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** SMC (DO-214AB)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified  
Base P/NHM3\_X - halogen-free, RoHS-compliant, and AEC-Q101 qualified

("\_X" denotes revision code e.g. A, B, .....

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3, M3, HE3, and HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** color band denotes the cathode end

| PRIMARY CHARACTERISTICS |                  |
|-------------------------|------------------|
| $I_{F(AV)}$             | 4.0 A            |
| $V_{RRM}$               | 20 V, 30 V, 40 V |
| $I_{FSM}$               | 150 A            |
| $V_F$                   | 0.31 V, 0.35 V   |
| $T_J$ max.              | 125 °C           |
| Package                 | SMC (DO-214AB)   |
| Circuit configuration   | Single           |

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)                     |                    |             |      |      |      |
|-------------------------------------------------------------------------------------|--------------------|-------------|------|------|------|
| PARAMETER                                                                           | SYMBOL             | SL42        | SL43 | SL44 | UNIT |
| Device marking code                                                                 |                    | SL2         | SL3  | SL4  |      |
| Maximum repetitive peak reverse voltage                                             | V <sub>RRM</sub>   | 20          | 30   | 40   | V    |
| Maximum RMS voltage                                                                 | V <sub>RMS</sub>   | 14          | 21   | 28   | V    |
| Maximum DC blocking voltage                                                         | V <sub>DC</sub>    | 20          | 30   | 40   | V    |
| Maximum average forward rectified current <sup>(1)</sup> at T <sub>L</sub> (fig. 1) | I <sub>F(AV)</sub> | 4.0         |      |      | A    |
|                                                                                     |                    | 8.0         |      |      |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load  | I <sub>FSM</sub>   | 150         |      |      | A    |
| Operating junction temperature range                                                | T <sub>J</sub>     | -55 to +125 |      |      | °C   |
| Storage temperature range                                                           | T <sub>STG</sub>   | -55 to +150 |      |      | °C   |

### Note

<sup>(1)</sup> PCB mounted 0.55" x 0.55" (14 mm x 14 mm) copper pad areas,  $T_L = 90\text{ °C}$

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

| PARAMETER                                                              | TEST CONDITIONS        |                         | SYMBOL         | SL42 | SL43 | SL44 | UNIT |
|------------------------------------------------------------------------|------------------------|-------------------------|----------------|------|------|------|------|
| Maximum instantaneous forward voltage at <sup>(1)</sup>                | I <sub>F</sub> = 4.0 A | T <sub>A</sub> = 125 °C | V <sub>F</sub> | 0.31 |      | 0.35 | V    |
|                                                                        |                        | T <sub>A</sub> = 25 °C  |                | 0.42 |      | 0.44 |      |
|                                                                        | I <sub>F</sub> = 8.0 A | T <sub>A</sub> = 125 °C |                | 0.37 |      | 0.41 |      |
|                                                                        |                        | T <sub>A</sub> = 25 °C  |                | 0.47 |      | 0.50 |      |
| Maximum DC 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 |                | 35   |      |      |      |

**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           | SL42 | SL43 | SL44 | UNIT |
|-------------------------------------------|------------------|------|------|------|------|
| Typical thermal resistance <sup>(1)</sup> | R <sub>θJA</sub> | 50   |      |      | °C/W |
|                                           | R <sub>θJL</sub> | 14   |      |      |      |

**Note**

<sup>(1)</sup> PCB mounted 0.55" x 0.55" (14 mm x 14 mm) copper pad areas,  $T_L = 90\text{ }^{\circ}\text{C}$

**ORDERING INFORMATION** (Example)

| PREFERRED P/N              | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
|----------------------------|-----------------|------------------------|---------------|------------------------------------|
| SL44-E3/57T                | 0.235           | 57T                    | 850           | 7" diameter plastic tape and reel  |
| SL44-E3/9AT                | 0.235           | 9AT                    | 3500          | 13" diameter plastic tape and reel |
| SL44HE3_B/H <sup>(1)</sup> | 0.235           | H                      | 850           | 7" diameter plastic tape and reel  |
| SL44HE3_B/I <sup>(1)</sup> | 0.235           | I                      | 3500          | 13" diameter plastic tape and reel |
| SL44-M3/57T                | 0.235           | 57T                    | 850           | 7" diameter plastic tape and reel  |
| SL44-M3/9AT                | 0.235           | 9AT                    | 3500          | 13" diameter plastic tape and reel |
| SL44HM3_A/H <sup>(1)</sup> | 0.235           | H                      | 850           | 7" diameter plastic tape and reel  |
| SL44HM3_A/I <sup>(1)</sup> | 0.235           | I                      | 3500          | 13" diameter plastic tape and reel |

**Note**

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

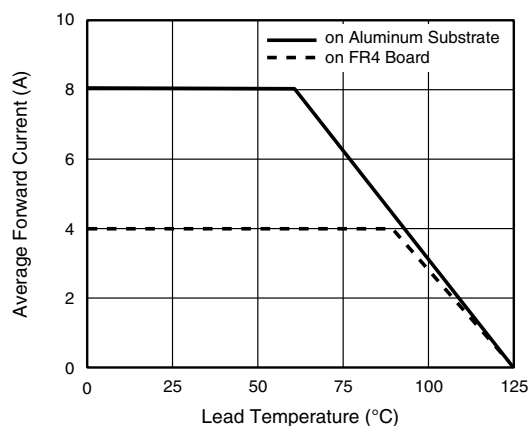
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

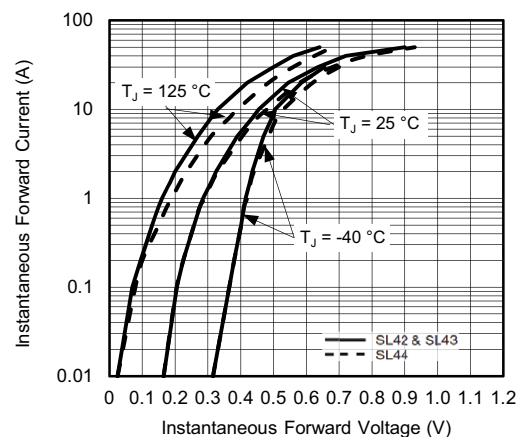


Fig. 3 - Typical Instantaneous Forward Characteristics

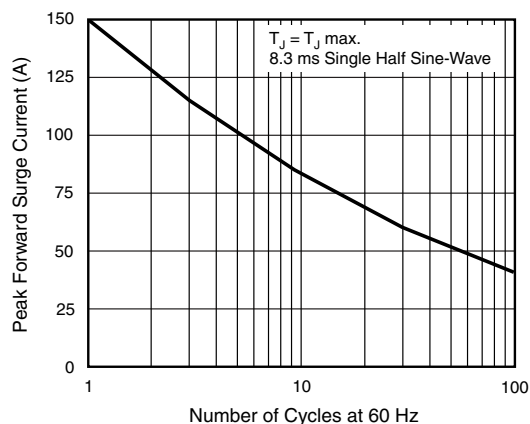


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

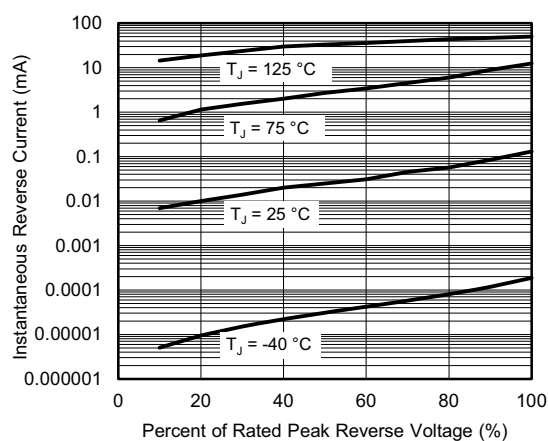


Fig. 4 - Typical Reverse Characteristics

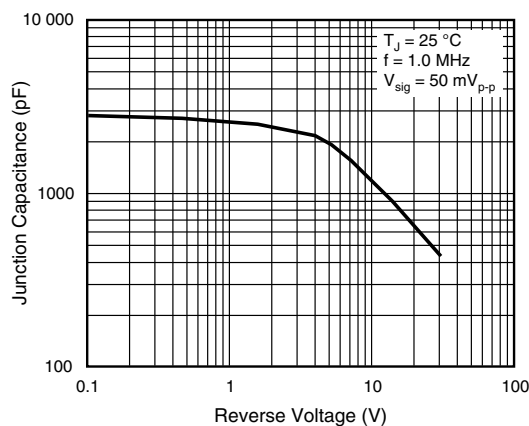
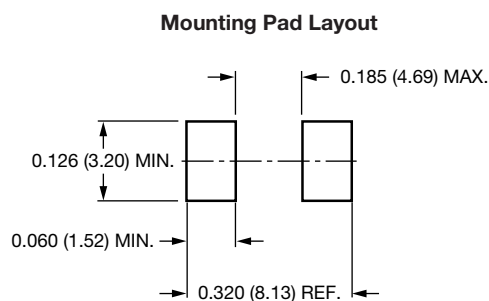
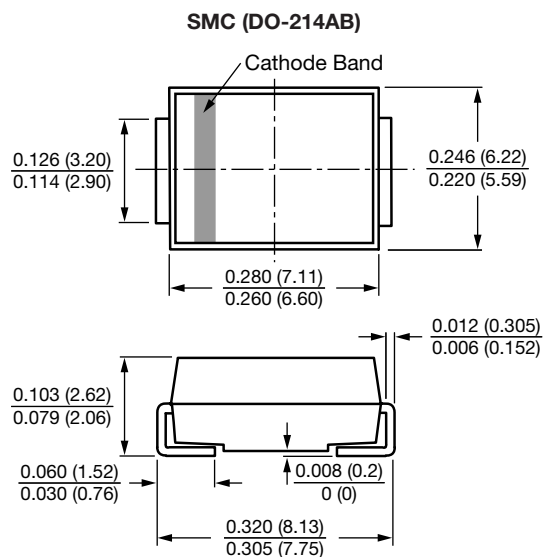


Fig. 5 - Typical Junction Capacitance



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





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