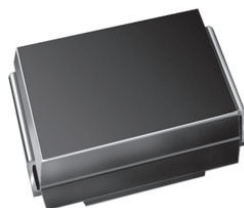


# High Current Density Surface Mount Schottky Rectifier



**SMB (DO-214AA)**

## 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)



**RoHS**  
COMPLIANT  
**HALOGEN**  
**FREE**  
Available

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** SMB (DO-214AA)

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 cathode end

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 4.0 A          |
| $V_{RRM}$               | 30 V, 40 V     |
| $I_{FSM}$               | 100 A          |
| $V_F$                   | 0.38 V, 0.42 V |
| $T_J \text{ max.}$      | 150 °C         |
| Package                 | SMB (DO-214AA) |
| Diode variations        | Single         |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                     |             |             |       |            |
|------------------------------------------------------------------------------------|-------------|-------------|-------|------------|
| PARAMETER                                                                          | SYMBOL      | SSB43L      | SSB44 | UNIT       |
| Device marking code                                                                |             | 43L         | S44   |            |
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$   | 30          | 40    | V          |
| Maximum RMS voltage                                                                | $V_{RMS}$   | 21          | 28    | V          |
| Maximum DC blocking voltage                                                        | $V_{DC}$    | 30          | 40    | V          |
| Max. average forward rectified current at $T_L$ (fig. 1)                           | $I_{F(AV)}$ | 4.0         |       | A          |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$   | 100         |       | A          |
| Voltage rate of change (rated $V_R$ )                                              | $dV/dt$     | 10 000      |       | V/ $\mu$ s |
| Operating junction temperature range                                               | $T_J$       | -65 to +150 |       | °C         |
| Storage temperature range                                                          | $T_{STG}$   | -65 to +150 |       | °C         |

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

| PARAMETER                                                      | TEST CONDITIONS |                         | SYMBOL         | SSB43L |      | SSB44 |      | UNIT |
|----------------------------------------------------------------|-----------------|-------------------------|----------------|--------|------|-------|------|------|
|                                                                |                 |                         |                | TYP.   | MAX. | TYP.  | MAX. |      |
| Maximum instantaneous forward voltage <sup>(1)</sup>           | 4.0 A           | T <sub>J</sub> = 25 °C  | V <sub>F</sub> | 0.43   | 0.45 | 0.45  | 0.49 | V    |
|                                                                |                 | T <sub>J</sub> = 125 °C |                | 0.33   | 0.38 | 0.37  | 0.42 |      |
| Maximum reverse current at rated V <sub>R</sub> <sup>(2)</sup> |                 | T <sub>J</sub> = 25 °C  | I <sub>R</sub> | -      | 0.6  | -     | 0.4  | mA   |
|                                                                |                 | T <sub>J</sub> = 125 °C |                | 35     | 45   | 25    | 40   |      |

**Notes**<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle<sup>(2)</sup> Pulse test: Pulse width  $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                 | SYMBOL           | SSB43L | SSB44 | UNIT |
|-------------------------------------------|------------------|--------|-------|------|
| Typical thermal resistance <sup>(1)</sup> | R <sub>θJA</sub> | 70     |       | °C/W |
|                                           | R <sub>θJL</sub> | 23     |       |      |

**Note**<sup>(1)</sup> Aluminum substrate mounted**ORDERING INFORMATION** (Example)

| PREFERRED P/N                | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
|------------------------------|-----------------|------------------------|---------------|------------------------------------|
| SSB43L-E3/52T                | 0.096           | 52T                    | 750           | 7" diameter plastic tape and reel  |
| SSB43L-E3/5BT                | 0.096           | 5BT                    | 3200          | 13" diameter plastic tape and reel |
| SSB43LHE3_A/H <sup>(1)</sup> | 0.096           | H                      | 750           | 7" diameter plastic tape and reel  |
| SSB43LHE3_A/I <sup>(1)</sup> | 0.096           | I                      | 3200          | 13" diameter plastic tape and reel |
| SSB43L-M3/52T                | 0.096           | 52T                    | 750           | 7" diameter plastic tape and reel  |
| SSB43L-M3/5BT                | 0.096           | 5BT                    | 3200          | 13" diameter plastic tape and reel |
| SSB43LHM3_A/H <sup>(1)</sup> | 0.096           | H                      | 750           | 7" diameter plastic tape and reel  |
| SSB43LHM3_A/I <sup>(1)</sup> | 0.096           | I                      | 3200          | 13" diameter plastic tape and reel |

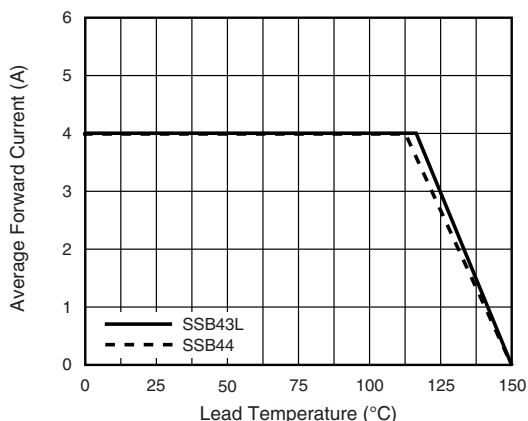
**Note**<sup>(1)</sup> AEC-Q101 qualified**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

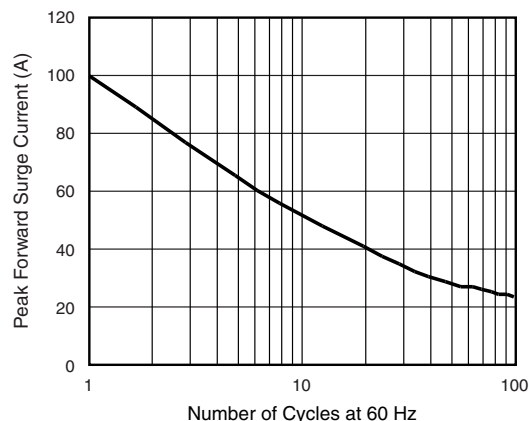


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

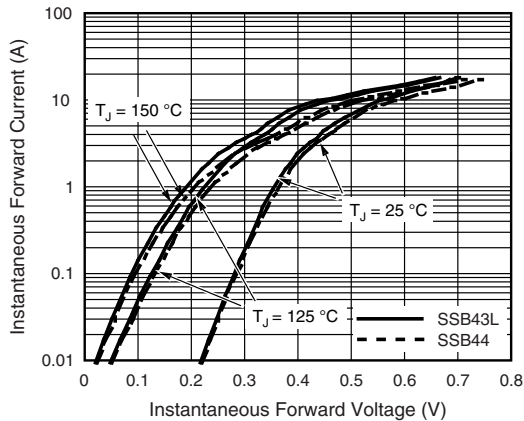


Fig. 3 - Typical Instantaneous Forward Characteristics

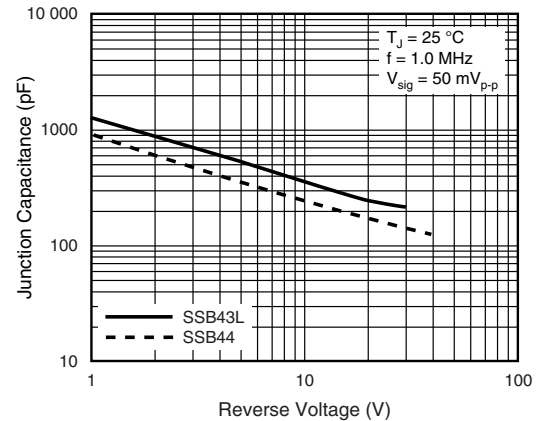


Fig. 5 - Typical Junction Capacitance

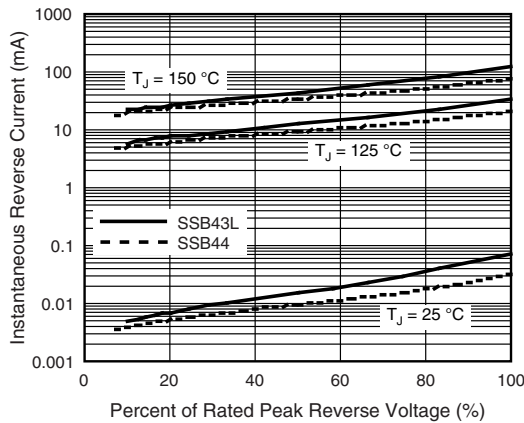
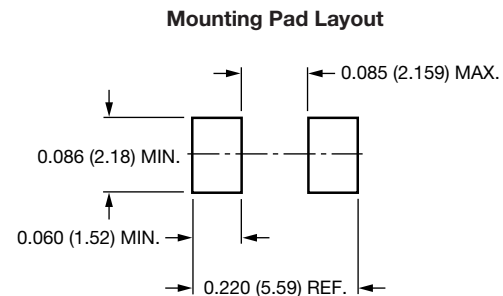
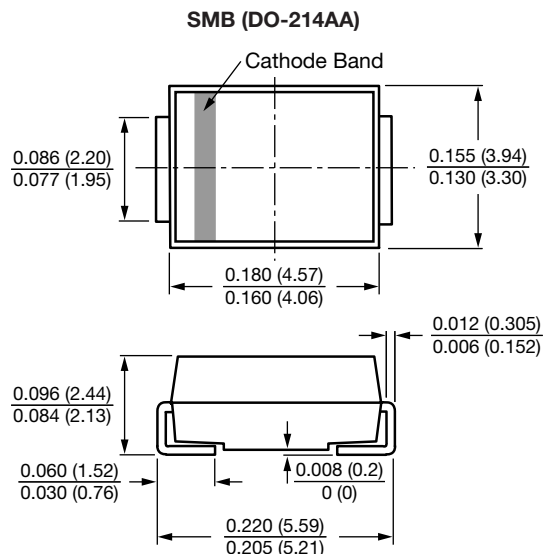


Fig. 4 - Typical Reverse Characteristics

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





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