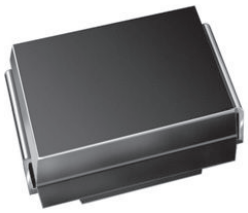
# High Current Density Surface-Mount Schottky Rectifier



**SMB (DO-214AA)**

Cathode ○—▶|—○ Anode

## 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 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

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE Available

## LINKS TO ADDITIONAL RESOURCES

3D Models

| 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 |
| $T_J$ max. | 150 °C |
| Package | SMB (DO-214AA) |
| Circuit configuration | Single |

## 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

| MAXIMUM RATINGS ($T_A$ = 25 °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/µs |
| Operating junction temperature range | $T_J$ | -65 to +150 | | °C |
| Storage temperature range | $T_{STG}$ | -65 to +150 | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| PARAMETER | TEST CONDITIONS | | SYMBOL | SSB43L | | SSB44 | | UNIT |
| | | | | TYP. | MAX. | TYP. | MAX. | |
| Maximum instantaneous forward voltage (1) | 4.0 A | $T_J$ = 25 °C | $V_F$ | 0.43 | 0.45 | 0.45 | 0.49 | V |
| | | $T_J$ = 125 °C | | 0.33 | 0.38 | 0.37 | 0.42 | |
| Maximum reverse current at rated $V_R$ (2) | | $T_J$ = 25 °C | $I_R$ | - | 0.6 | - | 0.4 | mA |
| | | $T_J$ = 125 °C | | 35 | 45 | 25 | 40 | |

**Notes**

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

(2) Pulse test: Pulse width ≤ 40 ms

| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | |
|---|---|---|---|---|
| PARAMETER | SYMBOL | SSB43L | SSB44 | UNIT |
| Typical thermal resistance (1) | $R_{\theta JA}$ | 70 | | °C/W |
| | $R_{\theta JL}$ | 23 | | |

**Note**

(1) 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 (1) | 0.096 | H | 750 | 7" diameter plastic tape and reel |
| SSB43LHE3_A/I (1) | 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 (1) | 0.096 | H | 750 | 7" diameter plastic tape and reel |
| SSB43LHM3_A/I (1) | 0.096 | I | 3200 | 13" diameter plastic tape and reel |

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

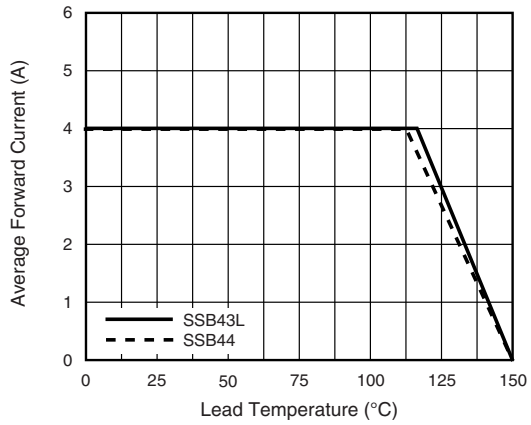



Fig. 1 - Forward Current Derating Curve

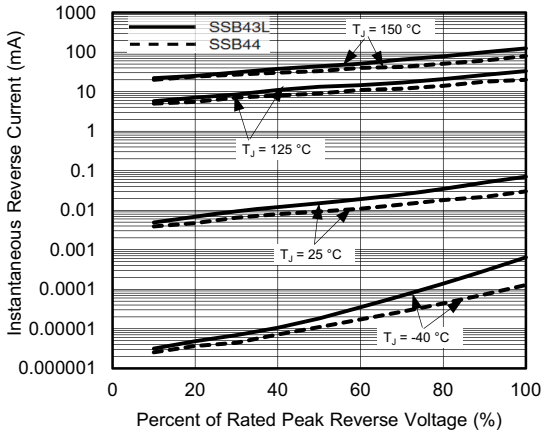



Fig. 4 - Typical Reverse Characteristics

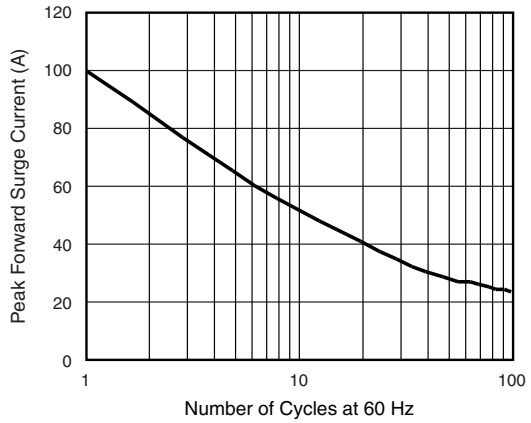



Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

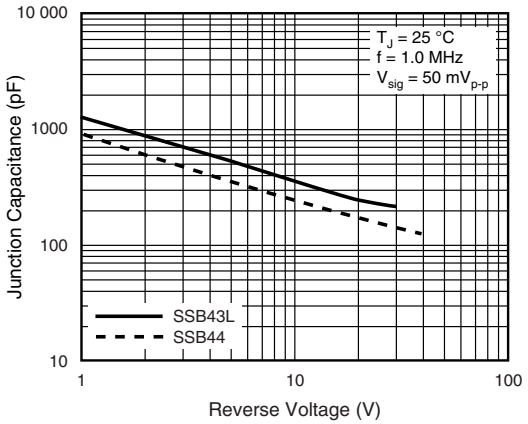



Fig. 5 - Typical Junction Capacitance

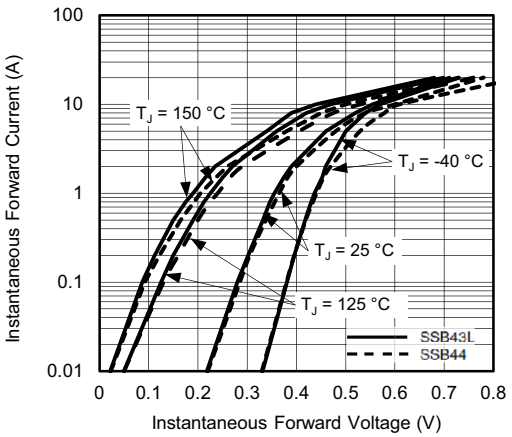
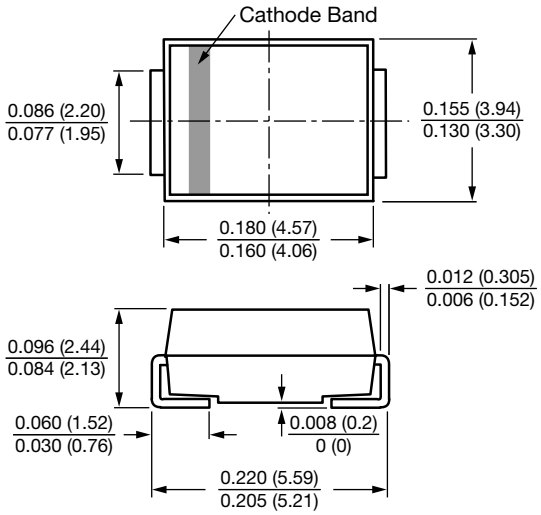


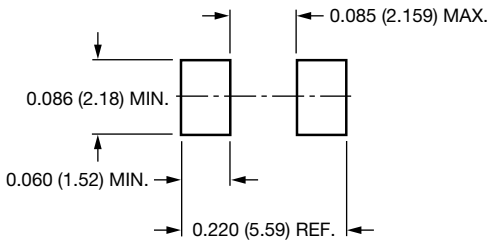

Fig. 3 - Typical Instantaneous Forward Characteristics

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

**SMB (DO-214AA)**




**Mounting Pad Layout**



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