

High Current Density Surface-Mount Schottky Rectifier


SMB (DO-214AA)

Cathode  Anode

LINKS TO ADDITIONAL RESOURCES



| 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 |

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



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 ($T_A = 25\text{ °C}$ 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/ μ 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 ⁽¹⁾ | 4.0 A | $T_J = 25\text{ }^{\circ}\text{C}$ | 0.43 | 0.45 | 0.45 | 0.49 | V |
| | | $T_J = 125\text{ }^{\circ}\text{C}$ | 0.33 | 0.38 | 0.37 | 0.42 | |
| Maximum reverse current at rated V_R ⁽²⁾ | | $T_J = 25\text{ }^{\circ}\text{C}$ | - | 0.6 | - | 0.4 | mA |
| | | $T_J = 125\text{ }^{\circ}\text{C}$ | 35 | 45 | 25 | 40 | |

Notes⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle⁽²⁾ 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 ⁽¹⁾ | R _{θJA} | 70 | | °C/W |
| | R _{θJL} | 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

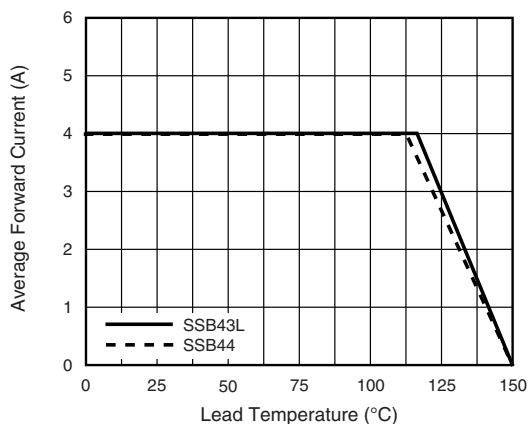
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

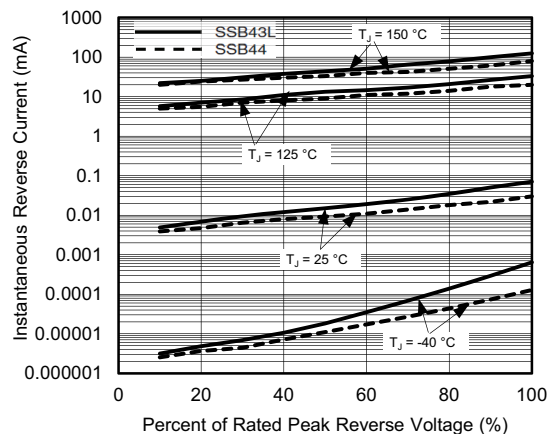


Fig. 4 - Typical Reverse Characteristics

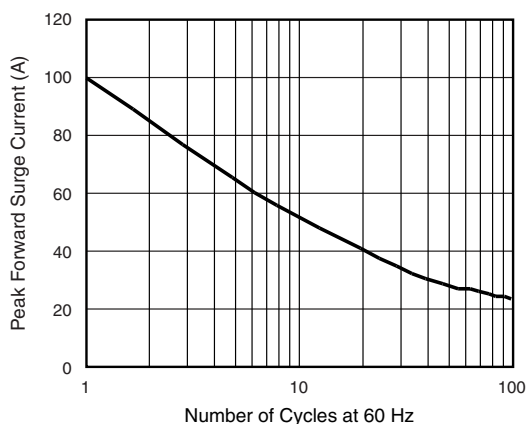


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

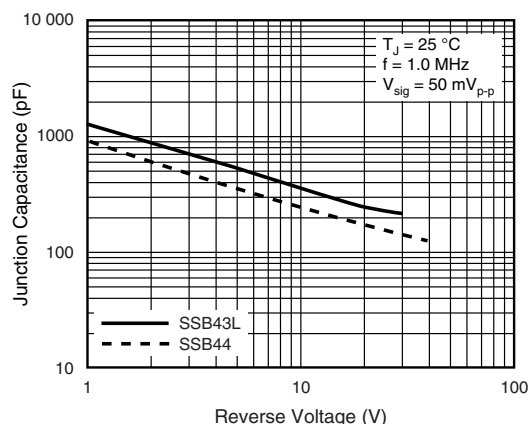


Fig. 5 - Typical Junction Capacitance

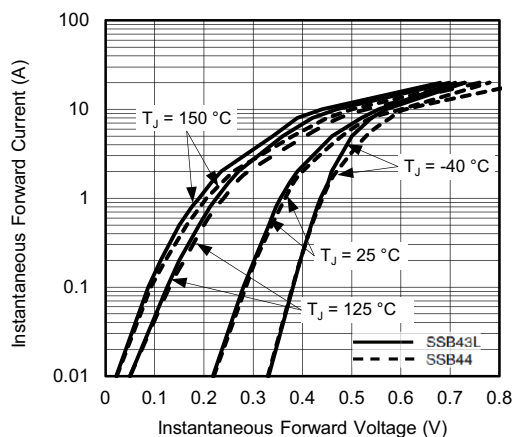
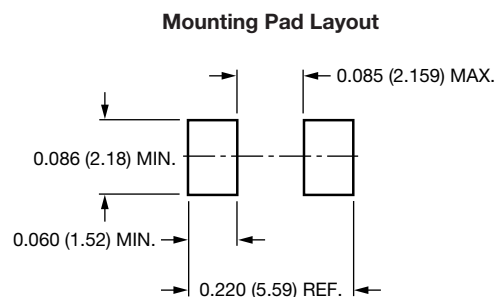
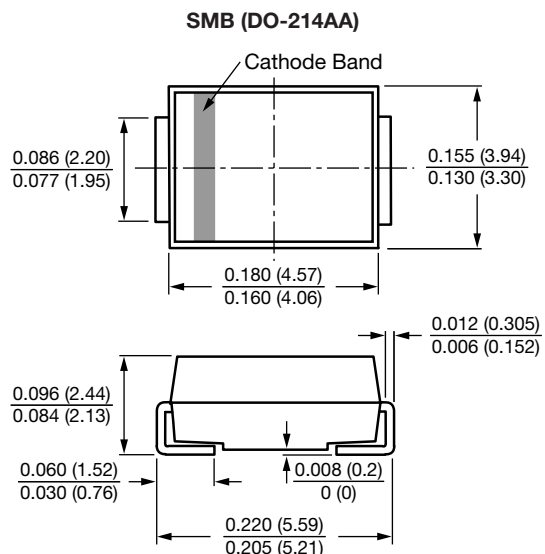


Fig. 3 - Typical Instantaneous Forward Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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