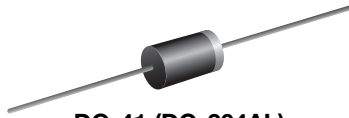


Schottky Barrier Plastic Rectifier


DO-41 (DO-204AL)

FEATURES

- Guardring for overvoltage protection
- Very small conduction losses
- Extremely fast switching
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

PRIMARY CHARACTERISTICS

| | |
|------------------------|------------------------------|
| $I_{F(AV)}$ | 2.0 A |
| V_{RRM} | 20 V, 30 V, 40 V, 50 V, 60 V |
| I_{FSM} | 50 A |
| V_F | 0.55 V, 0.70 V |
| T_J max. | 125 °C, 150 °C |
| Package | DO-41 (DO-204AL) |
| Circuit configurations | Single |

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-41 (DO-204AL)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

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

E3 suffix meets JESD 201 class 1A whisker test

Polarity: color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)

| PARAMETER | SYMBOL | SB220S | SB230S | SB240S | SB250S | SB260S | UNIT |
|--|-------------|-------------|--------|--------|-------------|--------|------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 20 | 30 | 40 | 50 | 60 | V |
| Maximum average forward rectified current at 0.375" (9.5 mm) lead length (fig. 1) | $I_{F(AV)}$ | 2.0 | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 50 | | | | | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | | | | | V/ μ s |
| Operating junction temperature range | T_J | -65 to +125 | | | -65 to +150 | | °C |
| Storage temperature range | T_{STG} | -65 to +150 | | | | | °C |

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

| PARAMETER | TEST CONDITIONS | SYMBOL | SB220S | SB230S | SB240S | SB250S | SB260S | UNIT |
|--|-----------------------|----------------------|--------|--------|--------|--------|--------|------|
| Maximum instantaneous forward voltage | 2.0 A | V_F ⁽¹⁾ | 0.55 | | | 0.70 | | V |
| Maximum reverse current at rated V_R | $T_J = 25\text{ °C}$ | I_R ⁽²⁾ | 0.50 | | | | | mA |
| | $T_J = 125\text{ °C}$ | | 25 | | | 15 | | |

Notes

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

⁽²⁾ Pulse test: Pulse width \leq 40 ms



| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | |
|--|-----------------------|--------|--------|--------|--------|--------|--------------------|
| PARAMETER | SYMBOL | SB220S | SB230S | SB240S | SB250S | SB260S | UNIT |
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | | | 75 | | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}^{(1)}$ | | | 25 | | | |

Note

(1) Thermal resistance from junction to lead P.C.B. mounted 0.375" (9.5 mm) lead length

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SB240S-E3/54 | 0.346 | 54 | 5500 | 13" diameter paper tape and reel |
| SB240S-E3/73 | 0.346 | 73 | 3000 | Ammo pack packaging |

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

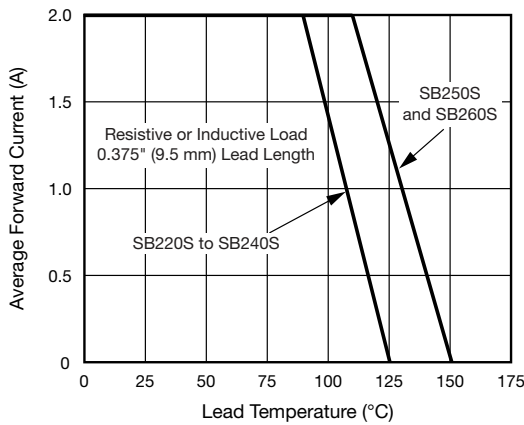


Fig. 1 - Forward Current Derating Curve

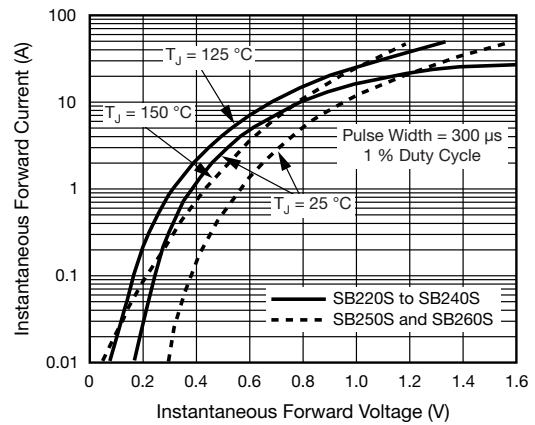


Fig. 3 - Typical Instantaneous Forward Characteristics

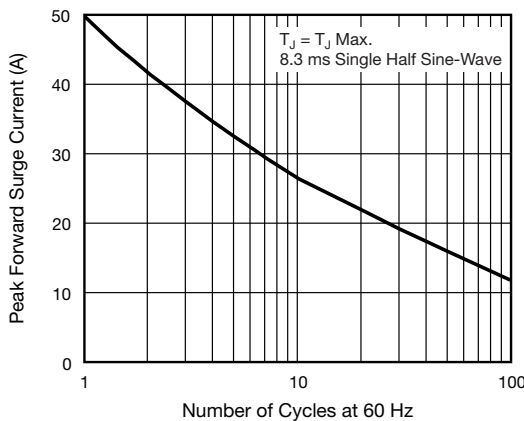


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

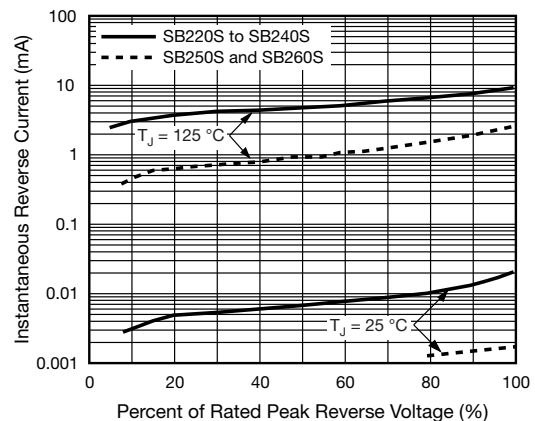


Fig. 4 - Typical Reverse Characteristics

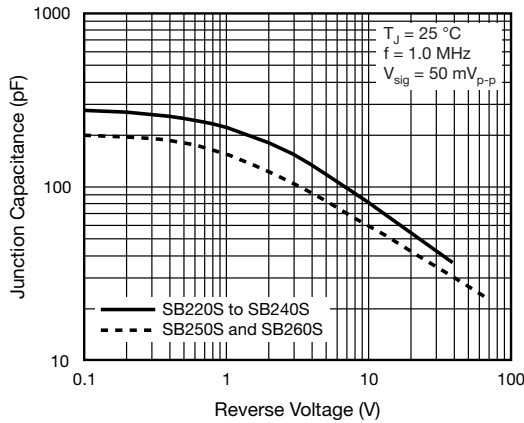
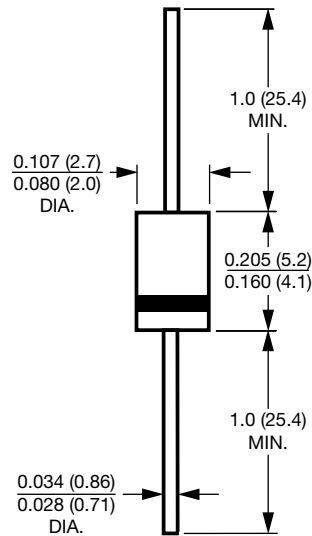


Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-41 (DO-204AL)





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