SB520 THRU SB5A0

SCHOTTKY BARRIER RECTIFIERS
Reverse Voltage – 20 to 100 Volts
Forward Current – 5.0 Amperes

Features
• Plastic package has Underwriters Laboratory Flammability Classification 94V-0
• Metal silicon junction, majority carrier conduction
• Guard ring for overvoltage protection
• Low power loss, high efficiency
• High current capability, low forward voltage drop
• High surge capability
• For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
• High temperature soldering guaranteed: 250° /10 seconds at terminals, 0.375”(9.5mm)lead length, 5lb.(2.3kg) tension

Mechanical Data
• Case: Molded plastic body, JEDEC DO-201AD.
• Terminals: Axial leads, solderable per MIL-STD-750, method 2026
• Polarity: Color band denotes cathode end.
• Mounting Position: Any

Absolute Maximum Ratings and Characteristics
Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, resistive or inductive load.
For capacitive load, derate by 20%

<table>
<thead>
<tr>
<th>Feature</th>
<th>Symbols</th>
<th>SB 520</th>
<th>SB 530</th>
<th>SB 540</th>
<th>SB 550</th>
<th>SB 560</th>
<th>SB 580</th>
<th>SB 5A0</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum recurrent peak reverse voltage</td>
<td>V_{R\text{RM}}</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>V</td>
</tr>
<tr>
<td>Maximum RMS voltage</td>
<td>V_{\text{RMS}}</td>
<td>14</td>
<td>21</td>
<td>28</td>
<td>35</td>
<td>42</td>
<td>57</td>
<td>71</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC blocking voltage</td>
<td>V_{\text{DC}}</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>V</td>
</tr>
<tr>
<td>Maximum average forward rectified current</td>
<td>I_{(AV)}</td>
<td>5.0</td>
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<td></td>
<td></td>
<td>A</td>
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<tr>
<td>0.375” (9.5mm)lead length</td>
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<tr>
<td>Peak forward surge current</td>
<td>I_{\text{FSM}}</td>
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<td></td>
<td>150</td>
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<td>A</td>
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<tr>
<td>8.3mS single half sine-wave superimposed on rated load (JEDEC method)</td>
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<tr>
<td>Maximum instantaneous forward voltage at 5 A (Note 1)</td>
<td>V_{F}</td>
<td>0.55</td>
<td>0.70</td>
<td>0.80</td>
<td>0.85</td>
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<td></td>
<td></td>
<td>V</td>
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<tr>
<td>Maximum reverse current at rated reverse voltage (Note 1)</td>
<td>I_{R}</td>
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<td>2.5</td>
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<td></td>
<td>mA</td>
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<tr>
<td>T_{A} = 25°C</td>
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<td>50</td>
<td>25</td>
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<td>T_{A} = 100°C</td>
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<td>Typical junction capacitance (Note 2)</td>
<td>C_{\text{J}}</td>
<td>500</td>
<td>400</td>
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<td>pF</td>
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<tr>
<td>Typical thermal resistance, from junction to ambient (Note 3)</td>
<td>R_{\text{JUA}}</td>
<td>25</td>
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<td>°C/W</td>
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<tr>
<td>Typical thermal resistance, from junction to lead (Note 3)</td>
<td>R_{\text{JUL}}</td>
<td>8.0</td>
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<td>°C/W</td>
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<tr>
<td>Operating junction temperature range</td>
<td>T_{J}</td>
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<td>°C</td>
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<td>-65 to +125</td>
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<td>Operating temperature range</td>
<td>T_{S}</td>
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<td>°C</td>
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<td>-65 to +150</td>
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</table>

Notes:
(1) Pulse test: 300μs pulse width, 1% duty cycle
(2) Measured at 1MHz and applied reverse voltage of 4 Volts
(3) Thermal Resistance from Junction to lead vertical P.C.B, mounted with 0.375”(9.5mm) lead length
**SB520 THRU SB5A0**

**Forward Current Derating Curve**

- **Average Forward Current, A**
- **Resistive or inductive load**

![Graph showing Forward Current Derating Curve](image)

**Maximum non-repetitive peak forward surge current**

- **Tj=Tj MAX 8.3mm Single half sine wave (JEDEC method)**
- **Number of cycles at 60Hz**

![Graph showing Maximum non-repetitive peak forward surge current](image)

**Typical instantaneous forward characteristics**

- **Tj=125 °C**
- **Tj=150 °C**
- **Tj=25 °C**

![Graph showing Typical instantaneous forward characteristics](image)

**Percent of rated peak reverse voltage, %**

- **0.01**
- **0.001**
- **0.1**
- **1**
- **100**

**Instantaneous reverse current, A**

- **Tj=25 °C**
- **Tj=75 °C**
- **Tj=125 °C**

![Graph showing Typical reverse characteristics](image)

**TYPICAL JUNCTION CAPACITANCE**

- **REVERSE VOLTAGE, VOLTS**
- **JUNCTION CAPACITANCE, pF**

![Graph showing TYPICAL JUNCTION CAPACITANCE](image)

**TYPICAL TRANSIENT THERMAL IMPEDANCE**

- **t, PULSE DURATION, sec.**
- **TRANSIENT THERMAL IMPEDANCE, C/W**

![Graph showing TYPICAL TRANSIENT THERMAL IMPEDANCE](image)