Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0 utilizing Flame Retardant Epoxy Molding Compound.
- Guard ring for overvoltage protection
- High current capability, low forward voltage drop
- Low power loss, high efficiency
- High surge capability

Mechanical Data

- Case: Molded plastic DO-201AD
- Terminals: Plated leads solderable per MIL-STD-202, Method 208 guaranteed
- Polarity: Color band denotes cathode end
- Mounting Position: Any
- Making: Type Number
- Lead Free: For Rohs/Lead Free Version

Dimensions in inches and (millimeters)

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60Hz, resistive or inductive load
For capacitive load derate current by 20%

<table>
<thead>
<tr>
<th>Type Number</th>
<th>SYMBOL</th>
<th>SB520</th>
<th>SB530</th>
<th>SB540</th>
<th>SB550</th>
<th>SB560</th>
<th>SB580</th>
<th>SB5100</th>
<th>SB5150</th>
<th>SB5200</th>
<th>SB5250</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Recurrent Peak Reverse Voltage</td>
<td>V_{BRM}</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>V</td>
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<tr>
<td>Maximum RMS Voltage</td>
<td>V_{RMS}</td>
<td>14</td>
<td>21</td>
<td>28</td>
<td>35</td>
<td>42</td>
<td>56</td>
<td>70</td>
<td>105</td>
<td>140</td>
<td>175</td>
<td>V</td>
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<tr>
<td>Maximum DC Blocking Voltage</td>
<td>V_{DC}</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>V</td>
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<tr>
<td>Average Rectified Output Current (Note 1) &amp; T_a=95°C</td>
<td>I_O</td>
<td>5.0</td>
<td>A</td>
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<tr>
<td>Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)</td>
<td>I_{FSM}</td>
<td>120</td>
<td>A</td>
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<td>Forward Voltage @ I_F=5.0A</td>
<td>V_{FM}</td>
<td>0.55</td>
<td>0.7</td>
<td>0.85</td>
<td>0.92</td>
<td>0.95</td>
<td>V</td>
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<td>Peak Reverse Current @ T_a=25°C</td>
<td>I_R</td>
<td>0.2</td>
<td>0.05</td>
<td>mA</td>
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<td>At Rated DC Blocking Voltage @ T_a=100°C</td>
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<td>10.0</td>
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<tr>
<td>Typical Junction Capacitance (Note 2)</td>
<td>C_J</td>
<td>500</td>
<td>350</td>
<td>pF</td>
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<td>Typical Thermal Resistance Junction to Ambient(Note 1)</td>
<td>R_{JUA}</td>
<td>25</td>
<td>°C/W</td>
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<td>Operating Temperature Range</td>
<td>T_J</td>
<td>-55 to +150</td>
<td>°C</td>
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<td>Storage Temperature Range</td>
<td>T_STG</td>
<td>-55 to +150</td>
<td>°C</td>
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</table>

Note: 1. Leads maintained at ambient temperature at a distance of 9.5mm from the case
2. Measured at 1.0 MHz and Applied reverse Voltage of 4.0V D.C
SB520 THRU SB5250

**Fig. 1 - Forward Current Derating Curve**

- **Average Forward Current (A)**
  - AMBIENT TEMPERATURE (°C)
  - 25 50 75 100 125 150 175
  - 0 1.0 2.0 3.0 4.0 5.0

- SINGLE PHASE HALF WAVE 60Hz
- RESISTIVE OR INDUCTIVE LOAD

**Fig. 2 - Typical Forward Characteristics**

- **Instantaneous Forward Current (A)**
  - INSTANTANEOUS FORWARD CURRENT (A)
  - 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
  - 10 5 1

- **Instantaneous Forward Voltage (V)**
  - INSTANTANEOUS FORWARD VOLTAGE, (V)
  - 0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
  - 10 5 1

**Fig. 3 - Maximum Non-Repetitive Surge Current**

- **Peak Forward Surge Current (A)**
  - PEAK FORWARD SURGE CURRENT (A)
  - 0 50 100 150 200

- PULSE WIDTH 8.3ms
- SINGLE HALF-SINE-WAVE (JEDEC METHOD)

**Fig. 4 - Typical Junction Capacitance**

- **Capacitance (pF)**
  - CAPACITANCE, (pF)
  - 0 1 10 100 1000 10000

- **Reverse Voltage (V)**
  - REVERSE VOLTAGE (V)
  - 0.1 1 10 100

TJ = 25°C  f = 1 MHz