FEATURES

- Metal-Semiconductor junction with guard ring
- Epitaxial construction
- Low forward voltage drop, low switching losses
- High surge capability
- For use in low voltage, high frequency inverters free wheeling, and polarity protection applications
- The plastic material carries U/L recognition 94V-0

MECHANICAL DATA

- Case: JEDEC DO-27, molded plastic
- Terminals: Axial lead, solderable per MIL-STD-202, Method 208
- Polarity: Color band denotes cathode
- Weight: 0.041 ounces, 1.15 grams
- Mounting position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate by 20%.

<table>
<thead>
<tr>
<th></th>
<th>SB380</th>
<th>SB390</th>
<th>SB3A0</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum recurrent peak reverse voltage ($V_{RRM}$)</td>
<td>80</td>
<td>90</td>
<td>100</td>
<td>V</td>
</tr>
<tr>
<td>Maximum RMS voltage ($V_{RMS}$)</td>
<td>56</td>
<td>63</td>
<td>70</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC blocking voltage ($V_{DC}$)</td>
<td>80</td>
<td>90</td>
<td>100</td>
<td>V</td>
</tr>
<tr>
<td>Maximum average forward rectified current ($I_{F(AV)}$)</td>
<td>3.0</td>
<td></td>
<td></td>
<td>A</td>
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<tr>
<td>Peak forward surge current ($I_{FSM}$)</td>
<td>80.0</td>
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<td></td>
<td>A</td>
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<tr>
<td>Maximum instantaneous forward voltage at 3.0 A (Note 1) ($V_{F}$)</td>
<td>0.85</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Maximum reverse current at 25°C ($I_{R}$)</td>
<td>0.5</td>
<td></td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>at rated DC blocking voltage at 100°C ($I_{R}$)</td>
<td>10.0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Typical junction capacitance (Note 2) ($C_J$)</td>
<td>180</td>
<td></td>
<td></td>
<td>pF</td>
</tr>
<tr>
<td>Typical thermal resistance (Note 3) ($R_{ΘJA}$)</td>
<td>40</td>
<td></td>
<td></td>
<td>°C/W</td>
</tr>
<tr>
<td>Operating junction temperature range ($T_{J}$)</td>
<td>-55</td>
<td></td>
<td>-55</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature range ($T_{STG}$)</td>
<td>-55</td>
<td></td>
<td>-55</td>
<td>°C</td>
</tr>
</tbody>
</table>

NOTE: 1. Pulse test: 300 μs pulse width, 1% duty cycle.
2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
3. Thermal resistance junction to ambient.

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**FIG.1 -- FORWARD CURRENT DERATING CURVE**

- **AVERAGE FORWARD RECTIFIED CURRENT, AMPERES**
- **SINGLE PHASE HALF WAVE 60Hz**
- **RESISTIVE OR INDUCTIVE LOAD 35° 0.5 mm LEAD LENGTHS**
- **AMBIENT TEMPERATURE, °C**

**FIG.2 -- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**

- **NUMBER OF CYCLES AT 60Hz**
- **TJ=TA(MAX)**
- **6.3ms Single Half Sine-Wave**

**FIG.3 -- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**

- **INSTANTANEOUS FORWARD CURRENT AMPERES**
- **INSTANTANEOUS FORWARD VOLTAGE, VOLTS**

**FIG.4 -- TYPICAL REVERSE CHARACTERISTICS**

- **INSTANTANEOUS REVERSE LEAKAGE CURRENT, MILLIAMPERES**
- **PERCENT OF RATED PEAK REVERSE VOLTAGE, %**

**FIG.5 -- TYPICAL JUNCTION CAPACITANCE**

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

**FIG.6 -- TYPICAL TRANSIENT THERMAL IMPEDANCE**

- **TRANSIENT THERMAL IMPEDANCE, °C/W**
- **PULSE DURATION, Sec**

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