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BAV23S
Small Signal Diode

Ordering Information

<table>
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<th>Part Number</th>
<th>Top Mark</th>
<th>Package</th>
<th>Packing Method</th>
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<tr>
<td>BAV23S</td>
<td>L30</td>
<td>SOT-23 3L</td>
<td>Tape and Reel</td>
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Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ C$ unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>$V_{RRM}$</td>
<td>Maximum Repetitive Reverse Voltage</td>
<td>250</td>
<td>V</td>
</tr>
<tr>
<td>$I_{F(AV)}$</td>
<td>Average Rectified Forward Current</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>$I_{FSM}$</td>
<td>Non-Repetitive Peak Forward Surge Current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse Width = 1.0 microsecond</td>
<td>9.0</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Pulse Width = 100 microsecond</td>
<td>3.0</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>$T_{STG}$</td>
<td>Storage Temperature Range</td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
<tr>
<td>$T_J$</td>
<td>Operating Junction Temperature</td>
<td>150</td>
<td>°C</td>
</tr>
</tbody>
</table>

Thermal Characteristics

Values are at $T_A = 25^\circ C$ unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_D$</td>
<td>Power Dissipation</td>
<td>350</td>
<td>mW</td>
</tr>
<tr>
<td>$R_{JUA}$</td>
<td>Thermal Resistance, Junction-to-Ambient</td>
<td>357</td>
<td>°C/W</td>
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## Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min.</th>
<th>Max.</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>$BV$</td>
<td>Breakdown Voltage</td>
<td>$I_R = 100 , \mu\text{A}$</td>
<td>250</td>
<td></td>
<td>V</td>
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<tr>
<td>$VF$</td>
<td>Forward Voltage</td>
<td>$I_F = 100 , \text{mA}$</td>
<td></td>
<td>1.0</td>
<td>V</td>
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<tr>
<td></td>
<td></td>
<td>$I_F = 200 , \text{mA}$</td>
<td></td>
<td>1.25</td>
<td>V</td>
</tr>
<tr>
<td>$IR$</td>
<td>Reverse Leakage</td>
<td>$V_R = 250 , \text{V}$</td>
<td>100</td>
<td></td>
<td>nA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$V_R = 250 , \text{V}, T_A = 150^\circ\text{C}$</td>
<td></td>
<td>100</td>
<td>\mu\text{A}</td>
</tr>
<tr>
<td>$tR$</td>
<td>Reverse Recovery Time</td>
<td>$I_F = I_R = 30 , \text{mA}, I_{RR} = 3.0 , \text{mA}, R_L = 100 , \Omega$</td>
<td></td>
<td>50</td>
<td>ns</td>
</tr>
</tbody>
</table>
Typical Performance Characteristics

Figure 1. Reverse Voltage vs. Reverse Current
   \( V_R - 1.0 \) to \( 100 \mu A \)

Figure 2. Reverse Current vs. Reverse Voltage
   \( I_R - 55 \) to \( 205 \) V

Figure 3. Reverse Current vs. Reverse Voltage
   \( I_R - 180 \) to \( 255 \) V

Figure 4. Forward Voltage vs. Forward Current
   \( V_F - 1.0 \) to \( 100 \mu A \)

Figure 5. Forward Voltage vs. Forward Current
   \( V_F - 0.1 \) to \( 10 \) mA

Figure 6. Forward Voltage vs. Forward Current
   \( V_F - 10 \) to \( 800 \) mA

General Rule: The Reverse Current of a diode will approximately double for every ten (10) degrees Celsius increase in temperature.

General Rule: The Forward Current of a diode will approximately double for every ten (10) degrees Celsius increase in temperature.
Typical Performance Characteristics (Continued)

**Figure 7.** Forward Voltage vs. Ambient Temperature
\[ V_F = 1.0 \mu A - 10 \text{ mA (-40 to +80°C)} \]

**Figure 8.** Capacitance vs. Reverse Voltage

**Figure 9.** Power Derating Curve

**Figure 10.** Average Rectified Current \( I_O \) vs. Ambient Temperature \( T_A \)

**Figure 11.** Reverse Recovery Time vs. Reverse Recovery Current \( I_{rr} \)

\[ I_{rr} = 30 \text{ mA, } \text{R}_{loop} = 100 \text{ Ohms} \]
Physical Dimensions

Figure 12. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE
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<th>Datasheet Identification</th>
<th>Product Status</th>
<th>Definition</th>
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<td>Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.</td>
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