BC640
PNP Epitaxial Silicon Transistor

Switching and Amplifier Applications
• Complement to BC639

Absolute Maximum Ratings \( T_a = 25^\circ C \) unless otherwise noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_{CER} )</td>
<td>Collector-Emitter Voltage at ( R_{BE}=1,\Omega )</td>
<td>-100</td>
<td>V</td>
</tr>
<tr>
<td>( V_{CES} )</td>
<td>Collector-Emitter Voltage</td>
<td>-100</td>
<td>V</td>
</tr>
<tr>
<td>( V_{CEO} )</td>
<td>Collector-Emitter Voltage</td>
<td>-80</td>
<td>V</td>
</tr>
<tr>
<td>( V_{EBO} )</td>
<td>Emitter-Base Voltage</td>
<td>-5</td>
<td>V</td>
</tr>
<tr>
<td>( I_C )</td>
<td>Collector Current</td>
<td>-1</td>
<td>A</td>
</tr>
<tr>
<td>( I_{CP} )</td>
<td>Peak Collector Current</td>
<td>-1.5</td>
<td>A</td>
</tr>
<tr>
<td>( I_B )</td>
<td>Base Current</td>
<td>-100</td>
<td>mA</td>
</tr>
<tr>
<td>( P_C )</td>
<td>Collector Power Dissipation</td>
<td>1</td>
<td>W</td>
</tr>
<tr>
<td>( T_J )</td>
<td>Junction Temperature</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>( T_{STG} )</td>
<td>Storage Temperature</td>
<td>-65 ~ 150</td>
<td>°C</td>
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</table>

Electrical Characteristics \( T_a = 25^\circ C \) unless otherwise noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Test Condition</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>( B V_{CEO} )</td>
<td>Collector-Emitter Breakdown Voltage</td>
<td>( I_C= -10mA, I_B=0 )</td>
<td>-80</td>
<td></td>
<td></td>
<td>V</td>
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<tr>
<td>( I_{CB} )</td>
<td>Collector Cut-off Current</td>
<td>( V_{CB}= -30V, I_E=0 )</td>
<td>-0.1</td>
<td></td>
<td></td>
<td>( \mu A )</td>
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<tr>
<td>( I_{EBO} )</td>
<td>Emitter Cut-off Current</td>
<td>( V_{EB}= -5V, I_C=0 )</td>
<td>-10</td>
<td></td>
<td></td>
<td>( \mu A )</td>
</tr>
<tr>
<td>( h_{FE1} ), ( h_{FE2} ), ( h_{FE3} )</td>
<td>DC Current Gain</td>
<td>( V_{CE}= -2V, I_C= -5mA )</td>
<td>25</td>
<td>40</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>( V_{CE}= -2V, I_C= -150mA )</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>( V_{CE}= -2V, I_C= -500mA )</td>
<td></td>
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<tr>
<td>( V_{CE} ) (sat)</td>
<td>Collector-Emitter Saturation Voltage</td>
<td>( I_C= -500mA, I_B= -50mA )</td>
<td>-0.5</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>( V_{BE} ) (on)</td>
<td>Base-Emitter On Voltage</td>
<td>( V_{CE}= -2V, I_C= -500mA )</td>
<td>-1</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>( f_T )</td>
<td>Current Gain Bandwidth Product</td>
<td>( V_{CE}= -5V, I_C= -10mA, f=50MHz )</td>
<td>100</td>
<td></td>
<td></td>
<td>MHz</td>
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## Package Marking and Ordering Information

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Typical Performance Characteristics

Figure 1. Static Characteristic

Figure 2. DC Current Gain

Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

Figure 4. Base-Emitter On Voltage

Figure 5. Collector Output Capacitance
Mechanical Dimensions

TO-92

Dimensions in Millimeters
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<th>Datasheet Identification</th>
<th>Product Status</th>
<th>Definition</th>
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<td>Advance Information</td>
<td>Formative / In Design</td>
<td>Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.</td>
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<tr>
<td>Preliminary</td>
<td>First Production</td>
<td>Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.</td>
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