**Surface Mount Low Pass Filter**

**ULP-30+**

50Ω DC to 30 MHz

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**The Big Deal**
- Low Insertion loss, 1.8dB Typ.
- High rejection, > 40dB
- Sharp insertion loss roll-off
- Good VSWR
- Ultra miniature surface mount package

**Product Overview**
The ULP-30+ is a lowpass filter in a top hat package (size of 0.25" x 0.25") fabricated using SMT technology. Covering DC to 30 MHz band width, these units offer good matching within the passband and high rejection. This model uses a miniature high Q capacitors and chip inductors for high reliability. In addition it has repeatable performance across production lots and consistent performance across temperature.

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**Key Features**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low passband insertion loss</td>
<td>Passband insertion loss 1.8dB typical ensures low signal loss throughout the passband</td>
</tr>
<tr>
<td>Excellent stopband rejection</td>
<td>Rejection of 40 dB ensures unwanted spurious are eliminated</td>
</tr>
<tr>
<td>Excellent return loss at DC-30 MHz</td>
<td>This makes signal transmission with very less reflections and well-matched with the adjacent component used in the system</td>
</tr>
<tr>
<td>Small size, 0.25” x 0.25”</td>
<td>The Ultra miniature surface mount package enables the ULP-30+ to be used in compact designs.</td>
</tr>
</tbody>
</table>

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Notes
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B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp
ULP-30+

Surface Mount Low Pass Filter

50Ω DC to 30 MHz

Features
- High rejection
- Sharp insertion loss roll-off
- Good VSWR, 1.38:1 typ. at passband
- Ultra miniature surface mount package

Applications
- Wireless communications
- Receivers / Transformers
- Lab use

Electrical Specifications at 25°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>F#</th>
<th>Frequency (MHz)</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass Band</td>
<td>Freq. Cut-Off</td>
<td>DC-F1</td>
<td>DC-30</td>
<td>1.8</td>
<td>2.5</td>
<td>dB</td>
</tr>
<tr>
<td></td>
<td>VSWR</td>
<td>DC-F1</td>
<td>DC-30</td>
<td>1.38</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Stop Band</td>
<td>Rejection Loss</td>
<td>F3-F4</td>
<td>47-53</td>
<td>20</td>
<td>27</td>
<td>dB</td>
</tr>
<tr>
<td></td>
<td>VSWR</td>
<td>F3-F5</td>
<td>47-3000</td>
<td>20</td>
<td></td>
<td>dB</td>
</tr>
</tbody>
</table>

Functional Schematic

Typical Frequency Response

Typical Performance Data at 25°C

-40°C to 85°C
-55°C to 100°C
0.1W max.

Permanent damage may occur if any of these limits are exceeded.

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+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications
**Low Pass Filter**

**ULP-30+**

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### Pad Connections

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT</td>
<td>1</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>3</td>
</tr>
<tr>
<td>GROUND</td>
<td>2,4,5,6</td>
</tr>
</tbody>
</table>

**Demo Board MCL P/N: TB-894+**

**Suggested PCB Layout (PL-484)**

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**Outline Drawing**

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**Outline Dimensions (inch)***

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
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</thead>
<tbody>
<tr>
<td>Min</td>
<td>.250</td>
<td>.260</td>
<td>.075</td>
<td>.100</td>
<td>.075</td>
<td>.125</td>
<td>.062</td>
<td>.301</td>
<td>.041</td>
<td>.060</td>
</tr>
<tr>
<td>Max</td>
<td>6.35</td>
<td>6.35</td>
<td>1.91</td>
<td>2.54</td>
<td>1.91</td>
<td>3.18</td>
<td>2.34</td>
<td>5.11</td>
<td>1.04</td>
<td>1.27</td>
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**Notes**

1. Trace width is shown for Rogers (RO4350B) with dielectric thickness .025-.03015" COPPER 1/2 OZ. each side.
2. For other materials trace width may need to be modified.
3. Copper trace layout must be made of copper. (Solder mask over bare copper)