The Big Deal
- Low insertion loss
- Broader bandwidth
- High Rejection
- Wide stopband
- Miniature shielded package

Product Overview
The BPF-C59+ is a broad band filter in a small shielded package (size of 0.87” x 0.80” x 0.25”) fabricated using SMT technology. This filter offers outstanding close in rejection, low insertion loss for use in telecommunication and broadband wireless application. The stopband extends up to 4.5 GHz

Key Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Rejection</td>
<td>BPF-C59+ is enables the filter to attenuate spurious signals and rejects harmonics for broad band of frequency.</td>
</tr>
<tr>
<td>Low Passband VSWR</td>
<td>This filter maintains typical VSWR over passband frequency range making this filter easier to integrate into receiver and transmitter RF chains with less concerns for in band frequency ripple.</td>
</tr>
<tr>
<td>Small size, 0.87” x 0.80” x 0.25”</td>
<td>The unique surface mount package enables the BPF-C59+ to be used in compact design.</td>
</tr>
</tbody>
</table>
Surface Mount
Bandpass Filter

50Ω
30 to 88 MHz

Features
- Broader bandwidth
- Low insertion loss
- High rejection
- Wide stopband
- Miniature shielded package

Applications
- Telecommunication and broadband networks
- Air traffic control communication
- Private and public land mobile
- Transmitters / Receivers

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></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center Frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>F1-F2</td>
<td>30-88</td>
<td>59</td>
<td>1.40</td>
<td>2.50</td>
<td>dB</td>
</tr>
<tr>
<td>VSWR</td>
<td>F1-F2</td>
<td>30-88</td>
<td>1.28</td>
<td>1.92</td>
<td>:1</td>
<td></td>
</tr>
<tr>
<td>Stop Band, Lower</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>DC-F3</td>
<td>DC-22</td>
<td>20</td>
<td>29</td>
<td>:dB</td>
<td></td>
</tr>
<tr>
<td>VSWR</td>
<td>DC-F3</td>
<td>DC-22</td>
<td></td>
<td></td>
<td>:1</td>
<td></td>
</tr>
<tr>
<td>Stop Band, Upper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>F4-F5</td>
<td>115-4500</td>
<td>20</td>
<td>25</td>
<td>:dB</td>
<td></td>
</tr>
<tr>
<td>VSWR</td>
<td>F4-F5</td>
<td>115-4500</td>
<td></td>
<td></td>
<td>:1</td>
<td></td>
</tr>
</tbody>
</table>

Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-40°C to 85°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-55°C to 100°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF Power Input</td>
<td>0.25 W</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Typical Performance Data at 25°C

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Insertion Loss (dB)</th>
<th>VSWR (1:1)</th>
<th>Frequency (MHz)</th>
<th>Group Delay (nsec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>75.23</td>
<td>347.44</td>
<td>30.0</td>
<td>72.82</td>
</tr>
<tr>
<td>20.0</td>
<td>62.17</td>
<td>115.81</td>
<td>32.0</td>
<td>49.40</td>
</tr>
<tr>
<td>22.0</td>
<td>40.46</td>
<td>86.86</td>
<td>34.0</td>
<td>36.01</td>
</tr>
<tr>
<td>23.2</td>
<td>29.93</td>
<td>66.82</td>
<td>36.0</td>
<td>33.07</td>
</tr>
<tr>
<td>24.6</td>
<td>19.90</td>
<td>41.37</td>
<td>40.0</td>
<td>27.28</td>
</tr>
<tr>
<td>26.0</td>
<td>10.92</td>
<td>16.89</td>
<td>42.0</td>
<td>24.49</td>
</tr>
<tr>
<td>27.6</td>
<td>3.18</td>
<td>3.52</td>
<td>44.0</td>
<td>22.10</td>
</tr>
<tr>
<td>30.0</td>
<td>0.77</td>
<td>1.14</td>
<td>46.0</td>
<td>20.30</td>
</tr>
<tr>
<td>59.0</td>
<td>0.51</td>
<td>1.15</td>
<td>50.0</td>
<td>17.84</td>
</tr>
<tr>
<td>88.0</td>
<td>0.98</td>
<td>1.18</td>
<td>55.0</td>
<td>15.88</td>
</tr>
<tr>
<td>99.0</td>
<td>3.54</td>
<td>2.82</td>
<td>59.0</td>
<td>15.07</td>
</tr>
<tr>
<td>105.0</td>
<td>10.06</td>
<td>7.70</td>
<td>62.0</td>
<td>14.61</td>
</tr>
<tr>
<td>112.0</td>
<td>20.62</td>
<td>14.15</td>
<td>65.0</td>
<td>14.34</td>
</tr>
<tr>
<td>115.0</td>
<td>25.56</td>
<td>16.11</td>
<td>70.0</td>
<td>14.25</td>
</tr>
<tr>
<td>118.0</td>
<td>30.89</td>
<td>17.57</td>
<td>72.0</td>
<td>14.34</td>
</tr>
<tr>
<td>150.0</td>
<td>59.87</td>
<td>25.94</td>
<td>74.0</td>
<td>14.51</td>
</tr>
<tr>
<td>750.0</td>
<td>71.46</td>
<td>29.46</td>
<td>78.0</td>
<td>15.09</td>
</tr>
<tr>
<td>1500.0</td>
<td>71.49</td>
<td>6.11</td>
<td>80.0</td>
<td>15.54</td>
</tr>
<tr>
<td>3000.0</td>
<td>57.10</td>
<td>4.26</td>
<td>85.0</td>
<td>17.32</td>
</tr>
<tr>
<td>4500.0</td>
<td>42.06</td>
<td>3.30</td>
<td>88.0</td>
<td>19.06</td>
</tr>
</tbody>
</table>

Notes
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Bandpass Filter

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Mini-Circuits
P.O. Box 350166, Brooklyn, NY 11235-0003  (718) 934-4500  sales@minicircuits.com

Pad Connections

<table>
<thead>
<tr>
<th>Pad Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT</td>
</tr>
<tr>
<td>OUTPUT</td>
</tr>
<tr>
<td>GROUND</td>
</tr>
<tr>
<td>NOT CONNECTED</td>
</tr>
</tbody>
</table>

Demo Board MCL P/N: TB-500+
Suggested PCB Layout (PL-294)

Outline Drawing

PCB Land Pattern

Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (in)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>.870</td>
<td>.800</td>
<td>.25</td>
<td>.100</td>
<td>.097</td>
<td>--</td>
<td>.060</td>
<td>.040</td>
</tr>
<tr>
<td>22.10</td>
<td>20.32</td>
<td>6.35</td>
<td>2.54</td>
<td>2.46</td>
<td>--</td>
<td>1.52</td>
<td>1.02</td>
</tr>
</tbody>
</table>

J  K  L  M  N  P  wt

| .105 | .910 | -- | .060 | .060 | -- | grams |
| 2.67 | 23.11 | -- | 1.52 | 1.52 | -- | 2.85 |

Note: Please refer to case style drawing for details.

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