**High Frequency Ceramic Solutions**

5.4GHz EIA 0603 Mini Balun with DC Feed Option. 100Ω Differential Impedance, 50Ω Single Ended

P/N 5400BL14B100

Detail Specification: 7/12/2019

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### General Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Frequency (MHz)</th>
<th>Balanced Diff. Impedance</th>
<th>Unbalanced Impedance</th>
<th>Insertion Loss @ BW</th>
<th>Amplitude Difference</th>
<th>Return Loss</th>
<th>Phase Difference (degree)</th>
<th>Operating Temperature</th>
<th>Power Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>5400BL14B100</td>
<td>4900 - 5950</td>
<td>100 Ω</td>
<td>50 Ω</td>
<td>0.8dB Typ (1.0 dB max.)</td>
<td>1.5 dB max.</td>
<td>9.5 dB min.</td>
<td>180 ± 15 @ 4900 - 5875</td>
<td>-40 to +85°C</td>
<td>0.5W max. (CW)</td>
</tr>
</tbody>
</table>

### Part Number Explanation

<table>
<thead>
<tr>
<th>P/N Suffix</th>
<th>Packaging Style</th>
<th>Termination Style</th>
<th>Part Number Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bulk</td>
<td>100% Tin</td>
<td>Eg. 5400BL14B100S</td>
</tr>
<tr>
<td>T &amp; R</td>
<td>Suffix = S</td>
<td>Suffix = None</td>
<td>Eg. 5400BL14B100T (Reel: 4000pcs.)</td>
</tr>
<tr>
<td></td>
<td>T or R</td>
<td></td>
<td>Eg. 5400BL14B100(T or S)</td>
</tr>
</tbody>
</table>

### Mechanical Dimensions

<table>
<thead>
<tr>
<th>Land</th>
<th>Solder Resist</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.55</td>
<td>0.55</td>
</tr>
</tbody>
</table>

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**Mounting Considerations**

Mount these devices with brown mark facing up.

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**Terminals Configuration**

1. Unbalanced Port
2. DC feed + RD GND
3. Balanced Port (OUT1)
4. Balanced Port (OUT2)
5. GND
6. NC

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You can download measured S-parameters of this component at: [https://www.johansontechnology.com/baluns](https://www.johansontechnology.com/baluns)

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Equivalent Circuit

Internal shielding ground plates

Unbalanced Port

PIN1

PIN2

PIN3

PIN4

PIN5

PIN2

Balanced Port1

Balanced Port2

Pin 6 is a floating pin (no internal connections) but it still must have soldering pad

Measuring Diagram

DC-Feed recommended L/C network:

Capacitor value of 2.7pF and RF choke (inductor) 3.9nH are recommended when DC bias is used.

Bypass capacitor and RF choke should be placed physically as close as possible to PIN2 of balun.

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Typical Electrical Characteristics (T=25°C)

Insertion Loss & Return Loss

<table>
<thead>
<tr>
<th>freq, GHz</th>
<th>RL (dB)</th>
<th>IL (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>-40</td>
</tr>
<tr>
<td>1</td>
<td>-10</td>
<td>-30</td>
</tr>
<tr>
<td>2</td>
<td>-20</td>
<td>-20</td>
</tr>
<tr>
<td>3</td>
<td>-30</td>
<td>-10</td>
</tr>
<tr>
<td>4</td>
<td>-40</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

Amp. & Phase Differential

<table>
<thead>
<tr>
<th>freq, GHz</th>
<th>dif_amplitude (dB)</th>
<th>dif_phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>-2.0</td>
<td>160</td>
</tr>
<tr>
<td>4.2</td>
<td>-1.5</td>
<td>165</td>
</tr>
<tr>
<td>4.4</td>
<td>-1.0</td>
<td>170</td>
</tr>
<tr>
<td>4.6</td>
<td>-0.5</td>
<td>175</td>
</tr>
<tr>
<td>4.8</td>
<td>0.0</td>
<td>180</td>
</tr>
<tr>
<td>5.0</td>
<td>0.5</td>
<td>185</td>
</tr>
<tr>
<td>5.2</td>
<td>1.0</td>
<td>190</td>
</tr>
<tr>
<td>5.4</td>
<td>1.5</td>
<td>195</td>
</tr>
<tr>
<td>5.6</td>
<td>2.0</td>
<td>200</td>
</tr>
<tr>
<td>5.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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More Balun info at:  
https://www.johansontechnology.com/baluns

Packaging information  
https://www.johansontechnology.com/tape-reel-packaging

Soldering Information  
https://www.johansontechnology.com/ipcsoldering-profile

MSL Info  
https://www.johansontechnology.com/msl-rating

Recommended Storage Condition and Max Shelf Life  
https://www.johansontechnology.com/recommended-storage-conditions

RoHS Compliance  
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Antenna layout and tuning techniques  
https://www.johansontechnology.com/tuning

Antenna layout review, tuning, and characterization services  
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Layout Files, s-parameters and any other technical questions  
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