2450 MHz EIA 0603 RF Balun

P/N 2450BL14C100

Detail Specification: 2/7/2018

General Specifications
- Part Number: 2450BL14C100
- Frequency (MHz): 2400 ~ 2500
- Unbalanced Impedance (single ended): 50 Ω
- Balanced Differential Impedance: 100 Ω
- Insertion Loss: 1.2 dB max.
- Return Loss: 9.5 dB min.
- Phase Difference: 180 ± 10 deg.
- Amplitude Difference: 1.5 dB max.

Operating Temperature: -40 to +125°C
Storage Temperature Range: -40 to +85°C
Reel Quantity: 4,000 pcs
Power Capacity: 1W max. (CW)

Part Number Explanation
- P/N Suffix
  - Bulk: Suffix = S
  - T & R: Suffix = T
- Termination Style
  - 100% Tin: Suffix = None

Mechanical Dimensions
- L: 0.063 ± 0.004 mm, 1.60 ± 0.10 mm
- W: 0.031 ± 0.004 mm, 0.80 ± 0.10 mm
- T: 0.024 ± 0.004 mm, 0.60 ± 0.10 mm
- a: 0.008 ± 0.004 mm, 0.20 ± 0.10 mm
- b: 0.008 ±0.004/0.008 mm, 0.20 +0.1/-0.15 mm
- c: 0.006 ± 0.004 mm, 0.15 ± 0.10 mm
- g: 0.012 ± 0.004 mm, 0.30 ± 0.10 mm
- p: 0.020 ± 0.004 mm, 0.50 ± 0.10 mm

Terminal Configuration
- 1: Unbalanced Port
- 2: GND, or DC Bias + RF GND
- 3: Balanced Port
- 4: Balanced Port
- 5: GND
- 6: NC

Layout and Mounting Considerations
- Mount these devices with red mark facing up.
- Line width should be designed to provide proper impedance matching characteristics.

Units: mm

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**High Frequency Ceramic Solutions**

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**Equivalent Circuit**

Unbalanced Port

\[ \lambda/4 \]  \[ \lambda/4 \]

Balanced Port 1

Balanced Port 2

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**Measurement Diagram**

Port 1: Unbalanced Port

Ports 2 and 3: Balanced Port

IL = S_{ds21}

RL = S_{ss11}

Amp_balance = dB(S(2,1)/S(3,1))

Phase_balance = Phase(S(2,1)/S(3,1))

*Impedance for ports 2 and 3 = Balanced Impedance/2

**E5071B from Agilent

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**DC-Feed Recommended Capacitor**

10-12pF RF Bypass cap

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Typical Electrical Characteristics (T=25°C)

**Insertion and Return Loss**

<table>
<thead>
<tr>
<th>freq, GHz</th>
<th>RL (dB)</th>
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<tbody>
<tr>
<td>0.5</td>
<td>-25</td>
</tr>
<tr>
<td>1.0</td>
<td>-20</td>
</tr>
<tr>
<td>1.5</td>
<td>-15</td>
</tr>
<tr>
<td>2.0</td>
<td>-10</td>
</tr>
<tr>
<td>2.5</td>
<td>-5</td>
</tr>
<tr>
<td>3.0</td>
<td>0</td>
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</table>

**Amplitude and Phase Balance**

<table>
<thead>
<tr>
<th>freq, GHz</th>
<th>dif_amplitude (dB)</th>
<th>dif_phase</th>
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<tbody>
<tr>
<td>2.0</td>
<td>-2.0</td>
<td>200</td>
</tr>
<tr>
<td>2.1</td>
<td>-1.8</td>
<td>195</td>
</tr>
<tr>
<td>2.2</td>
<td>-1.6</td>
<td>190</td>
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<tr>
<td>2.3</td>
<td>-1.4</td>
<td>185</td>
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<tr>
<td>2.4</td>
<td>-1.2</td>
<td>180</td>
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<tr>
<td>2.5</td>
<td>-1.0</td>
<td>175</td>
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<tr>
<td>2.6</td>
<td>-0.8</td>
<td>170</td>
</tr>
<tr>
<td>2.7</td>
<td>-0.6</td>
<td>165</td>
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<tr>
<td>2.8</td>
<td>-0.4</td>
<td>160</td>
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<tr>
<td>2.9</td>
<td>-0.2</td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td>0</td>
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Suffix = T

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<tr>
<th>More Balun info at:</th>
<th><a href="http://www.johansontechnology.com/rfbaluns">www.johansontechnology.com/rfbaluns</a></th>
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