1:1 Transmission Line Balun with Tertiary Winding
5 - 1225 MHz

Features
- Surface Mount
- 1:1 Impedance
- Available on Tape and Reel
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible
- Excellent Temperature Stability

Description
The MABA-011085 is a 1:1 transmission line balun with tertiary winding in a low cost surface mount package.

Ideally suited for all CATV Broadband and FTTx applications.

Electrical Specifications: Freq. = 5 - 1225 MHz, $T_A = 25^\circ C$, $Z_0 = 75 \, \Omega$, $P_{IN} = 0 \, \text{dBm}$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions Frequency (MHz)</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impedance Ratio</td>
<td>5 - 300 300 - 1000 1000 - 1225</td>
<td>dB</td>
<td>1:1</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Insertion Loss 1 (Pin 1 - Pin 3)</td>
<td>5 - 300 300 - 1000 1000 - 1225</td>
<td>dB</td>
<td>0.2</td>
<td>0.4</td>
<td>0.8</td>
</tr>
<tr>
<td>Insertion Loss 2 (Pin 1 - Pin 2)</td>
<td>5 - 300 300 - 1000 1000 - 1225</td>
<td>dB</td>
<td>0.4</td>
<td>0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Amplitude Balance</td>
<td>5 - 300 300 - 1225</td>
<td>dB</td>
<td>0.7</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Phase Balance (ref value 180°)</td>
<td>5 - 300 300 - 1225</td>
<td>dB</td>
<td>-</td>
<td>-</td>
<td>±0.4</td>
</tr>
<tr>
<td>Input Return Loss (Pin 1)</td>
<td>5 - 300 300 - 1225</td>
<td>dB</td>
<td>23</td>
<td>28</td>
<td>28</td>
</tr>
</tbody>
</table>

Ordering Information
- MABA-011085 900 piece reel
- MABA-011085-TB Sample Board

Absolute Maximum Ratings
- Input RF Power: 2000 mW
- DC Current: 1500 mA
- Operating Temperature: -40°C to +125°C

1. All sample boards include 5 loose parts.

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Recommended PCB Layout\textsuperscript{5,6,7,8}

5. Recommended PCB layout shown above uses 1.6 mm FR4.
6. Grounded coplanar wave guide transmission line.
7. Trace width 0.70 mm.
8. Gap 0.57 mm.

Application Schematics

<table>
<thead>
<tr>
<th>Parts List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
</tr>
<tr>
<td>C1</td>
</tr>
</tbody>
</table>
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Typical Performance Curves: $T_A = 25^\circ\text{C}$, $Z_0 = 75\ \Omega$, $P_{\text{IN}} = 0\ \text{dBm}$

Insertion Loss (pin 1-3)

Insertion Loss (pin 1-2)

Amplitude Balance

Phase Balance

Input Return Loss (pin 1)

Balanced Output Return Loss

Full temperature plots available on request.

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