Transformer 1:1 transmission line balun
5 to 3000 MHz

Features
- Surface Mount
- 1:1 Impedance
- Excellent MoCA band performance
- Excellent amplitude and phase balance
- Can be used in both 50Ω and 75Ω systems
- 260°C Reflow Compatible
- RoHS* Compliant, Pb Free
- Available on Tape and Reel.

Description
MABA-007871-CT1A40 is a 1:1 RF Transmission Line step up transformer in a low cost, surface mount package. Ideally suited for MoCA band applications.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABA-007871-CT1A40</td>
<td>2000 piece reel</td>
</tr>
<tr>
<td>MABA-007871-CT1ATB</td>
<td>Customer Test Board</td>
</tr>
</tbody>
</table>

1. Reference Application Note M513 for reel size information.

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Electrical Specifications: $T_A = 25^\circ$C, $Z_0 = 50$ $\Omega$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Units</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss</td>
<td>5 - 50 MHz</td>
<td>dB</td>
<td>0.35</td>
<td>0.4</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>50 - 975 MHz</td>
<td></td>
<td>0.3</td>
<td>0.65</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>975 - 1525 MHz</td>
<td></td>
<td>0.3</td>
<td>2.30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1525 - 2150 MHz</td>
<td></td>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2150 - 3000 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>5 - 50 MHz</td>
<td>dB</td>
<td>12</td>
<td>15</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>50 - 975 MHz</td>
<td>13</td>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>975 - 1525 MHz</td>
<td></td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1525 - 2150 MHz</td>
<td>6</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2150 - 3000 MHz</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplitude Unbalance (Nominal 0dB)</td>
<td>5 - 50 MHz</td>
<td>dB</td>
<td>0.45</td>
<td>0.15</td>
<td>±3.8</td>
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<tr>
<td></td>
<td>50 - 975 MHz</td>
<td>0.15</td>
<td>±0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>975 - 1525 MHz</td>
<td>0.15</td>
<td>±0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1525 - 2150 MHz</td>
<td>0.38</td>
<td>±0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2150 - 3000 MHz</td>
<td>0.05</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase Unbalance (Nominal 180º)</td>
<td>5 - 50 MHz</td>
<td>o</td>
<td>6.5</td>
<td>±50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 - 975 MHz</td>
<td>0.1</td>
<td>±5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>975 - 1525 MHz</td>
<td>0.1</td>
<td>±4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1525 - 2150 MHz</td>
<td>3</td>
<td>±12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2150 - 3000 MHz</td>
<td>13</td>
<td>35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Temperature data available on request

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
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</thead>
<tbody>
<tr>
<td>Max Input Power</td>
<td>250 mW</td>
</tr>
<tr>
<td>DC current</td>
<td>200 mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +105°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>
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Typical Performance Curves: $T_A = 25^\circ$C, $Z_0 = 50$ Ω

- **Insertion Loss 1**: through pin 6 to pin 1
- **Insertion Loss 2**: coupled pin 6 to pin 3
- **Amplitude Balance**
- **Phase Balance**
- **Input Return Loss**
Case Style:

Dimensions in inches [mm] Tolerance: .xx ± .02, .xxx ± .010, except where otherwise stated

Tape & Reel Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ao</td>
<td>4.50mm +/- 0.1mm</td>
</tr>
<tr>
<td>Bo</td>
<td>4.50mm +/- 0.1mm</td>
</tr>
<tr>
<td>Ko</td>
<td>2.73mm +/- 0.1mm</td>
</tr>
<tr>
<td>W</td>
<td>12.00mm +/- 0.3mm</td>
</tr>
<tr>
<td>P1</td>
<td>8.00mm +/- 0.1mm</td>
</tr>
</tbody>
</table>