1:1 Transmission Line Transformer with Tertiary Winding
50 - 1200 MHz

Features
- 1:1 Impedance Ratio
- Surface Mount Package
- Excellent Amplitude & Phase Balance
- Suitable for all CATV, Broadband and FTTx Applications
- Available on Tape & Reel
- RoHS Compliant & Lead Free
- 260°C Reflow Compatible

Description
The MABA-010321-CT1A42 is a 1:1 transmission line transformer in a surface mount package.

Ideally suited for all CATV Broadband and FTTx applications.

Electrical Specifications: Freq. = 50 - 1200 MHz, T_A = 25°C, Z_0 = 75 Ω, P_in = 0 dBm

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency (MHz)</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impedance Ratio</td>
<td></td>
<td>dB</td>
<td>—</td>
<td>1:1</td>
<td>—</td>
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<tr>
<td>Insertion Loss 1: (Pin 6-3)</td>
<td>50 - 150</td>
<td>dB</td>
<td>0.2</td>
<td>0.4</td>
<td>—</td>
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<tr>
<td>Insertion Loss 1: (Pin 6-1)</td>
<td>50 - 350</td>
<td>dB</td>
<td>0.5</td>
<td>0.6</td>
<td>—</td>
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<tr>
<td>Amplitude Balance</td>
<td>50 - 500</td>
<td>dB</td>
<td>0.6</td>
<td>±0.35</td>
<td>—</td>
</tr>
<tr>
<td>Phase Balance</td>
<td>50 - 500</td>
<td>°</td>
<td>0.9</td>
<td>±2.0</td>
<td>—</td>
</tr>
<tr>
<td>Input Return Loss (Pin 6)</td>
<td>50 - 150</td>
<td>dB</td>
<td>20</td>
<td>22</td>
<td>—</td>
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</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency (MHz)</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
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</thead>
<tbody>
<tr>
<td>DC Current</td>
<td>500 mA</td>
<td>—</td>
<td>—</td>
<td>—</td>
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</tbody>
</table>

Ordering Information
- Part number: MABA-010321-CT1A42
- Description: 2000 piece reel

Recommended Maximum Ratings
- Input Power: 250 mW
- DC Current: 500 mA
- Operating Temperature: -40°C to +85°C
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Typical Performance Curves: $T_A = 25^\circ C$, $Z_0 = 75 \, \Omega$, $P_{IN} = 0 \, \text{dBm}$

**Insertion Loss 1: (Pin 6 to 3)**

![Insertion Loss 1 Graph](image1)

**Insertion Loss 2: (Pin 6 to 1)**

![Insertion Loss 2 Graph](image2)

**Amplitude Balance**

![Amplitude Balance Graph](image3)

**Phase Balance**

![Phase Balance Graph](image4)

**Return Loss: Input (Pin 6)**

![Return Loss Graph](image5)
Application Circuit

DC Bias Application Circuit

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50 - 1200 MHz

Outline Drawing

PCB Layout

1. Dimensions in mm.
2. Tolerance: ±0.2 mm unless otherwise noted.
3. Model number and lot code are printed on the reel.
4. Lead plating: ENIG on both sides, 0.05 to 0.1 µm gold over 3 to 6 µm nickel.

Carrier Tape Orientation

Tape & Reel Information

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<tr>
<th>Parameter</th>
<th>Units</th>
<th>Value</th>
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<tbody>
<tr>
<td>Qty per reel</td>
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<td>2000</td>
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<tr>
<td>Reel Size</td>
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<td>330</td>
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<tr>
<td>Tape Width</td>
<td>mm</td>
<td>16.00</td>
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<tr>
<td>Pitch</td>
<td>mm</td>
<td>8.00</td>
</tr>
<tr>
<td>Ao</td>
<td>mm</td>
<td>4.5</td>
</tr>
<tr>
<td>Bo</td>
<td>mm</td>
<td>6.7</td>
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<tr>
<td>Ko</td>
<td>mm</td>
<td>3.8</td>
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<tr>
<td>Orientation</td>
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</tbody>
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Reference Application Note ANI-019 for orientation

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