MABA-008639-TC41T7

E-Series RF 1:4 Transmission Line Step-up Transformer
6 -1000 MHz

Features
- Surface mount
- 1:4 Impedance Ratio
- RoHS* Compliant
- Pb Free
- 260°C reflow compatible.
- Available on Tape and Reel

Description
MABA-008639-TC41T7 is a wire welded RoHS version of ETC4-1T-7. This 1:4 RF transformer is assembled in a low cost, surface mount package.

Ideally suited for high volume cellular and wireless applications. Typical applications include single to balanced mode conversion and impedance matching.

Schematic

Pin Configuration

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Secondary Dot</td>
</tr>
<tr>
<td>2</td>
<td>Secondary CT</td>
</tr>
<tr>
<td>3</td>
<td>Secondary</td>
</tr>
<tr>
<td>4</td>
<td>Primary</td>
</tr>
<tr>
<td>5</td>
<td>Primary Dot</td>
</tr>
</tbody>
</table>

E-Series RF 1:4 Transmission Line Step-up Transformer
6 - 1000 MHz

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency</th>
<th>Units</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss</td>
<td>6 - 600 MHz</td>
<td>dB</td>
<td>—</td>
<td>—</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>600 - 1000 MHz</td>
<td></td>
<td>—</td>
<td>—</td>
<td>3.0</td>
</tr>
<tr>
<td>Amplitude Unbalance</td>
<td>6 - 1000 MHz</td>
<td>dB</td>
<td>—</td>
<td>—</td>
<td>1.0</td>
</tr>
<tr>
<td>Phase Unbalance</td>
<td>6 - 1000 MHz</td>
<td>°</td>
<td>—</td>
<td>—</td>
<td>10</td>
</tr>
</tbody>
</table>

Recommended Maximum Ratings$^{1,2}$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Power</td>
<td>250 mW</td>
</tr>
<tr>
<td>DC Current</td>
<td>30 mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-55°C to +100°C</td>
</tr>
</tbody>
</table>

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.
Typical Performance Curves

**Insertion Loss**

- Frequency (MHz)
  - 6.0
  - 206.0
  - 406.0
  - 606.0
  - 806.0
  - 1006.0

- dB
  - -0.5
  - -1.0
  - -1.5
  - -2.0
  - -2.5

**Phase Unbalance**

- Frequency (MHz)
  - 6
  - 206
  - 406
  - 606
  - 806
  - 1006

- dB
  - -2.5
  - -2.0
  - -1.5
  - -1.0
  - -0.5
  - 0.0

**Amplitude Unbalance**

- Frequency (MHz)
  - 6.0
  - 206.0
  - 406.0
  - 606.0
  - 806.0
  - 1006.0

- dB
  - -0.1
  - 0.0
  - 0.1
  - 0.2
  - 0.3
  - 0.4
  - 0.5
  - 0.6
Component Dimensions

Dimensions in mm. Tolerance: \( \pm 0.15 \)
Drawing not to scale

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ao</td>
<td>4.00mm +/-0.1mm</td>
</tr>
<tr>
<td>Bo</td>
<td>4.30mm +/-0.1mm</td>
</tr>
<tr>
<td>Ko</td>
<td>2.90mm +/-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>

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