ETC4-1-2TR

E-Series RF 1:4 Flux Coupled Step-up Transformer
2 - 800 MHz

Rev. V8

Features
- 1:4 Impedance Ratio
- CT on Secondary
- Surface Mount
- Tape and Reel Packaging Available
- RoHS Compliant, Pb Free
- Termination Finish - Sn

Description
The ETC4-1-2 is a 1:4 RF flux coupled step-up transformer in a surface mount package. Ideally suited for high volume cellular and wireless applications. Typical applications include single to balanced mode conversion and impedance matching. Parts are packaged in tape & reel.

Functional Schematic

Pin Configuration

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
<th>Pin #</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Secondary</td>
<td>4</td>
<td>Primary dot</td>
</tr>
<tr>
<td>2</td>
<td>Secondary CT</td>
<td>5</td>
<td>Primary</td>
</tr>
<tr>
<td>3</td>
<td>Secondary Dot</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electrical Specifications: Freq = 2 - 800 MHz, $T_A = 25^\circ C$, $Z_0 = 50 \Omega$, $P_{IN} = 0$ dBm

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions &amp; Frequency (MHz)</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
</table>
| Insertion Loss     | $F_L - F_U$
10 - 100
5 - 600
2 - 800  | dB     | —     | 1.21  | 1.0   |
| Amplitude Balance  | 10 - 100
2 - 800  | dB     | —     | 0.25  | 1.0   |
| Phase Balance      | 10 - 500
2 - 800  | Degrees | —     | 2.0   | 10.0  |

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETC4-1-2TR</td>
<td>2000 piece reel</td>
</tr>
</tbody>
</table>

1. Reference Application Note M513 for reel size information.

Recommended Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Power$^5$</td>
<td>250 mW</td>
</tr>
<tr>
<td>DC Current</td>
<td>30 mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-55°C to +85°C</td>
</tr>
</tbody>
</table>

2. MACOM recommends connecting unused package pins to ground.

3. Exceeding anyone or combination of these limits may cause permanent damage to this device.
4. MACOM does not recommend sustained operation near these survivability limits.
5. Specified at +25°C only.

For further information and support please visit: https://www.macom.com/support
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Typical Performance Curves: $T_A = 25^\circ C$, $Z_0 = 50 \, \Omega$, $P_{IN} = 0 \, dBm$

**Insertion Loss**

**Phase Balance**

**Amplitude Balance**

**Input Impedance**

6. Full temperature plots available on request.
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**Outline Drawing**

**PCB Layout**

**Carrier Tape Orientation**

**Tape & Reel Information**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qty per reel</td>
<td>-</td>
<td>2000</td>
</tr>
<tr>
<td>Reel Size</td>
<td>mm</td>
<td>330</td>
</tr>
<tr>
<td>Tape Width</td>
<td>mm</td>
<td>12.00</td>
</tr>
<tr>
<td>Pitch</td>
<td>mm</td>
<td>8.00</td>
</tr>
<tr>
<td>Orientation</td>
<td>-</td>
<td>F5</td>
</tr>
</tbody>
</table>

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7. Dimensions in mm.
8. Tolerance: ±0.2 mm unless otherwise noted.
9. Model number and lot code are printed on the reel.
10. Finish: Tin (Sn).

11. Recommended PCB layout shown above uses 0.8 mm FR4, Grounded coplanar wave guide, transmission line width 0.25 mm and gap 0.90 mm.

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