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>

2. MACOM recommends connecting unused package pins to ground.

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>
<tbody>
<tr>
<td>Insertion Loss</td>
<td>$F_L$—$F_U$</td>
<td>dB</td>
<td>—</td>
<td>—</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>10 - 100</td>
<td></td>
<td>—</td>
<td>1.21</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>5 - 600</td>
<td></td>
<td></td>
<td></td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>2 - 800</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplitude Balance</td>
<td>10 - 100</td>
<td>dB</td>
<td>—</td>
<td>—</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>2 - 800</td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>Phase Balance</td>
<td>10 - 500</td>
<td>Degrees</td>
<td>—</td>
<td>—</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>2 - 800</td>
<td></td>
<td></td>
<td></td>
<td>10.0</td>
</tr>
</tbody>
</table>

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</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>

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.

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DS-ETC4-1-2TR
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2 - 800 MHz

Typical Performance Curves\(^6\): \(T_A = 25^\circ\text{C}, Z_0 = 50\ \Omega, P_{\text{IN}} = 0\ \text{dBm}\)

6. Full temperature plots available on request.
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2 - 800 MHz

Outline Drawing

PCB Layout

Tape & Reel Information

Parameter | Units | Value
---|---|---
Qty per reel | - | 2000
Reel Size | mm | 330
Tape Width | mm | 12.00
Pitch | mm | 8.00
Orientation | - | F5

Reference Application Note ANI-019 for orientation

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

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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