1:1 Flux Coupled Transformer
3 - 200 MHz

Features
- 1:1 Flux Coupled Transformer
- Surface Mount Package
- Centre Tap on Secondary
- Tape and Reel Packaging Available
- 260° Reflow Compatible

Description
The MABACT0071 is a RoHS compliant 1:1 RF flux coupled transformer in a surface mount package.

Ideally suited for all CATV, Broadband applications.

Schematic

Pin Configuration3

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

3. MACOM recommends connecting all No Connection (N/C) pins to ground.

Electrical Specifications: Freq. = 3 - 200 MHz, $T_A = 25^\circ C$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Freq. Test Conditions (MHz)</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss (pin 5-1)</td>
<td>3 - 5 5 - 200</td>
<td>dB</td>
<td>—</td>
<td>1.0</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>3 - 10 10 - 200</td>
<td>dB</td>
<td>—</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Amplitude Balance</td>
<td>3 - 200</td>
<td>dB</td>
<td>—</td>
<td>0.1</td>
<td>±0.3</td>
</tr>
<tr>
<td>Phase Balance</td>
<td>3 - 200</td>
<td>°</td>
<td>—</td>
<td>0.3</td>
<td>±3.0</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>3 - 5 5 - 120 120 - 200</td>
<td>dB</td>
<td>5</td>
<td>19</td>
<td>27</td>
</tr>
</tbody>
</table>

Ordering Information1,2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABACT0071</td>
<td>2000 piece reel</td>
</tr>
<tr>
<td>MABACT0071-TB</td>
<td>Sample Board</td>
</tr>
</tbody>
</table>

1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

Absolute Maximum Ratings4,5

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Power³</td>
<td>250 mW</td>
</tr>
<tr>
<td>DC Current</td>
<td>240 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>

4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.
6. Specified at 25°C only.
Typical Performance Curves

Insertion Loss: (pin5 - pin1)

Insertion Loss: (pin5 - pin3)

Amplitude Balance

Phase Balance

Return Loss: Input (pin5)

7. Temperature plots available on request.
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3 - 200 MHz

Application Circuit

Outline Drawing

PCB Layout

Carrier Tape Orientation

Tape and Reel Information

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8. Recommended PCB layout shown above uses 1.6 mm FR4.
9. Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.
10. Dimensions in mm.
11. Tolerance: ±0.2 mm unless otherwise noted.
12. Model number and lot code printed on reel.
13. Plating finish: ENIG
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