MABAES0029

1:1 Transmission Line with Tap Transformer
50 - 1200 MHz

Features
- Surface Mount
- 1:1 Impedance Ratio
- Available on Tape & Reel
- RoHS* Compliant
- 260°C Reflow Compatible

Description
The MABAES0029 is a 1:1 transmission line transformer with tap in a low cost surface mount package.

Ideally suited for CATV Broadband applications.

Functional Schematic

Pin Configuration

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Output Thru Leg</td>
</tr>
<tr>
<td>2</td>
<td>No Connection</td>
</tr>
<tr>
<td>3</td>
<td>Output Coupled Leg</td>
</tr>
<tr>
<td>4</td>
<td>Input</td>
</tr>
<tr>
<td>5</td>
<td>Ground</td>
</tr>
</tbody>
</table>

Electrical Specifications:  \( \text{Freq.} = 50 - 1200 \text{ MHz}, \ T_A = 25^\circ \text{C}, \ Z_0 = 75 \text{ }\Omega, \ P_{\text{in}} = 0 \text{ dBm} \)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impedance Ratio</td>
<td>—</td>
<td>ratio</td>
<td>—</td>
<td>1:1</td>
<td>—</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>50 - 600 MHz</td>
<td>dB</td>
<td>0.8</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>(Pin4 - Pin3)</td>
<td>600 - 1200 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>50 - 600 MHz</td>
<td>dB</td>
<td>0.8</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>(Pin4 - Pin1)</td>
<td>600 - 1200 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplitude Balance</td>
<td>50 - 600 MHz</td>
<td>dB</td>
<td>0.1</td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>600 - 1200 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase Balance</td>
<td>50 - 600 MHz</td>
<td>deg.</td>
<td>1.0</td>
<td>3.0</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>600 - 1200 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABAES0029</td>
<td>2000 piece reel</td>
</tr>
</tbody>
</table>

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Input Power</td>
<td>0.5 W</td>
</tr>
<tr>
<td>DC Current</td>
<td>500 mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>
Typical Performance Curves

Insertion Loss (Pin 4-1)

Insertion Loss (Pin 4-3)

Phase Balance

Amplitude Balance

Electrical Specifications: $Z_0 = 75\,\Omega$, $T_A = 25^\circ\text{C}$, $P_{in} = 0\text{dBm}$
**Application Circuit**

![Application Circuit Diagram]

**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 (W)</td>
<td>mm</td>
<td>16.00</td>
</tr>
<tr>
<td>Pitch (P₁)</td>
<td>mm</td>
<td>8.00</td>
</tr>
<tr>
<td>A₀</td>
<td>mm</td>
<td>5.8</td>
</tr>
<tr>
<td>B₀</td>
<td>mm</td>
<td>7.0</td>
</tr>
<tr>
<td>K₀</td>
<td>mm</td>
<td>5.0</td>
</tr>
<tr>
<td>Orientation</td>
<td>-</td>
<td>F26</td>
</tr>
</tbody>
</table>

Reference Application note ANI-019 for orientation

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**Lead-Free Outline Drawing**

![Lead-Free Outline Drawing]

Dimensions in mm. Tolerance: ±0.2 mm unless otherwise noted. Model number and lot code are printed on the reel. Lead plating: SAC-305.