MABAES0031

1:4 E-Series, RF Flux Coupled Transformer
1 - 650 MHz

Features
- Surface Mount
- 1:4 Impedance Ratio
- CT on Secondary
- Available on Tape & Reel

Description
The MABAES0031 is a 1:4 RF flux coupled step-up transformer. This transformer is offered in a SM-138 surface mount package.

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

Functional Schematic

Pin Configuration

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

Electrical Specifications: Freq. = 1 - 650 MHz, $T_A = 25^\circ C$, $Z_0 = 50 \, \Omega$, $P_{in} = 0 \, dBm$

<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>1.4</td>
<td>—</td>
</tr>
<tr>
<td>Insertion Loss (fL - fU)</td>
<td>10 - 200 MHz 1 - 450 MHz</td>
<td>dB</td>
<td>—</td>
<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td>Amplitude Unbalance</td>
<td>10 - 200 MHz</td>
<td>dB</td>
<td>—</td>
<td>0.12</td>
<td>0.25</td>
</tr>
<tr>
<td>Phase Unbalance</td>
<td>10 - 200 MHz 1 - 500 MHz 500 - 650 MHz</td>
<td>°</td>
<td>—</td>
<td>1</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABAES0031</td>
<td>2000 piece reel</td>
</tr>
</tbody>
</table>

Absolute Maximum Ratings¹

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Input Power</td>
<td>250 mW</td>
</tr>
<tr>
<td>DC Current</td>
<td>200 mA</td>
</tr>
<tr>
<td>Operating &amp; Storage Temperature</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>

1. Operation of this device above any one of these parameters may cause permanent damage.

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DC-0007676
Typical Performance Curves @ +25°C

**Insertion Loss (Primary to Secondary Dot)**

```
Frequency (MHz)  0  130  260  390  520  650
(dB)            -3.5 -3.0 -2.5 -2.0 -1.5 -1.0
```

**Insertion Loss (Primary to Secondary)**

```
Frequency (MHz)  0  130  260  390  520  650
(dB)            -3.5 -3.0 -2.5 -2.0 -1.5 -1.0
```

**Amplitude Unbalance**

```
Frequency (MHz)  0  130  260  390  520  650
(dB)            -0.8 -0.6 -0.4 -0.2  0.0
```

**Phase Unbalance**

```
Frequency (MHz)  0  130  260  390  520  650
(degree)        160 170 180 190 200
```

All measurements performed on Hewlett Packard 8753D Network Analyzer (201 sample points, linear scale) in a 50 Ω coplanar waveguide environment.
Lead-Free Outline Drawing (SM-138)

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