MABA-009232-CT4A4B

Transformer, 4:1 Transmission Line Balun
5 to 1200 MHz

Features
- 4:1 Impedance ratio
- Surface mount
- Can be used in both 50Ω and 75Ω systems
- Available on tape and reel
- Lead-Free open package
- RoHS* Compliant and 260°C Reflow Compatible

Description
MABA-009232-CT4A4B is a 4:1 RF transmission line transformer in a low cost, surface mount package.

Ideally suited for broadband CATV applications.

Functional Schematic

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABA-009232-CT4A4B</td>
<td>2000 piece reel</td>
</tr>
<tr>
<td>MABA-009232-CT4ATB</td>
<td>Sample Board</td>
</tr>
</tbody>
</table>

1. Reference Application Note M513 for reel size information.
2. MACOM recommends connecting unused package pins to ground.

Pin Configuration

<table>
<thead>
<tr>
<th>Pin no.</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Secondary dot (Output 1)</td>
</tr>
<tr>
<td>2</td>
<td>Centre tap (Ground)</td>
</tr>
<tr>
<td>3</td>
<td>Secondary (Output 2)</td>
</tr>
<tr>
<td>4</td>
<td>Primary (Ground)</td>
</tr>
<tr>
<td>6</td>
<td>Primary dot (Input)</td>
</tr>
</tbody>
</table>

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Electrical Specifications: $T_A = 25^\circ C$, $Z_0 = 50 \, \Omega$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Units</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
</tr>
</thead>
</table>
| Insertion Loss 1 (Pin 6 to 1) | 5 - 450 MHz  
450 - 1200 MHz | dB | 0.8 | 1.3 | 1.2 |
| | | | | | 2.6 |
| Insertion Loss 2 (Pin 6 to 3) | 5 - 450 MHz  
450 - 870 MHz  
870 - 1200 MHz | dB | 0.8 | 1.3 | 1.2 |
| | | | | | 2.5 |
| | | | | | 2.2 |
| Amplitude Unbalance (Nominal 0dB) | 5 - 750 MHz  
750 - 1200 MHz | dB | 0.05 | 0.6 | ±1.0 |
| | | | | | ±2.6 |
| Phase Unbalance (Nominal 180º) | 5 - 50 MHz  
50 - 870 MHz  
870 - 1200 MHz | º | 0.4 | 3.8 | ±2 |
| | | | | | ±15 |
| | | | | | ±5.4 |
| Input Return Loss | 5 - 50 MHz  
50 - 650 MHz  
650 - 1200 MHz | dB | 15 | 10 | 7 |
| | | | | | 17 |
| | | | | | 11 |

Absolute maximum ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max input power</td>
<td>250 mW</td>
</tr>
<tr>
<td>DC current</td>
<td>200 mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +105°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>

Case style: SM-187

Dimensions in inches [mm] Tolerance: .xx ± .02, .xxx ± .010, unless otherwise stated

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

### Insertion Loss 1: through pin 6 to pin 1
- Frequency (MHz): 5, 244, 483, 722, 961, 1200
- Insertion Loss (dB): -20, -18, -16, -14, -12, -10, -8, -6, -4, -2, 0

### Insertion Loss 2: coupled pin 6 to pin 3
- Frequency (MHz): 5, 244, 483, 722, 961, 1200
- Insertion Loss (dB): -3, -2.5, -2, -1.5, -1, -0.5, 0

### Amplitude Balance
- Frequency (MHz): 5, 244, 483, 722, 961, 1200
- Amplitude Balance (dB): -30, -25, -20, -15, -10, -5, 0

### Phase Balance
- Frequency (MHz): 5, 244, 483, 722, 961, 1200
- Phase Balance (Degrees): 170, 175, 180, 185, 190

### Return Loss: Input
- Frequency (MHz): 5, 244, 483, 722, 961, 1200
- Return Loss (dB): -20, -15, -10, -5, 0, 5

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