MABA-010441-CT38A0

1:3 Transformer
5 - 1200 MHz

Features
- Surface Mount
- 1:3 Impedance
- Available on Tape and Reel
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible
- Excellent Temperature Stability
- Can be used on 50 Ω & 75 Ω Systems

Description
The MABA-010441-CT38A0 is a 1:3 transformer assembled in a surface mount package.

Ideally suited for CATV Broadband.

Electrical Specifications: Freq. = 5 - 1200 MHz, $T_A = 25^\circ$C, $Z_0 = 75$ Ω, $P_{in} = 0$ 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>—</td>
<td>—</td>
<td>1:3</td>
<td>—</td>
</tr>
<tr>
<td>Insertion Loss 1 (Pin 1 - Pin 2)</td>
<td>5 - 50 MHz</td>
<td>dB</td>
<td>0.75</td>
<td>1:3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 - 1000 MHz</td>
<td></td>
<td>1.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000 - 1200 MHz</td>
<td></td>
<td>1.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss 2 (Pin 1 - Pin 3)</td>
<td>5 - 50 MHz</td>
<td>dB</td>
<td>0.70</td>
<td>1:3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 - 1000 MHz</td>
<td></td>
<td>1.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000 - 1200 MHz</td>
<td></td>
<td>1.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplitude Unbalance</td>
<td>5 - 50 MHz</td>
<td>dB</td>
<td>0.02</td>
<td>±0.70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 - 1000 MHz</td>
<td></td>
<td>0.05</td>
<td>±0.70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000 - 1200 MHz</td>
<td></td>
<td>0.15</td>
<td>±0.80</td>
<td></td>
</tr>
<tr>
<td>Phase Balance</td>
<td>5 - 50 MHz</td>
<td>degrees</td>
<td>0.6</td>
<td>±5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 - 1200 MHz</td>
<td></td>
<td>6.6</td>
<td>±10</td>
<td></td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>5 - 50 MHz</td>
<td>dB</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 - 1000 MHz</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000 - 1200 MHz</td>
<td></td>
<td>15</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>MABA-010441-CT38A0</td>
<td>900 piece reel</td>
</tr>
<tr>
<td>MABA-010441-CT38A0-TB</td>
<td>sample board</td>
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</table>

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
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<tbody>
<tr>
<td>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 +85°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-55°C to +125°C</td>
</tr>
</tbody>
</table>

1. All sample boards include 5 loose parts.
1:3 Transformer
5 - 1200 MHz

Typical Performance Curves: $T_A = 25^\circ$C, $Z_0 = 75 \, \Omega$, $P_{IN} = 0 \, \text{dBm}$

Insertion Loss: Pin1—Pin2

Insertion Loss: Pin1—Pin3

Amplitude Balance

Phase Balance

Return Loss: Input

Return Loss: Output

Full temperature plots available on request

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1:3 Transformer
5 - 1200 MHz

Recommended DC Bias Circuit

<table>
<thead>
<tr>
<th>Cap/Ind</th>
<th>5 - 50 MHz</th>
<th>50 - 1200 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>100 nF</td>
<td>10 nF</td>
</tr>
<tr>
<td>L</td>
<td>10 μH</td>
<td>1 μH</td>
</tr>
</tbody>
</table>

Recommended Board Layout

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>900</td>
</tr>
<tr>
<td>Reel size</td>
<td>mm</td>
<td>330</td>
</tr>
<tr>
<td>Tape width</td>
<td>mm</td>
<td>16.00</td>
</tr>
<tr>
<td>Pitch</td>
<td>mm</td>
<td>12.00</td>
</tr>
<tr>
<td>A₀</td>
<td>mm</td>
<td>6.70</td>
</tr>
<tr>
<td>B₀</td>
<td>mm</td>
<td>7.50</td>
</tr>
<tr>
<td>K₀</td>
<td>mm</td>
<td>3.60</td>
</tr>
<tr>
<td>Orientation</td>
<td>-</td>
<td>F27</td>
</tr>
</tbody>
</table>

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