MABACT0062

1:1 Transformer
3 - 200 MHz

Features
- 1:1 Impedance Ratio
- Surface Mount Package
- Excellent Temperature Stability
- Can be used in both 50 Ω & 75 Ω Systems
- 260°C Reflow Compatible
- RoHS Compliant Version of ETC1-1T & MABACT0012
- Available on Tape & Reel

Description
MABACT0062 is a 1:1 RF flux coupled transformer in a surface mount package.

Ideal for high volume CATV/Broadband applications.

Electrical Specifications:  $T_A = 25^\circ C$, $Z_0 = 50 \ \Omega$ $P_{IN} = 0 \ dBm$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency Test Conditions (MHz)</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss</td>
<td>3 - 50</td>
<td>dB</td>
<td>0.2</td>
<td>0.5</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>50 - 160</td>
<td></td>
<td>0.5</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>160 - 200</td>
<td></td>
<td>0.8</td>
<td></td>
<td>1.2</td>
</tr>
<tr>
<td>Amplitude Balance (Nominal 0 dB)</td>
<td>3 - 50</td>
<td>dB</td>
<td>0.02</td>
<td>0.06</td>
<td>±0.1</td>
</tr>
<tr>
<td></td>
<td>50 - 200</td>
<td></td>
<td>0.06</td>
<td></td>
<td>±0.5</td>
</tr>
<tr>
<td>Phase Balance (Nominal 180°)</td>
<td>3 - 50</td>
<td>°</td>
<td>0.2</td>
<td>0.5</td>
<td>±1.5</td>
</tr>
<tr>
<td></td>
<td>50 - 200</td>
<td></td>
<td>0.5</td>
<td></td>
<td>±5.0</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>3 - 200</td>
<td>dB</td>
<td>10</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 - 100</td>
<td></td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electrical Specifications:  $T_A = 25^\circ C$, $Z_0 = 75 \ \Omega$ $P_{IN} = 0 \ dBm$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency Test Conditions (MHz)</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss</td>
<td>3 - 5</td>
<td>dB</td>
<td>0.5</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>5 - 65</td>
<td></td>
<td>0.6</td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>65 - 200</td>
<td></td>
<td>±0.2</td>
<td></td>
<td>±0.3</td>
</tr>
<tr>
<td>Amplitude Balance (Nominal 0 dB)</td>
<td>3 - 65</td>
<td>dB</td>
<td>0.02</td>
<td>0.04</td>
<td>±0.2</td>
</tr>
<tr>
<td></td>
<td>65 - 200</td>
<td></td>
<td>0.04</td>
<td></td>
<td>±0.3</td>
</tr>
<tr>
<td>Phase Balance (Nominal 180°)</td>
<td>3 - 65</td>
<td>°</td>
<td>0.4</td>
<td>1.2</td>
<td>±2.0</td>
</tr>
<tr>
<td></td>
<td>65 - 200</td>
<td></td>
<td>1.2</td>
<td></td>
<td>±5.0</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>3 - 5</td>
<td>dB</td>
<td>18</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 - 65</td>
<td></td>
<td>21</td>
<td></td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>65 - 100</td>
<td></td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 - 200</td>
<td></td>
<td>14</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>
MABACT0062

1:1 Transformer
3 - 200 MHz

Ordering information

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABACT0062</td>
<td>2000 piece reel</td>
</tr>
<tr>
<td>MABA-008115-CT62TB</td>
<td>Customer Test Board</td>
</tr>
</tbody>
</table>

Reference Application Note M513 for reel size information.

Recommended Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<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>

Typical Performance Curves: \( T_A = 25°C, Z_0 = 50 \, \Omega \) \( P_{IN} = 0 \, \text{dBm} \)

**Insertion Loss**

\[
\begin{array}{c}
\text{dB} \\
-1.0 \\
-0.8 \\
-0.6 \\
-0.4 \\
-0.2 \\
0.0 \\
\end{array}
\]

\[
\begin{array}{c}
\text{MHz} \\
0 \\
50 \\
100 \\
150 \\
200 \\
\end{array}
\]

**Input Return Loss**

\[
\begin{array}{c}
\text{dB} \\
0 \\
-5 \\
-10 \\
-15 \\
-20 \\
-25 \\
-30 \\
-35 \\
\end{array}
\]

\[
\begin{array}{c}
\text{MHz} \\
0 \\
50 \\
100 \\
150 \\
200 \\
\end{array}
\]

**Amplitude Balance**

\[
\begin{array}{c}
\text{dB} \\
-0.6 \\
-0.4 \\
-0.2 \\
0.0 \\
0.2 \\
0.4 \\
0.6 \\
\end{array}
\]

\[
\begin{array}{c}
\text{MHz} \\
0 \\
50 \\
100 \\
150 \\
200 \\
\end{array}
\]

**Phase Balance**

\[
\begin{array}{c}
\text{degree} \\
182 \\
181 \\
180 \\
179 \\
178 \\
177 \\
\end{array}
\]

\[
\begin{array}{c}
\text{MHz} \\
0 \\
50 \\
100 \\
150 \\
200 \\
\end{array}
\]
1. Dimensions in mm.
2. Tolerance: ±0.2 mm unless otherwise noted.
3. Model number and lot code are printed on the reel.

<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</td>
<td>mm</td>
<td>12.00</td>
</tr>
<tr>
<td>Pitch</td>
<td>mm</td>
<td>8.00</td>
</tr>
<tr>
<td>Ao</td>
<td>mm</td>
<td>4.00</td>
</tr>
<tr>
<td>Bo</td>
<td>mm</td>
<td>4.00</td>
</tr>
<tr>
<td>Ko</td>
<td>mm</td>
<td>2.90</td>
</tr>
<tr>
<td>Orientation</td>
<td>-</td>
<td>F5</td>
</tr>
</tbody>
</table>

Reference Application Note ANI-019 for orientation
MACOM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with MACOM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.