MACP-011074

14dB Coupler
5 - 3250 MHz

Features
- Coupling 14 dB Typical
- Very Wide Bandwidth
- Excellent RF Performance & Temperature Stability
- Surface Mount Package
- Available on Tape and Reel
- RoHS* Compliant and Lead Free
- 260°C Reflow Compatible
- Suitable for DOCSIS 3.1

Description
The MACP-011074 is a wire wound ferrite based 14 dB coupler on a compact surface mount package.

Ideally suited for CATV Broadband applications.

Electrical Specifications: Freq. = 5 - 3250 MHz, T_A = 25°C, Z_0 = 75 Ω, 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>Coupling (pin 3-6)</td>
<td>5 - 3250</td>
<td>dB</td>
<td>13</td>
<td>14.0</td>
<td>15.6</td>
</tr>
<tr>
<td>Main Line Loss (pin 3-2)</td>
<td>5 - 1500 1500 - 3250</td>
<td>dB</td>
<td>—</td>
<td>1.0</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
<td>3.6</td>
</tr>
<tr>
<td>Input Return Loss (pin 3)</td>
<td>5 - 1000 1000 - 3250</td>
<td>dB</td>
<td>17</td>
<td>22</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Output Return Loss (pin 2)</td>
<td>5 - 1000 1000 - 3250</td>
<td>dB</td>
<td>17</td>
<td>25</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Coupling Return Loss (pin 6)</td>
<td>5 - 1000 1000 - 3250</td>
<td>dB</td>
<td>15</td>
<td>22</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Isolation (pin 3-1)</td>
<td>5 - 1000 1000 - 3250</td>
<td>dB</td>
<td>27</td>
<td>36</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACP-011074</td>
<td>bulk</td>
</tr>
<tr>
<td>MACP-011074-TB</td>
<td>Sample Board</td>
</tr>
</tbody>
</table>

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input RF Power*</td>
<td>1 W</td>
</tr>
<tr>
<td>DC Current</td>
<td>0.5 A</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>

3. MACOM recommends connecting unused package pins to ground.

1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

ADVANCE: Data Sheets contain information regarding a product MACOM is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

For further information and support please visit: https://www.macom.com/support

DC-0021359
Typical Performance Curves: $P_{IN} = 0 \, \text{dBm, } T_A = 25^\circ C, \, Z_0 = 75 \, \Omega$

7. Temperature plots available on request
**MACP-011074**

14dB Coupler
5 - 3250 MHz

---

**Recommended PCB Footprint**

**Outline Drawing**

**Application Schematic**

**Carrier Tape Orientation**

**Tape & Reel Information**

- **Parameter**
  - Qty per reel: 2000
  - Reel Size: 330 mm
  - Tape Width: 16.0 mm
  - Pitch: 8.0 mm
  - Orientation: F45

Reference Application Note ANI-019 for orientation

---

**ADVANCE:** Data Sheets contain information regarding a product MACOM is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

For further information and support please visit: [https://www.macom.com/support](https://www.macom.com/support)
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.

ADVANCE: Data Sheets contain information regarding a product MACOM is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

For further information and support please visit: https://www.macom.com/support