MACP-011054

9 dB Coupler
5 - 1225 MHz

Features
- 9 dB Coupling Ratio
- Surface Mount Package
- Available on Tape & Reel
- High isolation from 100 - 700 MHz
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

Description
The MACP-011054 is a 9 dB coupler in a surface mount package.

Ideally suited for CATV, Full Duplex and DOCSIS 3.1 applications.

Electrical Specifications: Freq. = 5 - 1225 MHz, \( T_A = +25^\circ C \), \( Z_0 = 75 \Omega \), \( P_{IN} = 0 \) dBm

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Freq. Test Conditions (MHz)</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coupling Ratio</td>
<td>—</td>
<td>dB</td>
<td>—</td>
<td>9</td>
<td>—</td>
</tr>
<tr>
<td>Coupling (Pin 1 - Pin 3)</td>
<td>5 - 1225</td>
<td>dB</td>
<td>8.5</td>
<td>9.0</td>
<td>9.5</td>
</tr>
<tr>
<td>Main Line Loss (Pin 1 - Pin 5)</td>
<td>5 - 700 700 - 1225</td>
<td>dB</td>
<td>—</td>
<td>1.4</td>
<td>1.65</td>
</tr>
<tr>
<td></td>
<td>5 - 100 100 - 700 700 - 1225</td>
<td>dB</td>
<td>35</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td>Isolation (Pin 5 - Pin 3)</td>
<td></td>
<td></td>
<td>40</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>26</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Input Return Loss (Pin 1)</td>
<td>5 - 700 700 - 1225</td>
<td>dB</td>
<td>15</td>
<td>17</td>
<td>—</td>
</tr>
<tr>
<td>Output Return Loss (Pin 5)</td>
<td>5 - 700 700 - 1225</td>
<td>dB</td>
<td>20</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>Coupling Return Loss (Pin 3)</td>
<td>5 - 700 700 - 1225</td>
<td>dB</td>
<td>17</td>
<td>20</td>
<td>—</td>
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</table>

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACP-011054</td>
<td>900 piece reel</td>
</tr>
<tr>
<td>MACP-011054-TB</td>
<td>Sample Board</td>
</tr>
</tbody>
</table>

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

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power</td>
<td>2 W</td>
</tr>
<tr>
<td>DC Current</td>
<td>500 mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>

4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.
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Typical Performance Curves

1. Coupling (pin1-3)
2. Mainline Loss (pin1-5)
3. Input Return Loss (pin1)
4. Output Return Loss (pin5)
5. Coupling Return Loss (pin3)
6. Isolation (pin3-5)

6. Full temperature plots available on request.
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Application Schematic

Outline Drawing

Recommended Board Layout

Carrier Tape Orientation

Tape & Reel Information

Parameter | Units | Value
---|---|---
Qty per reel | — | 900
Reel Size | mm | 330
Tape Width | mm | 16.0
Pitch | mm | 12.0
Orientation | — | F33

Reference Application Note ANI-019 for orientation

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