17.3 dB Coupler
5 - 2000 MHz

Features
• Surface Mount Package
• 17.3 dB Coupler
• 260°C Reflow Compatible
• RoHS Compliant and Lead Free
• Available on Tape and Reel

Description
The MACP-011068 is a 17.3 dB coupler offered in a surface mount package.

Ideally suited for 75 Ω power monitoring in CATV DOCSIS 3.1 nodes and line extenders.

Functional Schematic

Pin Configuration

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
<th>Pin #</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Input</td>
<td>4</td>
<td>External 75 Ω</td>
</tr>
<tr>
<td>2</td>
<td>Ground</td>
<td>5</td>
<td>Not Connected</td>
</tr>
<tr>
<td>3</td>
<td>Coupled</td>
<td>6</td>
<td>Output</td>
</tr>
</tbody>
</table>

1. MACOM recommends connecting unused package pins to ground.

Electrical Specifications: Freq. = 5 - 2000 MHz, $T_A = 25^\circ C$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$

<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 (pin1-3)</td>
<td>5 - 2000</td>
<td>dB</td>
<td>16.8</td>
<td>17.3</td>
<td>17.8</td>
</tr>
</tbody>
</table>
| Main Line Loss (pin 1-6)| 5 - 1225
1225 - 1800
1800 - 2000 | dB | | 0.6 | 1.1 | 1.4 | 0.7 | 1.25 | 1.6 |
| Input Return Loss (pin 1)| 5 - 1225
1225 - 1800
1800 - 2000 | dB | 20 | 18 | 16 | 24 | 20 |
| Output Return Loss (pin 6)| 5 - 1225
1225 - 1800
1800 - 2000 | dB | 18 | 15 | 14 | 26 | | 19 | 17 | — |
| Coupled Return Loss (pin 3)| 5 - 1225
1225 - 1800
1800 - 2000 | dB | 20 | 20 | 20 | 27 | 25 | 23 | — |
| Isolation (Pin 1-4)     | 5 - 1225
1225 - 1800
1800 - 2000 | dB | 26 | 21 | 20 | 34 | 26 | 23 | — |
Ordering Information\(^2,3\)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACP-011068</td>
<td>900 piece reel</td>
</tr>
<tr>
<td>MACP-011068-TB</td>
<td>Sample Board</td>
</tr>
</tbody>
</table>

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

Absolute Maximum Ratings\(^4,5\)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power(^6)</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.
6. Specified at +25°C only and measured at 800 MHz.

Application Schematic

[Diagram of the 17.3 dB Coupler]
Electrical Specifications: $T_A = 25^\circ C$, $0 \quad Z_0 = 75 \Omega$, $P_{in} = 0 \text{ dBm}$
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PCB Layout

7. Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

Outline Drawing

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

Carrier Tape Orientation

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>16.0</td>
</tr>
<tr>
<td>Pitch</td>
<td>mm</td>
<td>12.0</td>
</tr>
<tr>
<td>Orientation</td>
<td>-</td>
<td>F15</td>
</tr>
</tbody>
</table>

Reference Application Note ANI-019 for orientation
17.3 dB Coupler
5 - 2000 MHz

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