MACP-011059

12 dB Coupler
5 - 1250 MHz

Features
- 12 dB Coupling Ratio
- Surface Mount
- Available on Tape and Reel
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

Description
The MACP-011059 is a 12 dB coupler in a low cost, surface mount package.

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

Electrical Specifications: Freq. = 5 - 1250 MHz, \( T_A = 25°C \), \( Z_0 = 75 \Omega \), \( P_{IN} = 0 \text{ dBm} \)

<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>Coupling Ratio</td>
<td>—</td>
<td>dB</td>
<td>—</td>
<td>12</td>
<td>—</td>
</tr>
<tr>
<td>Coupling (Pin 1- Pin 3)</td>
<td>5 - 1250 MHz</td>
<td>dB</td>
<td>11.5</td>
<td>12</td>
<td>12.5</td>
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<tr>
<td>Main Line Loss (Pin 1- Pin 5)</td>
<td>5 - 700 MHz 700 - 1250 MHz</td>
<td>dB</td>
<td>—</td>
<td>0.75</td>
<td>0.95</td>
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<tr>
<td>Isolation (Pin 5- Pin 3)</td>
<td>5 - 700 MHz 700 - 1250 MHz</td>
<td>dB</td>
<td>28</td>
<td>32</td>
<td>23</td>
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<tr>
<td>Input Return Loss (Pin 1)</td>
<td>5 - 1250 MHz</td>
<td>dB</td>
<td>18</td>
<td>22</td>
<td>—</td>
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<tr>
<td>Output Return Loss (Pin 5)</td>
<td>5 - 1250 MHz</td>
<td>dB</td>
<td>18</td>
<td>26</td>
<td>—</td>
</tr>
<tr>
<td>Coupling Return Loss (Pin 3)</td>
<td>5 - 1250 MHz</td>
<td>dB</td>
<td>18</td>
<td>25</td>
<td>—</td>
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</tbody>
</table>

Ordering Information
- MACP-011059: 900 piece reel
- MACP-011059-TB: Sample Board

Absolute Maximum Ratings
- Input Power: 2 W
- DC Current: 500 mA
- Operating Temperature: -40°C to +85°C

1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.
3. MACOM recommends connecting unused package pins to ground.
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

6. Full temperature plots available on request.
Application Schematic

Recommended Board Layout

7. Recommended PCB layout shown above uses 1.6 mm FR4, rounded 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 printed on reel.

Tape & Reel Information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Qty per reel</td>
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<tr>
<td>Reel Size</td>
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<tr>
<td>Tape Width</td>
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<tr>
<td>Pitch</td>
<td>mm</td>
<td>12.0</td>
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<tr>
<td>Orientation</td>
<td>-</td>
<td>F33</td>
</tr>
<tr>
<td>Reference</td>
<td>Note</td>
<td>ANI-019 for orientation</td>
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