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>
</tr>
</tbody>
</table>
| Main Line Loss (Pin 1- Pin 5) | 5 - 700 MHz
700 - 1250 MHz | dB | — | 0.75 | 0.95 | 1.2 |
| Isolation (Pin 5- Pin 3)   | 5 - 700 MHz
700 - 1250 MHz | dB | 28 | 32 | 23 |
| Input Return Loss (Pin 1)  | 5 - 1250 MHz           | dB    | 18   | 22   | —    |
| Output Return Loss (Pin 5) | 5 - 1250 MHz           | dB    | 18   | 26   | —    |
| Coupling Return Loss (Pin 3) | 5 - 1250 MHz | dB | 18 | 25 | — |

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

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DC-0018762
Typical Performance Curves

6. Full temperature plots available on request.
Application Schematic

Recommended Board Layout

- 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

- Dimensions in mm.
- Tolerance: ±0.2 mm unless otherwise noted.
- Model number and lot code printed on reel.
- Finish: Electroless Nickel Immersion Gold.

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>
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<tr>
<td>Pitch</td>
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<td>12.0</td>
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<tr>
<td>Orientation</td>
<td>-</td>
<td>F33</td>
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Reference Application Note ANI-019 for orientation.
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