7.5 dB Coupler
5 - 1225 MHz

Features
- 7.5 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-011051 is a 7.5 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>Test 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>7.5</td>
<td>—</td>
</tr>
<tr>
<td>Coupling (Pin 1 - Pin 3)</td>
<td>5 - 1225</td>
<td>dB</td>
<td>7.0</td>
<td>7.5</td>
<td>8.0</td>
</tr>
<tr>
<td>Main Line Loss (Pin 1 - Pin 5)</td>
<td>5 - 700 700 - 1225</td>
<td>dB</td>
<td>—</td>
<td>1.8</td>
<td>2.0</td>
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<tr>
<td>Isolation (Pin 5 - Pin 3)</td>
<td>5 - 100 100 - 700 700 - 1225</td>
<td>dB</td>
<td>28 40 26</td>
<td>35 42 29</td>
<td>—</td>
</tr>
<tr>
<td>Input Return Loss (Pin 1)</td>
<td>5 - 700 700 - 1225</td>
<td>dB</td>
<td>15 15</td>
<td>17 16</td>
<td>—</td>
</tr>
<tr>
<td>Output Return Loss (Pin 5)</td>
<td>5 - 700 700 - 1225</td>
<td>dB</td>
<td>18 18</td>
<td>26 20</td>
<td>—</td>
</tr>
<tr>
<td>Coupling Return Loss (Pin 3)</td>
<td>5 - 700 700 - 1225</td>
<td>dB</td>
<td>15 15</td>
<td>18 16</td>
<td>—</td>
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</tbody>
</table>

Ordering Information
- MACP-011051 900 piece reel
- MACP-011051-TB Sample Board

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
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</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>
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</tbody>
</table>

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

**Coupling (pin 1 - 3)**

**Mainline Loss (pin 1 - 5)**

**Input Return Loss (pin 1)**

**Output Return Loss (pin 5)**

**Coupling Return Loss (pin 3)**

**Isolation (pin 3 - 5)**
Application Schematic

Recommended Board Layout

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

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

6. 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.
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