MACP-009945-CH0670

Broadband CATV 17.5 dB Directional Coupler
5 to 1200 MHz

Features
• Surface Mount
• Coupling 17.5dB Typical
• Excellent Temperature stability
• 260°C Reflow Compatible
• RoHS* Compliant, lead free
• Available on Tape and Reel.

Description
M/A-COM Technology Solutions MACP-00945-CH0670 is a low cost 17.5dB directional coupler designed in a low cost, surface mount package. Ideally suited for high volume CATV/Broadband applications. Suitable for use in 50 Ohm and 75 Ohm systems.

Note:
There is no orientation dot on the bottom of the PCB.

Pin Configuration

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Output</td>
</tr>
<tr>
<td>2</td>
<td>Not Connected (ground)</td>
</tr>
<tr>
<td>3</td>
<td>Isolated (external 75 Ohm Load)</td>
</tr>
<tr>
<td>4</td>
<td>Coupling</td>
</tr>
<tr>
<td>5</td>
<td>Ground</td>
</tr>
<tr>
<td>6</td>
<td>Input</td>
</tr>
</tbody>
</table>

Note: Reference Application Note M513 for reel size information.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACP-009945-CH0670</td>
<td>900 piece reel</td>
</tr>
<tr>
<td>MACP-009945-CH06TB</td>
<td>Customer Test Board</td>
</tr>
</tbody>
</table>

**Electrical Specifications:** \( T_A = 25°C, \ 0 \text{dBm}, \ Z_0 = 75Ω, \ P_{in} = 0 \text{dBm} \)  

*Monitored during production tune/test.*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Units</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
</tr>
</thead>
</table>
| Main Line Loss (Pin 6-1) forward * | 5 - 870 MHz  
870 - 1002 MHz  
1002 - 1200 MHz | dB | - | 0.5 | 1.0 |
| Main Line Loss (Pin 3-4) Reverse * | 5 - 870 MHz  
870 - 1002 MHz  
1002 - 1200 MHz | dB | - | 0.5 | 1.0 |
| Coupling -17.5dB (Pin 6-4) Forward * | 5 - 1002 MHz  
1002 - 1200 MHz | dB | - | 17.5 | ±0.5 |
| Coupling -17.5dB (Pin 1-3) Reverse * | 5 - 200 MHz  
200 - 500 MHz  
500 - 870 MHz  
870 - 1002 MHz  
1002 - 1200 MHz | dB | - | 17.5 | ±0.7 |
| Input Return Loss (Pin 6) * | 5 - 870 MHz  
870 - 1002 MHz  
1002 - 1200 MHz | dB | 22 | 27 | - |
| Output Return Loss (Pin 1) * | 5 - 870 MHz  
870 - 1002 MHz  
1002 - 1200 MHz | dB | 18 | 23 | - |
| Coupling Return Loss (Pin 4) * | 5 - 870 MHz  
870 - 1002 MHz  
1002 - 1200 MHz | dB | 15 | 20 | - |
| Directivity | 5 - 870 MHz  
870 - 1002 MHz  
1002 - 1200 MHz | dB | 30 | 40 | - |
| Inductance @ 5 MHz (Pins 6-1 & 4-3) | 5 MHz | nH | 240 | 245 | 260 |

**Recommended Maximum Ratings**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF power</td>
<td>250mW</td>
</tr>
<tr>
<td>DC current</td>
<td>30mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>

**Application Circuit**

[Diagram of the application circuit]

**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Typical Performance Curves: $T_A = 25°C$, $0\text{dBm}$, $Z_0 = 75\Omega$, $P_{in} = 0\text{dBm}$

**Coupling Forward (Pin 6 to 4)**

![Graph showing coupling forward](image1)

**Return Loss: Input (Pin 6)**

![Graph showing return loss input](image2)

**Main Line Loss Forward (Pin 6-1)**

![Graph showing main line loss forward](image3)

**Return Loss: Output (Pin 1)**

![Graph showing return loss output](image4)

**Main Line Loss Reverse (Pin 3-4)**

![Graph showing main line loss reverse](image5)

**Return Loss: Coupled (Pin 4)**

![Graph showing return loss coupled](image6)