E-Series 75 Ohm Coupler
5 - 1000 MHz

Features
- Coupling 13db Typical
- Surface Mount
- Tape and Reel Packaging available

Description
M/A-COM’s EMDC-13-1-75 is a high performance 75 Ohm Coupler, in an SM-22, surface mount package. The EMDC-13-1-75 is designed for use in high volume CATV applications. Typical applications include Set-top Boxes, Network Interface Units, Cable Amplifiers and Headend equipment.

Electrical Specifications @25°C

<table>
<thead>
<tr>
<th>Frequency Range 5 - 1000 MHz</th>
<th>Units</th>
<th>Nominal</th>
<th>Typical</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mainline Loss</td>
<td>dB</td>
<td>—</td>
<td>1.5</td>
<td>—</td>
<td>2.2</td>
</tr>
<tr>
<td>5 - 50 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 - 500 MHz</td>
<td></td>
<td></td>
<td>1.3</td>
<td>—</td>
<td>2.0</td>
</tr>
<tr>
<td>500 - 1000 MHz</td>
<td></td>
<td></td>
<td>1.3</td>
<td>—</td>
<td>2.0</td>
</tr>
<tr>
<td>Coupling</td>
<td>dB</td>
<td>13 ± 1.1</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5 - 1000 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coupling Flatness</td>
<td>dB</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.9</td>
</tr>
<tr>
<td>Directivity</td>
<td>dB</td>
<td>—</td>
<td>25</td>
<td>20</td>
<td>—</td>
</tr>
<tr>
<td>5 - 50 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 - 500 MHz</td>
<td></td>
<td></td>
<td>20</td>
<td>15</td>
<td>—</td>
</tr>
<tr>
<td>500 - 1000 MHz</td>
<td></td>
<td></td>
<td>13</td>
<td>7</td>
<td>—</td>
</tr>
<tr>
<td>Return Loss, all Ports</td>
<td>dB</td>
<td>—</td>
<td>14</td>
<td>8</td>
<td>—</td>
</tr>
<tr>
<td>5 - 1000 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please Note that the photograph above indicates package shape only, unit may be wired differently.
**Absolute Maximum Ratings**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Power</td>
<td>250 mW</td>
</tr>
<tr>
<td>DC Current</td>
<td>30 mA</td>
</tr>
<tr>
<td>Operating/Storage Temperature</td>
<td>-20°C to +85°C</td>
</tr>
</tbody>
</table>

**Operating Characteristics**

<table>
<thead>
<tr>
<th>Function</th>
<th>Pin No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>3</td>
</tr>
<tr>
<td>Output</td>
<td>4</td>
</tr>
<tr>
<td>Coupled</td>
<td>1</td>
</tr>
<tr>
<td>Ground</td>
<td>2</td>
</tr>
<tr>
<td>Case Ground</td>
<td>—</td>
</tr>
<tr>
<td>External 75 Ohms</td>
<td>5</td>
</tr>
<tr>
<td>Not Connected</td>
<td>—</td>
</tr>
</tbody>
</table>

**Typical Performance @ 25°C**

- **Mainline Loss**
  - Frequency (MHz) vs. dB
  - Frequency (MHz) vs. dB

- **Directivity**
  - Frequency (MHz) vs. dB

- **Coupling**
  - Frequency (MHz) vs. dB

- **Input Return Loss**
  - Frequency (MHz) vs. dB

- **Output Return Loss**
  - Frequency (MHz) vs. dB

- **Coupling Return Loss**
  - Frequency (MHz) vs. dB