MM01

**GaAs MMIC**
**Directional Coupler**
**2-18 GHz**

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**Features**

- Operating Frequency: 2-18GHz
- Insertion Loss: 1.25dB @ 18GHz
- Coupling: 12dB
- Coupling Flatness: ± 2dB
- Die Size: 3 x 1.5 x 0.1 mm

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**Typical Applications**

- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

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**Electrical Specifications**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>2-18</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>1</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Coupling</td>
<td>10.3</td>
<td>12</td>
<td>14.3</td>
<td>dB</td>
</tr>
<tr>
<td>Coupling Flatness</td>
<td>±2</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Return Loss</td>
<td>15</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Isolation</td>
<td>20</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
</tbody>
</table>

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**Functional Block Diagram**

Functional block diagram showing the coupling and load connections. The diagram includes ports labeled 1 (IN), 2 (OUT), 5 (LOAD), and 6 (LOAD CR).
Insertion Loss

Coupling

Isolation

Return Loss
** MMC01 **

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Directional Coupler  
2-18GHz

** Outline Drawing: **
All Dimensions in mm

<table>
<thead>
<tr>
<th>Pad Number</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IN</td>
<td>RF input</td>
</tr>
<tr>
<td>2</td>
<td>OUT</td>
<td>RF output</td>
</tr>
<tr>
<td>3</td>
<td>CR</td>
<td>Negative direction coupling port</td>
</tr>
<tr>
<td>4, 5</td>
<td>LOAD</td>
<td>50Ω Load</td>
</tr>
<tr>
<td>6</td>
<td>CI</td>
<td>Positive direction coupling port</td>
</tr>
<tr>
<td>Die bottom</td>
<td>GND</td>
<td>Die bottom must be connected to RF/DC ground.</td>
</tr>
</tbody>
</table>

** Notes: **
1. Die thickness: 100um  
2. Typical bond pad is 100*100 μm²  
3. Bond pad metalization: Gold  
4. Backside metalization: Gold  
5. Backside of the die is grounded  
6. No connection required for unlabeled bond pads