**ITF TECHNOLOGY**

The ITF High Directivity Wide Band LGA Coupler is based on thin-film multilayer technology. The technology provides a miniature part with excellent high frequency performance and rugged construction for reliable automatic assembly.

The Wide Band High Directivity Coupler displays a stable coupling factor over a wide frequency band.

**APPLICATIONS**
- Mobile communications
- Satellite TV receivers
- GPS
- Vehicle location systems
- Wireless LAN’s

**LAND GRID ARRAY ADVANTAGES**
- Inherent Low Profile
- Self Alignment during Reflow
- Excellent Solderability
- Low Parasitics
- Better Heat Dissipation

**DIMENSIONS (Bottom View)**

<table>
<thead>
<tr>
<th></th>
<th>mm (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>1.00±0.05  (0.040±0.002)</td>
</tr>
<tr>
<td>W</td>
<td>0.58±0.04  (0.023±0.002)</td>
</tr>
<tr>
<td>T</td>
<td>0.35±0.05  (0.014±0.002)</td>
</tr>
<tr>
<td>A</td>
<td>0.20±0.05  (0.008±0.002)</td>
</tr>
<tr>
<td>B</td>
<td>0.18±0.05  (0.007±0.002)</td>
</tr>
<tr>
<td>S, H</td>
<td>0.05±0.05 (0.002±0.002)</td>
</tr>
</tbody>
</table>

**TERMINALS (Top View)**

**Recommended Pad Layout Dimensions**

<table>
<thead>
<tr>
<th></th>
<th>mm (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td>0.20 (0.008)</td>
</tr>
<tr>
<td>Coupling</td>
<td>0.31 (0.012)</td>
</tr>
<tr>
<td>Out</td>
<td>0.53 (0.021)</td>
</tr>
<tr>
<td>IN</td>
<td>0.15 (0.006)</td>
</tr>
</tbody>
</table>

**HOW TO ORDER**

<table>
<thead>
<tr>
<th>CP</th>
<th>0402</th>
<th>W</th>
<th>XXXX</th>
<th>X</th>
<th>N</th>
<th>TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Wide Band</td>
<td>Frequency (MHz)</td>
<td>Sub-Type</td>
<td>LGA Termination</td>
<td>Sn100</td>
<td>Taped &amp; Reeled</td>
</tr>
</tbody>
</table>

**QUALITY INSPECTION**

Finished parts are 100% tested for electrical parameters and visual characteristics. Each production lot is evaluated on a sample basis for:
- Static Humidity: 85°C, 85% RH, 160 hours
- Endurance: 125°C, Iₚ, 4 hours

**TERMINATION**

Nickel/Lead Free solder coating compatible with automatic soldering technologies: reflow, wave soldering, vapor phase and manual.

**OPERATING TEMPERATURE**

-40°C to +85°C

**POWER RATING**

3W RF Continuous
Thin Film Directional Couplers
Wide Band High Directivity

CP0402W2700FNTR

Directional Coupler Type CP0402W2700FNTR

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CP0402W2700FNTR</td>
<td>700-2,700</td>
<td>24±2</td>
<td>0.3</td>
<td>18</td>
<td>20</td>
</tr>
</tbody>
</table>

Frequency MHz

Coupling R Loss isolation dB

I Loss dB
GENERAL DESCRIPTION
These jigs are designed for testing the CP0402W2700FNTR High Directivity Couplers using a Vector Network Analyzer. They consist of a dielectric substrate, having 50Ω microstrips as conducting lines and a bottom ground plane located at a distance of 0.254mm (0.010”) from the microstrips. The substrate used is Neltec’s NH9338ST0254C1BC. The connectors are SMA type (female), ‘Johnson Components Inc.’ Product P/N: 142-0701-841. Both a measurement jig and a calibration jig are provided. The calibration jig is designed for a full 2-port calibration, and consists of an open line, short line and through line. LOAD calibration can be done by a 50Ω SMA termination.

MEASUREMENT PROCEDURE
When measuring a component, it can be either soldered or pressed using a non-metallic stick until all four ports touch the appropriate pads. Set the VNA to the relevant frequency band. Connect the VNA using a 10dB attenuator on the jig terminal connected to port 2. Follow the VNA’s instruction manual and use the calibration jig to perform a full 2-Port calibration in the required bandwidths.

Place the coupler on the measurement jig as follows:
- GND (Coupler) ➔ Connector 1 (Jig)
- Coupling (Coupler) ➔ Connector 2 (Jig)
- IN (Coupler) ➔ Connector 3 (Jig)
- Out (Coupler) ➔ Connector 4 (Jig)

To measure I. Loss connect:
- Connector 3 (Jig) ➔ Port 1 (VNA)
- Connector 4 (Jig) ➔ Port 2 (VNA)
- Connector 2 (Jig) ➔ 50Ω

To measure R. Loss and Coupling connect:
- Connector 3 (Jig) ➔ Port 1 (VNA)
- Connector 2 (Jig) ➔ Port 2 (VNA)
- Connector 4 (Jig) ➔ 50Ω

To measure Isolation connect:
- Connector 4 (Jig) ➔ Port 1 (VNA)
- Connector 3 (Jig) ➔ 50Ω
- Connector 2 (Jig) ➔ Port 2 (VNA)