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) mm (inches)

<table>
<thead>
<tr>
<th>Letter</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>Width</td>
<td>1.00±0.05 (0.040±0.002)</td>
</tr>
<tr>
<td>W</td>
<td>Width</td>
<td>0.58±0.04 (0.023±0.002)</td>
</tr>
<tr>
<td>T</td>
<td>Thickness</td>
<td>0.35±0.05 (0.014±0.002)</td>
</tr>
<tr>
<td>A</td>
<td>Height</td>
<td>0.20±0.05 (0.008±0.002)</td>
</tr>
<tr>
<td>B</td>
<td>Height</td>
<td>0.18±0.05 (0.007±0.002)</td>
</tr>
<tr>
<td>S, H</td>
<td>Thickness</td>
<td>0.05±0.05 (0.002±0.002)</td>
</tr>
</tbody>
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TERMINALS (Top View)

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

HOW TO ORDER

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>CP</td>
<td>Type</td>
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<tr>
<td>0402</td>
<td>Wide Band</td>
</tr>
<tr>
<td>W</td>
<td>Frequency (MHz)</td>
</tr>
<tr>
<td>XXXX</td>
<td>Sub-Type</td>
</tr>
<tr>
<td>X</td>
<td>LGA Termination Sn100</td>
</tr>
<tr>
<td>N</td>
<td>Taped &amp; Reeled</td>
</tr>
<tr>
<td>TR</td>
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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, Ia, 4 hours

Recommended Pad Layout Dimensions mm (inches)

0.20 (0.008) 0.31 (0.012)
0.53 (0.021) 0.15 (0.006)
Thin Film Directional Couplers
Wide Band High Directivity

CP0402W2700FNTR

Directional Coupler Type CP0402W2700FNTR

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<tbody>
<tr>
<td>CP0402W2700FNTR</td>
<td>700-2,700</td>
<td>24±2</td>
<td>0.3</td>
<td>18</td>
<td>20</td>
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</table>
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)  IN (Coupler) ↔ Connector 3 (Jig)
Coupling (Coupler) ↔ Connector 2 (Jig)  Out (Coupler) ↔ Connector 4 (Jig)

To measure I. Loss connect:

Connector 3 (Jig) ↔ Port 1 (VNA)  Connector 2 (Jig) ↔ 50Ω
Connector 4 (Jig) ↔ Port 2 (VNA)

To measure R. Loss and Coupling connect:

Connector 3 (Jig) ↔ Port 1 (VNA)  Connector 4 (Jig) ↔ 50Ω
Connector 2 (Jig) ↔ Port 2 (VNA)

To measure Isolation connect:

Connector 4 (Jig) ↔ Port 1 (VNA)  Connector 2 (Jig) ↔ Port 2 (VNA)
Connector 3 (Jig) ↔ 50Ω