

## 6 to 18GHz 20dB Asymmetric Coupler

**FPC06913**

[www.knowlesc capacitors.com](http://www.knowlesc capacitors.com)

### DESCRIPTION

DLI introduces its new high frequency, wide band surface mountable catalog direction couplers. These couplers incorporate DLI's high dielectric ceramic materials which provide small size and minimal performance variation over temperature. They are available in symmetrical and Asymmetrical versions

### FEATURES

- Small Size
- Solder Surface Mount Package
- Moisture Sensitivity Level: MSL1
- Frequency Stable over Temperature
- Operating & Storage Temp: -55°C to +125°C
- Characteristic Impedance: 50Ω

### Packaging and Ordering Information:

To request Tape and Reel packaging, please order part number FPC06913-T, see additional data on page 5.



### SPECIFICATIONS\*

Parameter	Frequency (GHz)	Min	Max
Passband Insertion Loss* (dB)	6-18		1
Passband Return Loss (dB)		15	
Coupling (dB)		20	21.5
Directivity (dB)		10	
CW Input Power** (W)			10
$\theta_{JC} \left( \frac{^{\circ}C}{W} \right)$	7.5		
Size (L x W x H)	0.180 x 0.110 x 0.015 in 4.572 x 2.794 x 0.381 mm		

\*Electrical specifications based on typical mounted performance at room temperature. Insertion loss shall vary  $\pm 0.5$ dB over temperature.

\*\* Power rating assumes the component will be mounted to a PCB with good thermally conducting ground via's as outlined in the recommended PCB layout that are connected to an adequate heat sink. Max power is based on 125°C base temperature.

Information in this document is for informational and guideline purposes only. All information regarding the Product described in this datasheet is subject to change from time to time at Knowles Precision Devices' sole discretion. It is the customer's sole responsibility to evaluate the suitability of the Product in the customer's particular application. Knowles Precision Devices assumes no responsibility or liability for the use of the information contained within.

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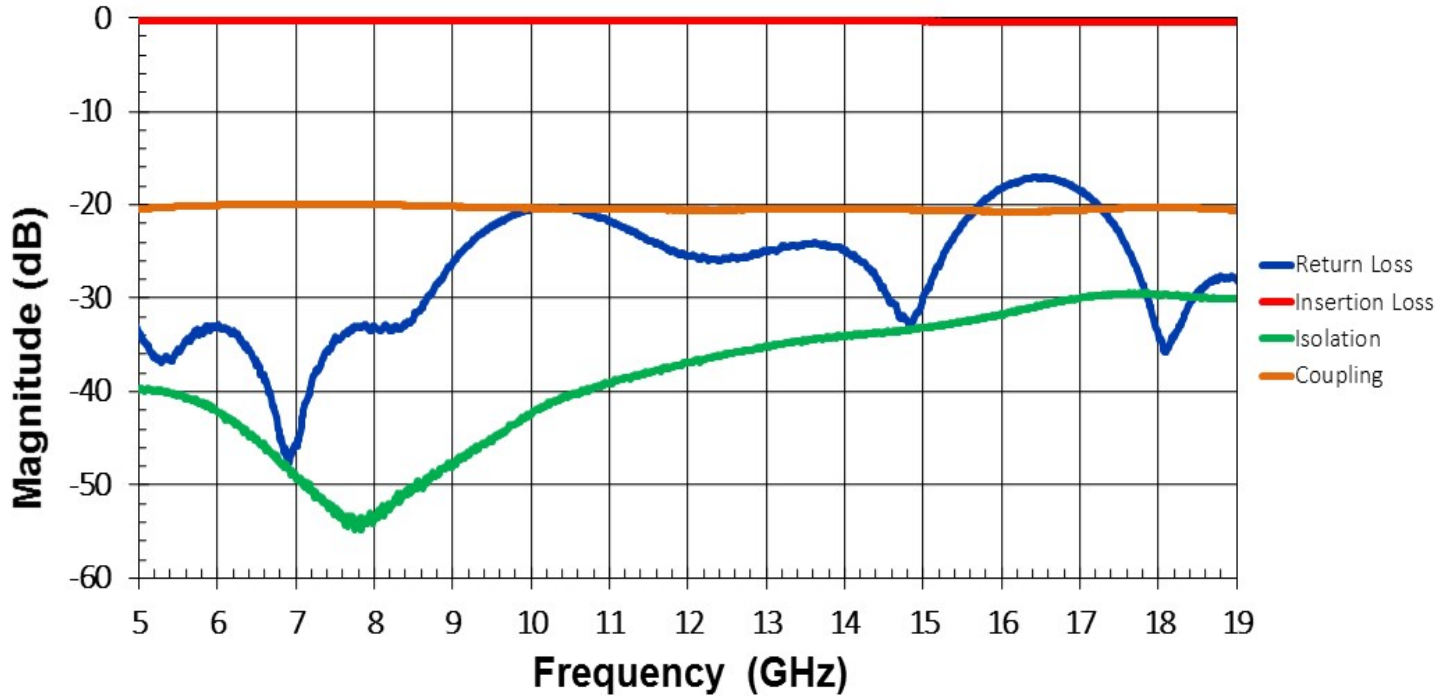
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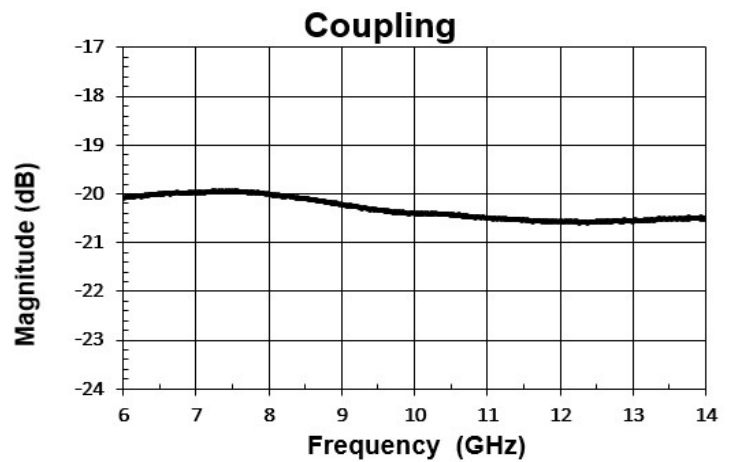
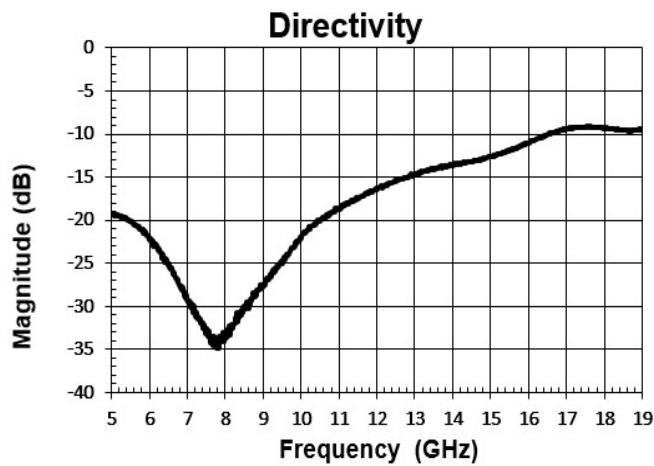
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**Typical Measured Performance**



\*Typical de-embedded measured performance mounted on a connectorized test fixture. DEB is 0.010in RO4350B with 50.0Ohm CPW ground traces going into the ports at room temperature.



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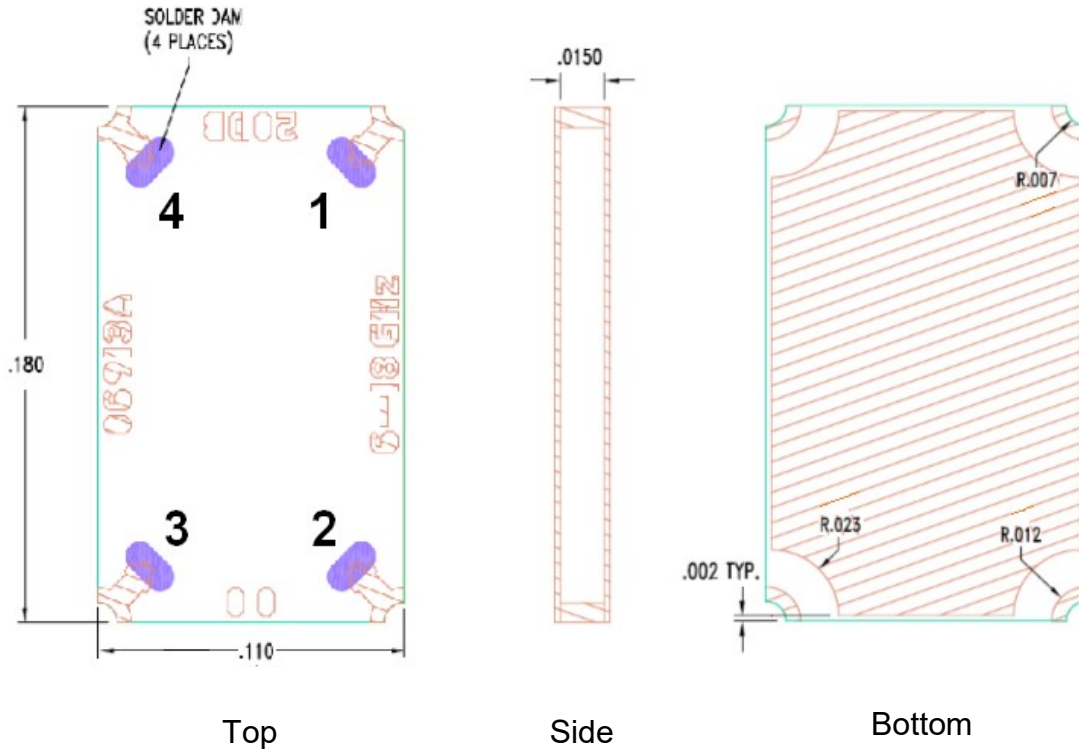
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**Physical Dimensions**

Units = inches



**Notes :**

1. Mounting Surface Metallization:  
 ENIG: 3 - 6 μinch Au over 50 μinch Ni
2. Maximum Assembly Process Temperature: 250°C

**Tolerances:**

- For values with 3 decimal places ±0.001
- For values with 4 decimal places ±0.0005

<b>FPC06913 Coupler Port Configuration</b>				
	<b>Port 1</b>	<b>Port 2</b>	<b>Port 3</b>	<b>Port 4</b>
<b>Configuration 1</b>	Input	Output	Isolated	Coupled
<b>Configuration 2</b>	Output	Input	Coupled	Isolated
<b>Configuration 3</b>	Coupled	Isolated	Output	Input
<b>Configuration 4</b>	Isolated	Coupled	Input	Output

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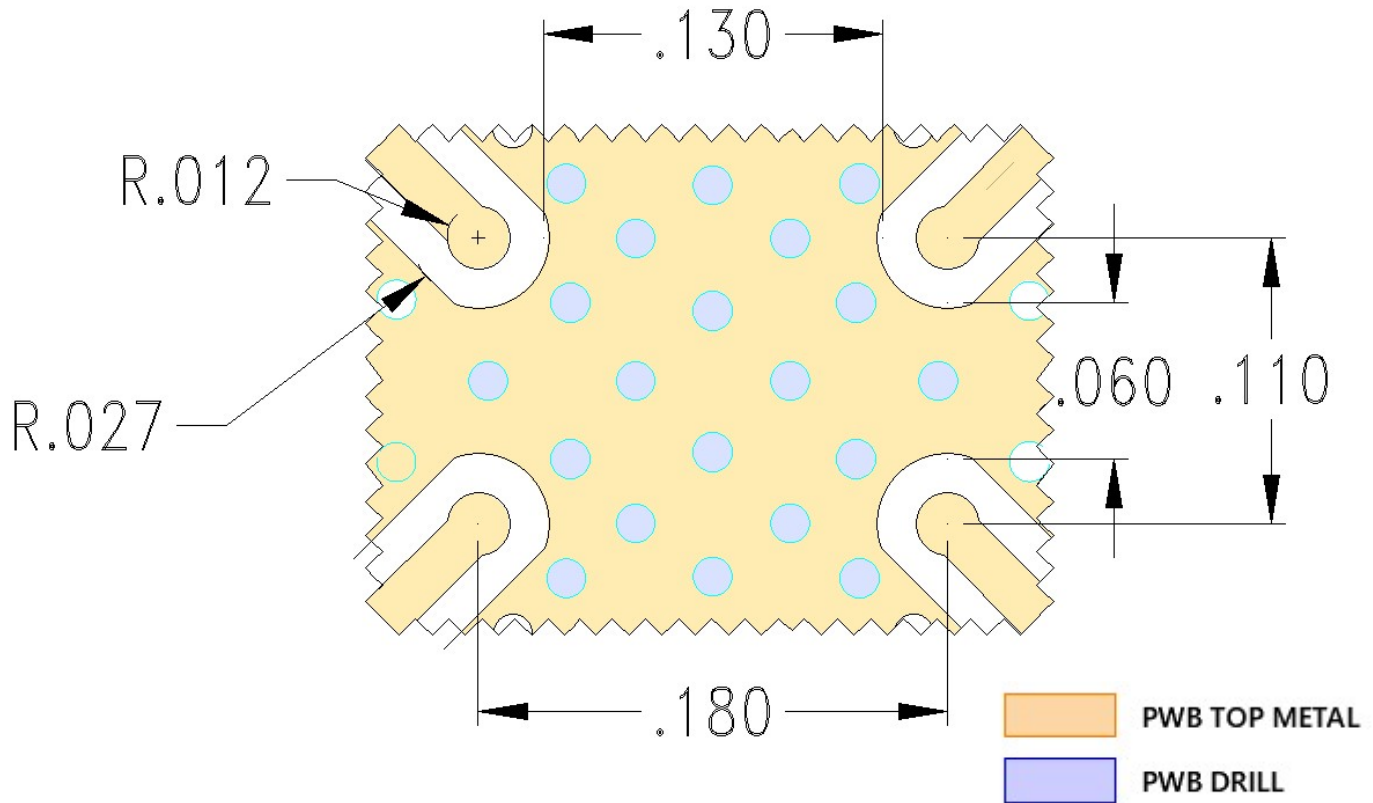
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### Recommended PCB Layout ( unit inch)



**Note:**

- 50Ω trace dimensions are application specific.
- 50Ω trace dimensions are designed for 10mil thick R04350B Rogers Board
- Ensure adequate grounding beneath the part.
- Trace feed locations can be horizontal, vertical, or angled.

For further details and best practices, reference the **Microwave Products Guide**, available at:  
<https://www.knowlescapacitors.com/Support/Catalogs>

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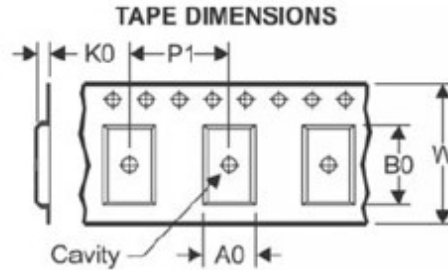
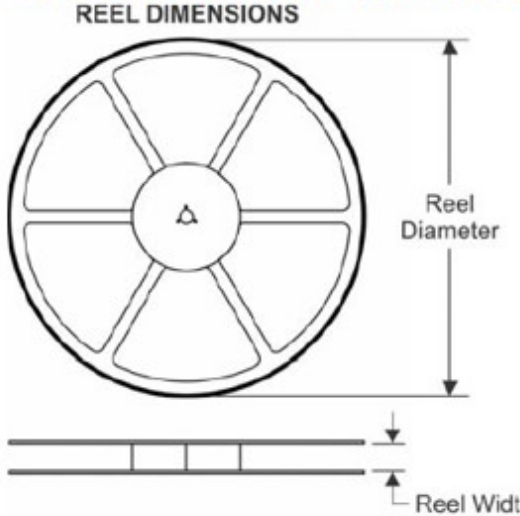
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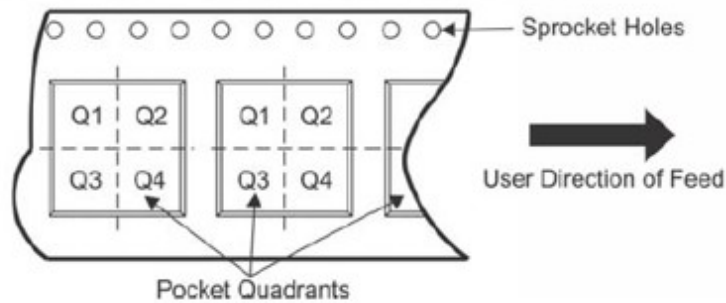
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**TAPE AND REEL INFORMATION**



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**



\*All dimensions are nominal

Device	Package Type	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
FPC06913-T	SMD	180	12.4	3.1	4.9	0.7	8	12	Q1...

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