

4.0-8.0GHz Surface Mount Quadrature Hybrid Coupler

FHC09096 Datasheet

DESCRIPTION

DLI's surface mount 3dB Quadrature Hybrid Coupler offers good phase and amplitude balance in a small size with low loss and good isolation. The catalog 3 dB Hybrids are offered in a variety of frequency bands, which offers a drop in solution with highly repeatable performance.

FEATURES

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

Packaging and Ordering Information

For packaging in tape and reel please use part number: FHC09096-T

SPECIFICATIONS*

Parameter	Frequency Range (GHz)	Min	Typ.	Max
Insertion Loss (dB)	4.0 - 8.0		0.7	1.0
Return Loss (dB)		15	17.5	
Isolation (dB)		17.5	20	
Amplitude Balance (dB)			±0.5	±1
90 Degree Phase Balance			± 3.0	
CW Input Power** (W)			50	
Size (L x W x H)	0.300 x 0.150 x 0.010 in 7.62 x 3.81 x 0.254 mm			

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

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

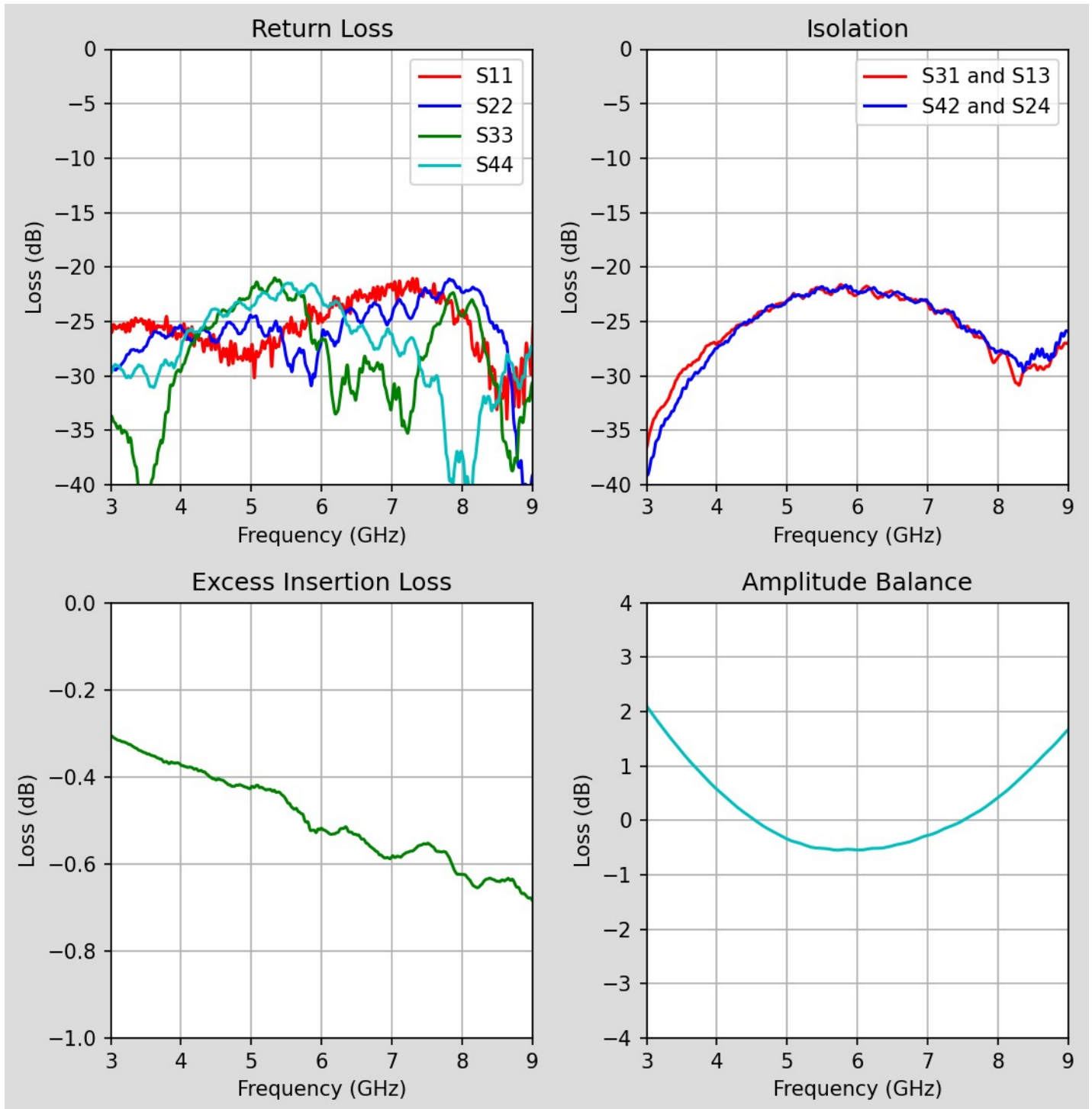


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4.0-8.0GHz Surface Mount Quadrature Hybrid Coupler
FHC09096 Datasheet Typical Measured Performance



*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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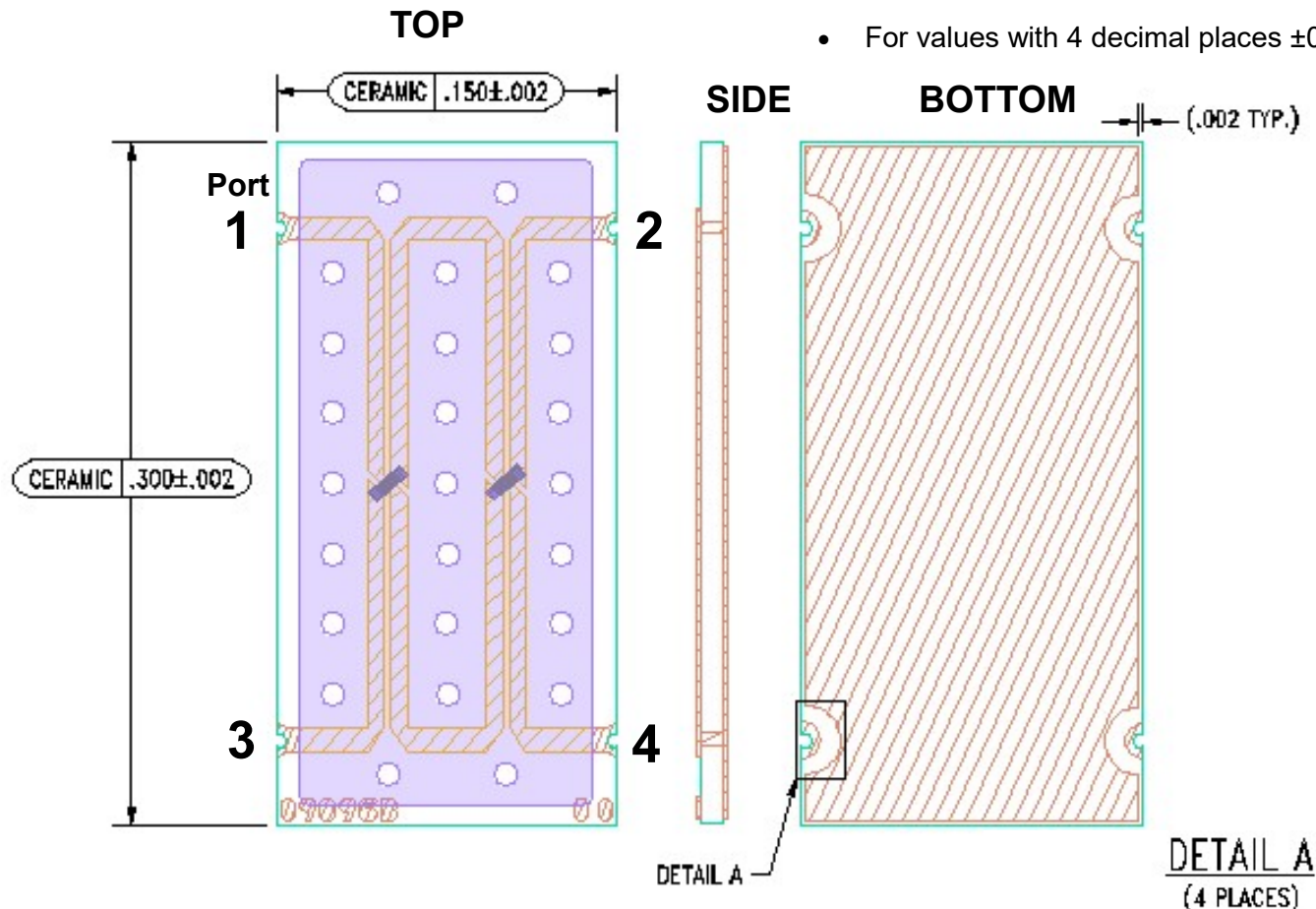
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Physical Dimensions

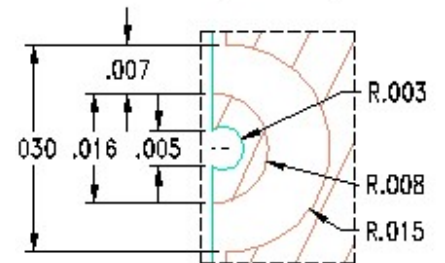
Units = inches

Tolerances:

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



FHC09096 Coupler Port Configuration				
	Port 1	Port 2	Port 3	Port 4
Configuration 1	Input	Output	Isolated	Coupled
Configuration 2	Output	Input	Coupled	Isolated
Configuration 3	Isolated	Coupled	Input	Output
Configuration 4	Coupled	Isolated	Output	Input



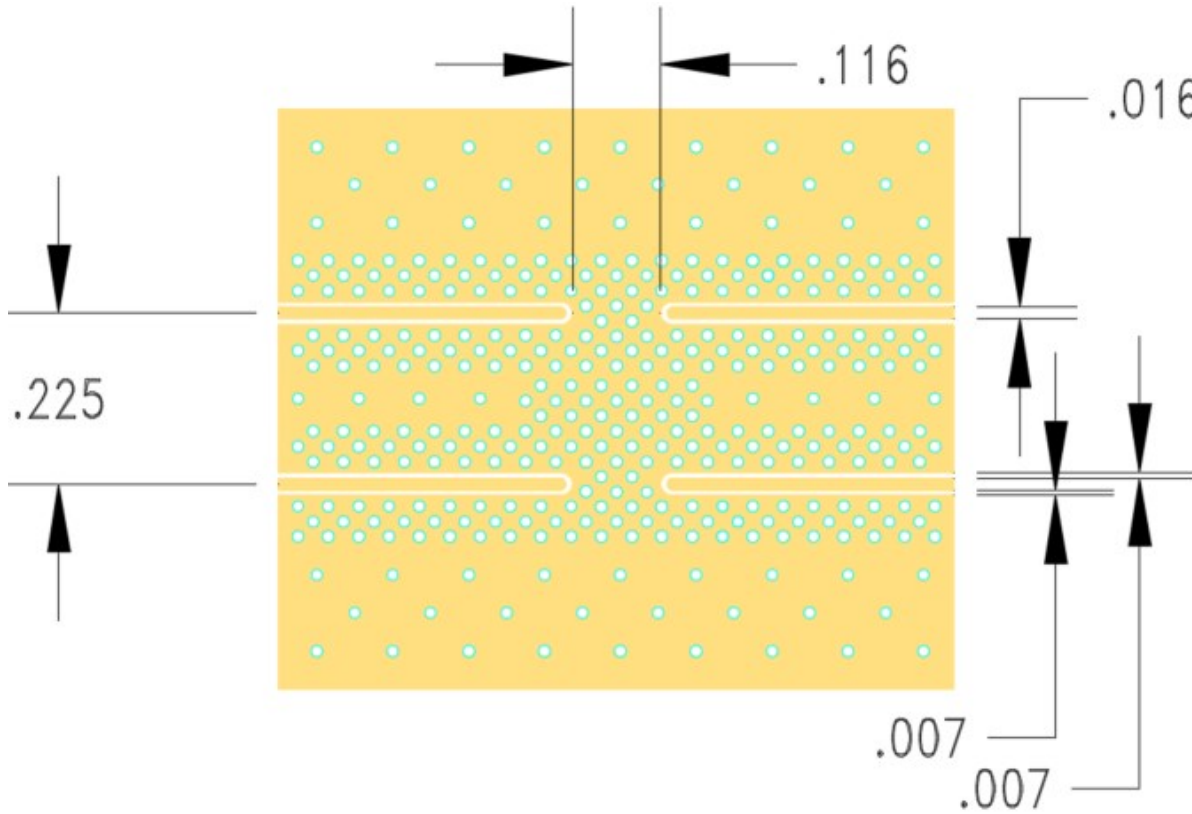
Termination Finish: ENIG
3 - 6 pinch Au over 50 pinch Ni
Maximum Assembly Process Temperature: 250°C

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RECOMMENDED LAYOUT

Units = inches



Parameters of the Recommended PCB:

- 0.010 inch Rogers Board RO4350B
- 3.66 dK, Board Material design
- Dimensions of 50.0 Ohm CPWG :
0.016 inch RF trace width
0.007 inch spacing

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

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