LTCC SURFACE MOUNT

RF Crossover

COHKI-3002+

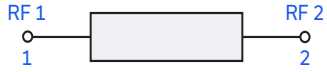
50Ω DC to 30 GHz

THE BIG DEAL

- Extended Frequency Range up to 30 GHz
- Best-in-Class Wideband Performance
- Superior Isolation of 45 dB across Full Band
- Ideal for High Density RF Layouts
- 4.95 × 3.65 mm outline as drop in for BFHKI footprint

Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



APPLICATIONS

- Test & Measurement Equipment
- Radar Systems in X, Ku and Ka-Bands
- SATCOM Payloads and Terminals
- Small Cells and Massive MIMO Radios

PRODUCT OVERVIEW

Mini-Circuits' COHKI-3002+ is a high-performance, wideband RF crossover designed to enable the seamless routing of transmission lines without the need for additional PCB layers. Supporting operation from DC to 30 GHz, this compact surface-mount device delivers industry-leading insertion loss and isolation performance in a manufacturing-friendly form factor. Housed in a 4.95 × 3.65 mm SMT package, the crossover is footprint compatible with our BFHKI filter footprints for easy integration in compact RF front-end designs. The device is optimized for high-frequency applications where PCB real estate, performance and cost efficiencies are key considerations.

KEY FEATURES

Features	Advantages
Extended Frequency Leadership	Provides wideband performance from DC to 30 GHz
Superior Isolation	Provides 45 dB typical across full band and 55 dB below 15 GHz enabling cleaner signal routing in dense RF architectures
Small Size (4.95 × 3.65 mm)	Allows for high layout density of circuit boards, while minimizing effects of parasitics
Low Insertion Loss	Insertion loss of 0.3 dB below 10 GHz, 0.8 dB below 20 GHz and 1.1 dB across full band for high performance applications.
Cost Effective	Eliminates need for additional PCB layers, reducing board complexity, fabrication cost and signal via transitions

REV. OR
ECO-029690
COHKI-3002+
MCL NY
260521

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ELECTRICAL SPECIFICATIONS[1,2,3] AT +25 °C, Z_0 = 50Ω

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC–F1	DC–10	—	0.3	0.6	dB
		F1–F3	10–20	—	0.8	1.2	
		F3–F4	20–30	—	1.1	2	
	Return Loss	DC–F1	DC–10	—	17	—	dB
		F1–F3	10–20	—	9.5	—	
		F3–F4	20–30	—	8	—	
	Isolation	DC–F1	DC–10	45	55	—	dB
		F1–F2	10–15	45	55	—	
		F2–F3	15–20	38	48	—	
		F3–F4	20–30	35	45	—	

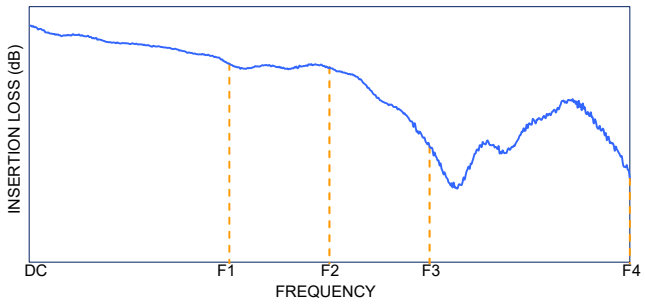
1. Tested in Evaluation Board P/N TB-COHKI-3002C+.Measured with the connector and feedline effects de-embedded using the 2X Thru IEEE P370 method
2. Bi-directional, RF1 and RF2 ports can be interchanged.
3. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

ABSOLUTE MAXIMUM RATINGS[5]

Parameter	Ratings
Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C
RF Power Input [5]	1 W

5. Permanent damage may occur if any of these limits are exceeded.
6. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 0.5 W at +125°C.

TYPICAL FREQUENCY RESPONSE



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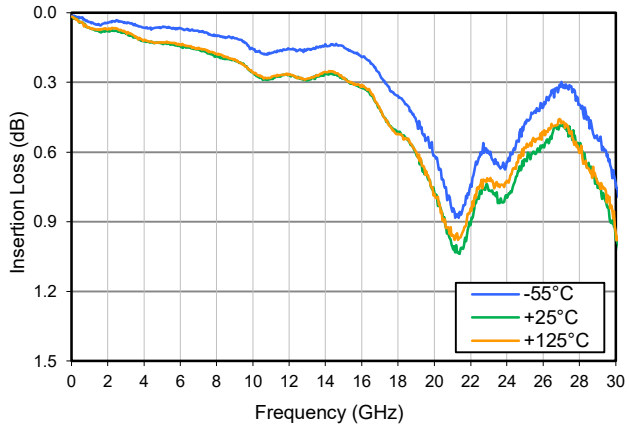
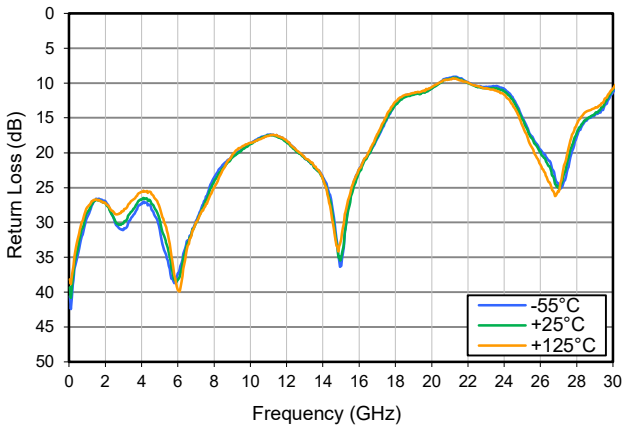
TYPICAL PERFORMANCE GRAPHS

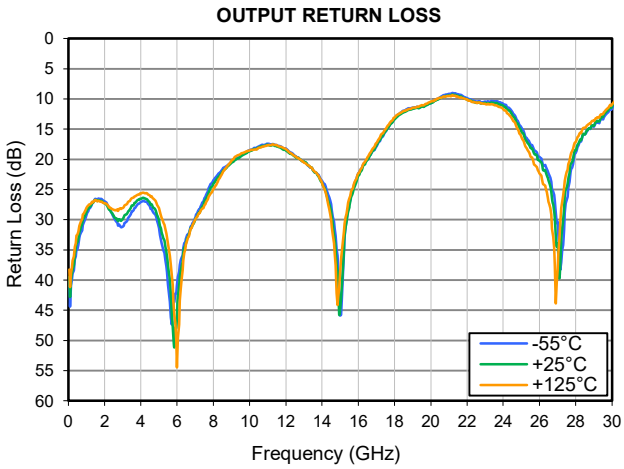
INSERTION LOSS



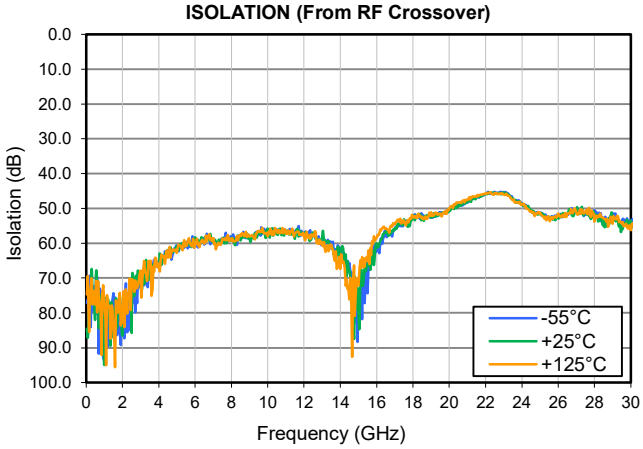
INPUT RETURN LOSS



OUTPUT RETURN LOSS



ISOLATION (From RF Crossover)



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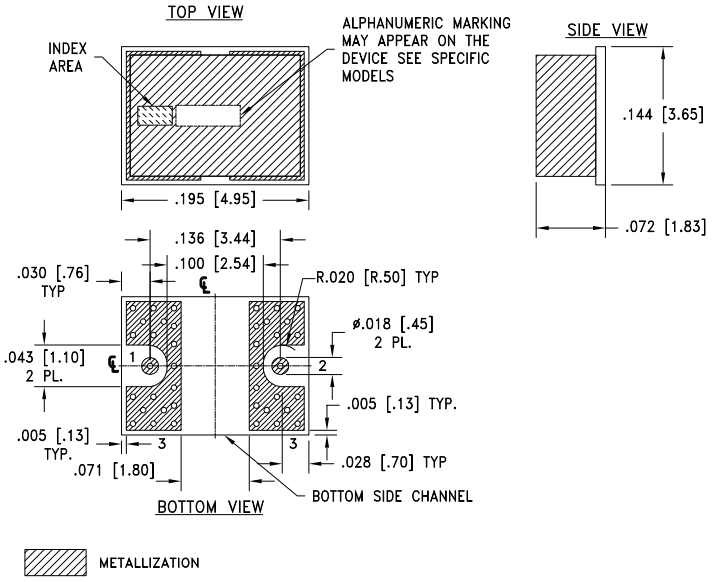
FUNCTIONAL DIAGRAM

Figure 1. COHKI-3002+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
RF1[2]	1	Connects to RF Input Port
RF2[2]	2	Connects to RF Output Port
GROUND	3	Connects to Ground on PCB, (See drawing PL-868)

CASE STYLE DRAWING



Weight: .135 grams
Dimensions are in inches [mm]. Tolerances: 2 Pl.±.01; 3 Pl. ±.005

SUGGESTED PCB LAYOUT (PL-868)

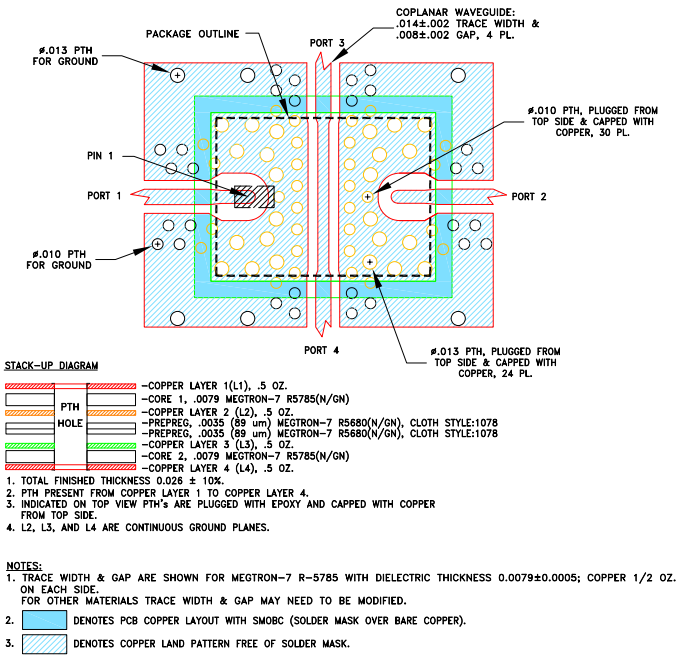


Figure 2. Suggested PCB Layout PL-868

PRODUCT MARKING*: F446

*Marking may contain other features or characters for internal lot control.

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ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASH BOARD. CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S4P Files) Data Set (.zip file) De-embedded to device pads
Case Style	NM3237-1 Lead Finish: Gold over Nickel plating
RoHS Status	Compliant
Tape and Reel	F77
Suggested Layout for PCB Design	PL-868
Evaluation Board	TB-COHKI-3002C+ Gerber File
Environmental Rating	ENV163

NOTES

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.

B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.

C. The parts covered by this specification document are subject to Mini-Circuits' standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/terms/viewterm.html