ISO 9001

PRODUCT SPECIFICATION

THIN FILM OPERATION

CP0402 High Directivity
LGA Termination Directional Couplers

ITF TECHNOLOGY

The ITF High Directivity 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 ITF Coupler is offered in a variety frequency bands compatible with various types of high frequency wireless systems.

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

PART NUMBER CODE:

CP	0402	X	XXXX	X	L	TR
		Type	Frequency (MHz)	Sub-Type	LGA Term.	Taped & Reeled

L=Sn90Pb10
N=Sn100

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, IR, 4 hours

TERMINATION:

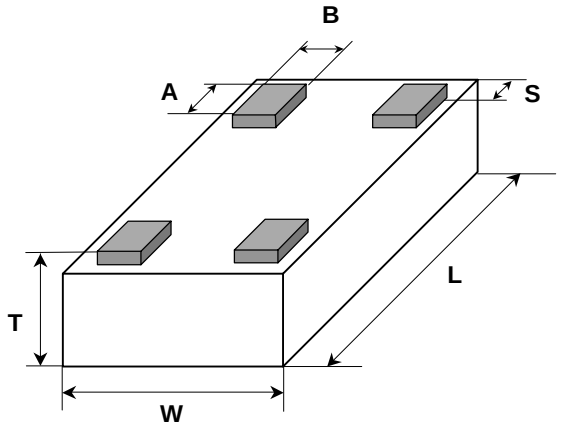
Nickel/Solder coating (Sn, Pb) compatible with automatic soldering technologies: reflow, wave soldering, vapor phase and manual.

OPERATING TEMPERATURE:

-40°C to +85°C

DIMENSIONS - mm (inches)

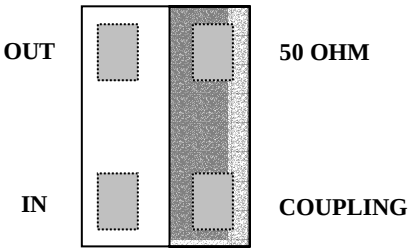
(Bottom View)



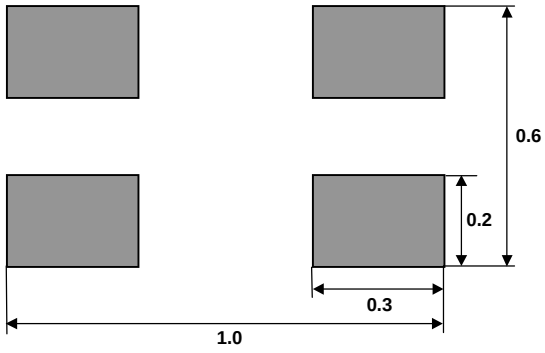
L	1.0±0.05 (0.040±0.002)
W	0.58±0.04 (0.023±0.002)
T	0.35±0.05 (0.014±0.002)

A	0.20±0.05 (0.008±0.002)
B	0.18±0.05 (0.007±0.002)
S	0.05±0.05 (0.002±0.002)

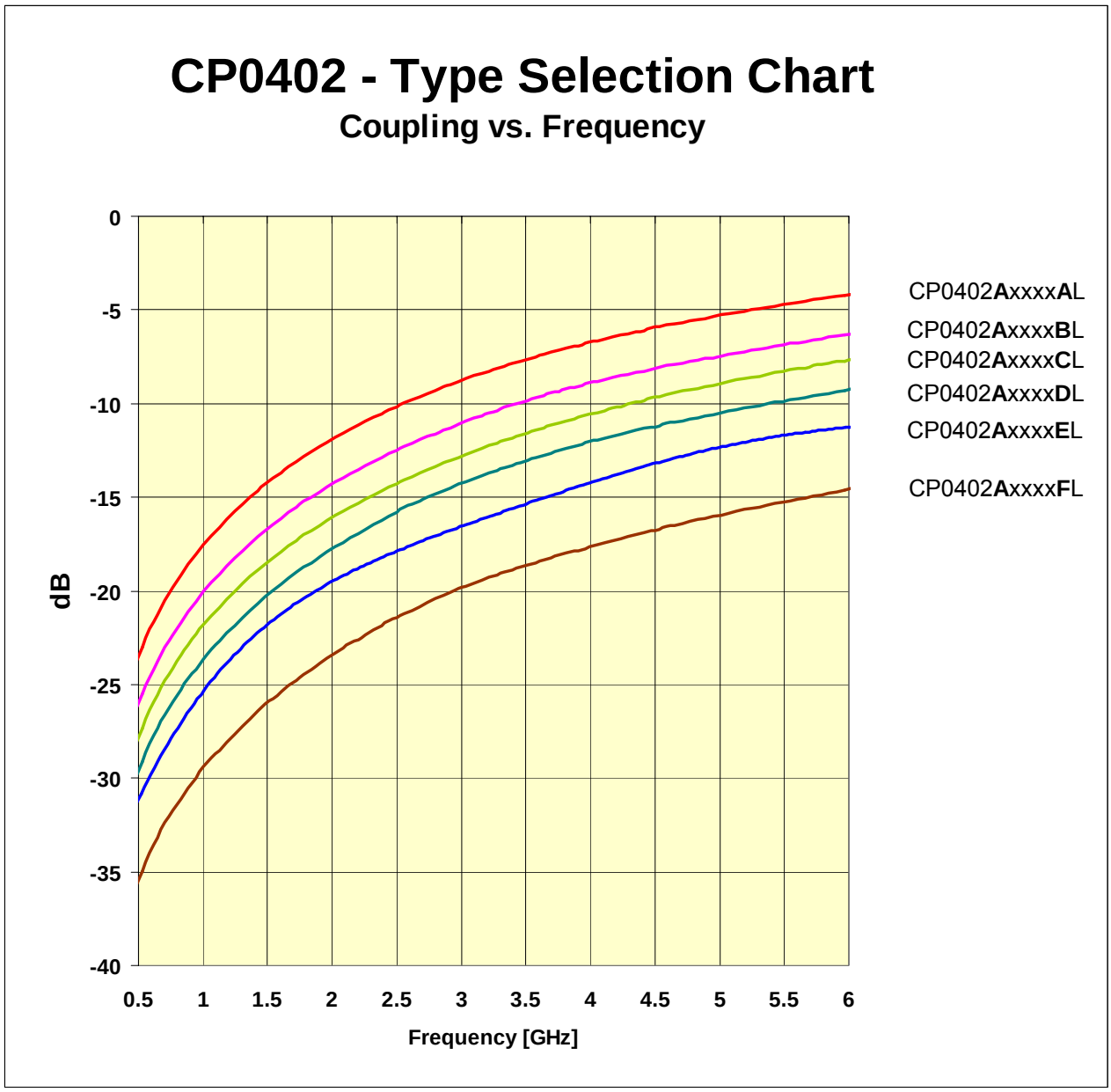
TERMINALS (Top View)



Recommended Pad Layout (mm)



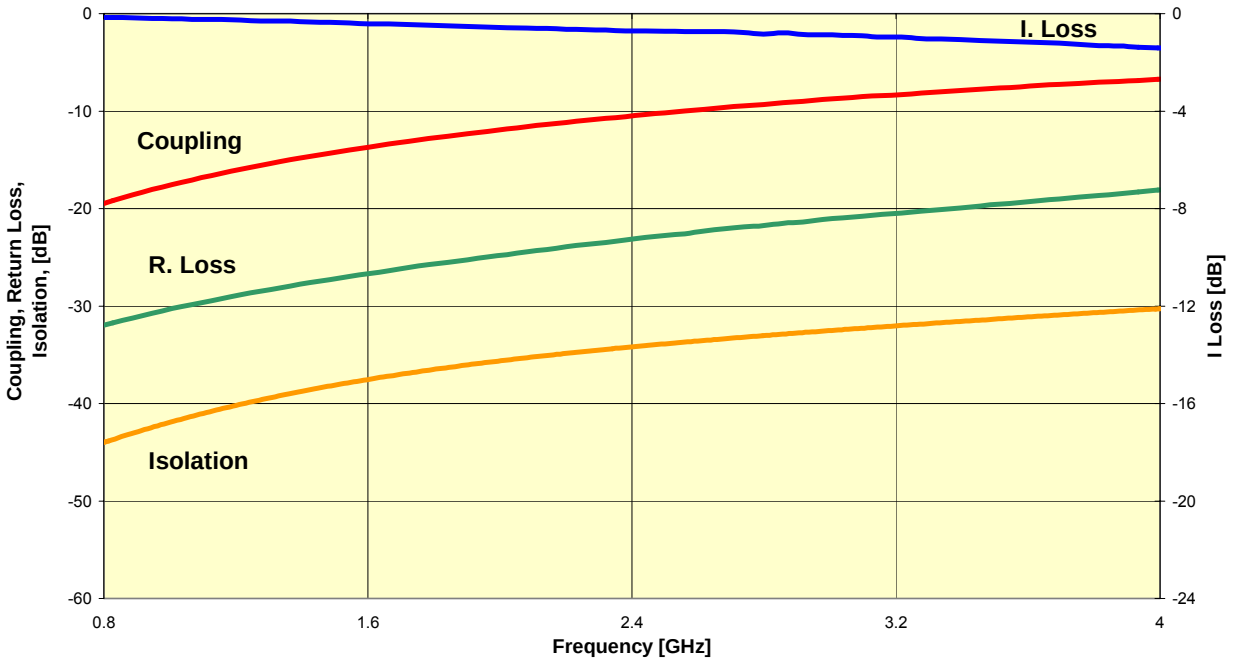
Coupler Type Selection Graph



Directional Coupler Type CP0402AxxxxALTR

APPLICATION	P/N	FREQUENCY BAND [MHz]	COUPLING [dB]	I. Loss max [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0402A0836AL	824 ÷ 849	19.10	0.25	32	21
	CP0402A0881AL	869 ÷ 894	18.60	0.25	31	
GSM	CP0402A0902AL	890 ÷ 915	18.50	0.25	31	
	CP0402A0947AL	935 ÷ 960	18.00	0.25	31	
E-GSM	CP0402A0897AL	880 ÷915	18.50	0.25	31	
	CP0402A0942AL	925 ÷960	18.00	0.25	31	
PDC	CP0402A1441AL	1429 ÷ 1453	14.50	0.40	28	
PCN	CP0402A1747AL	1710 ÷ 1785	13.00	0.50	26	
	CP0402A1842AL	1805 ÷ 1880	12.50	0.50	26	
PCS	CP0402A1880AL	1850 ÷ 1910	12.30	0.50	25	
	CP0402A1960AL	1930 ÷ 1990	12.00	0.50	25	
PHP	CP0402A1907AL	1895 ÷ 1920	12.30	0.50	25	
DECT	CP0402A1890AL	1880 ÷ 1900	12.30	0.50	25	
Wireless LAN	CP0402A2442AL	2400 ÷ 2484	10.30	0.70	23	

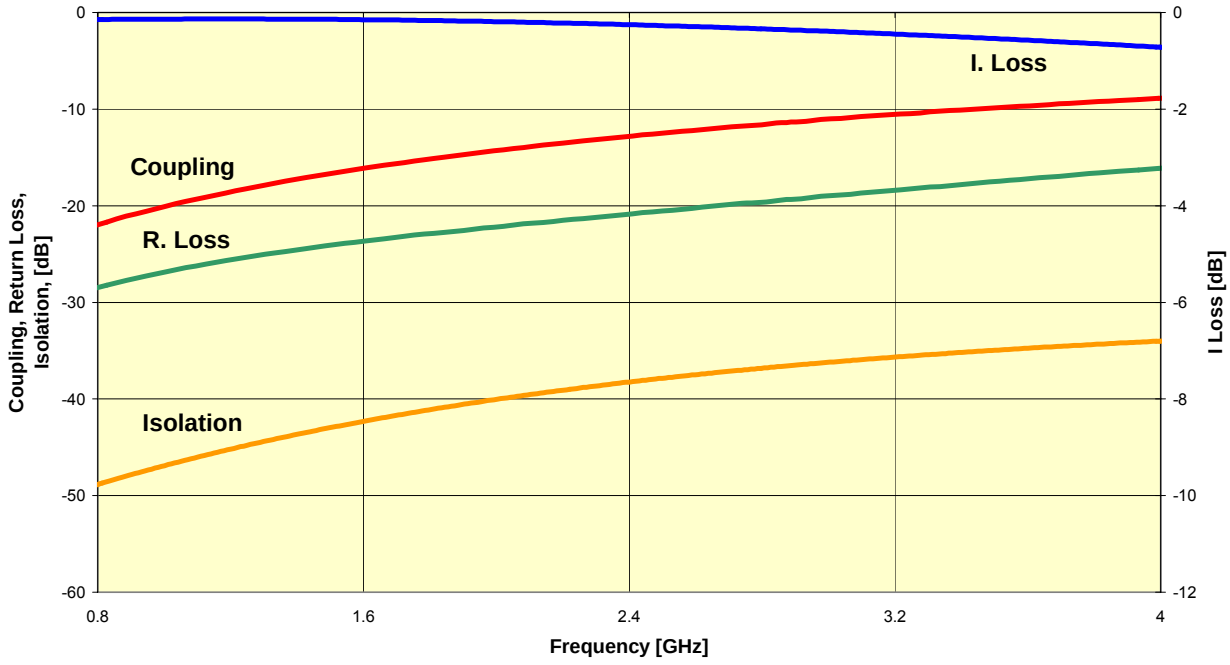
CP0402AxxxxALTR



Directional Coupler Type CP0402AxxxxBLTR

APPLICATION	P/N	FREQUENCY BAND [MHz]	COUPLING [dB]	I. Loss max [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0402A0836BL	824 ÷ 849	22.00	0.20	28	27
	CP0402A0881BL	869 ÷ 894	21.70	0.20	28	
GSM	CP0402A0902BL	890 ÷ 915	21.50	0.20	28	
	CP0402A0947BL	935 ÷ 960	21.00	0.25	27	
E-GSM	CP0402A0897BL	880 ÷915	21.50	0.20	28	
	CP0402A0942BL	925 ÷960	21.00	0.25	27	
PDC	CP0402A1441BL	1429 ÷ 1453	17.50	0.25	24	
PCN	CP0402A1747BL	1710 ÷ 1785	16.00	0.30	23	
	CP0402A1842BL	1805 ÷ 1880	15.50	0.35	23	
PCS	CP0402A1880BL	1850 ÷ 1910	15.50	0.35	23	
	CP0402A1960BL	1930 ÷ 1990	15.00	0.35	22	
PHP	CP0402A1907BL	1895 ÷ 1920	15.50	0.35	23	
DECT	CP0402A1890BL	1880 ÷ 1900	15.50	0.35	23	
Wireless LAN	CP0402A2442BL	2400 ÷ 2484	13.30	0.40	21	

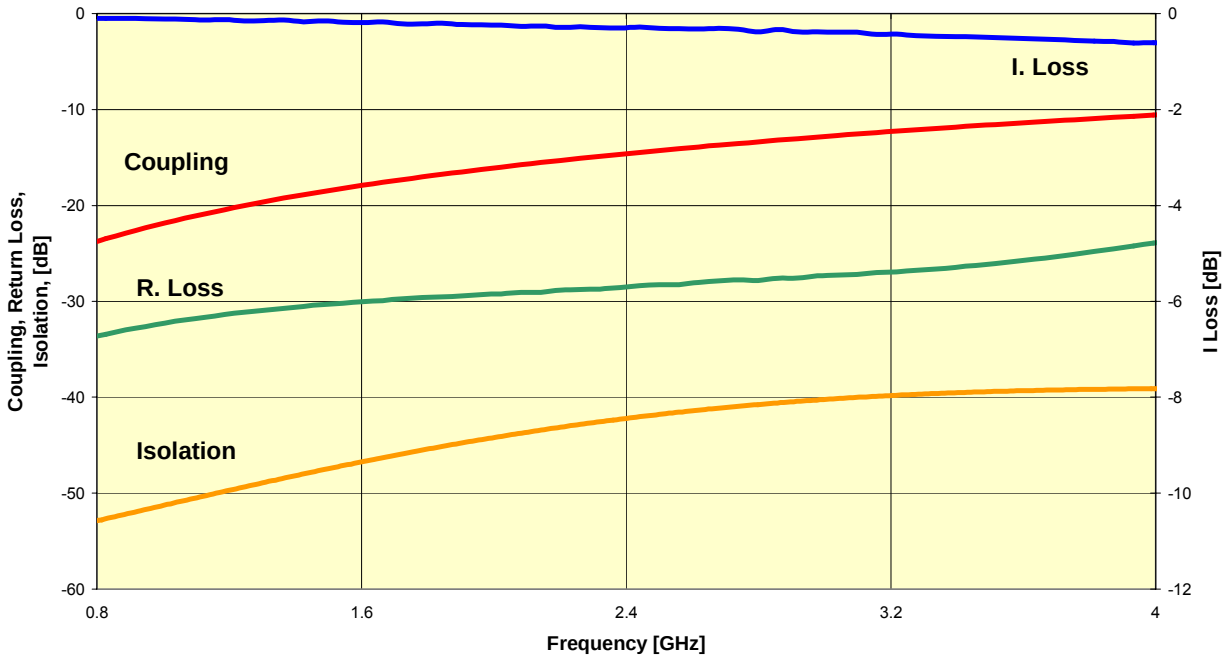
CP0402AxxxxBLTR



Directional Coupler Type CP0402AxxxxCLTR

APPLICATION	P/N	FREQUENCY BAND [MHz]	COUPLING [dB]	I. Loss max [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0402A0836CL	824 ÷ 849	23.60	0.20	33	22
	CP0402A0881CL	869 ÷ 894	23.00	0.20	33	
GSM	CP0402A0902CL	890 ÷ 915	23.00	0.20	26	
	CP0402A0947CL	935 ÷ 960	22.50	0.20	33	
E-GSM	CP0402A0897CL	880 ÷915	23.00	0.20	25	
	CP0402A0942CL	925 ÷960	22.50	0.20	32	
PDC	CP0402A1441CL	1429 ÷ 1453	19.00	0.25	31	
PCN	CP0402A1747CL	1710 ÷ 1785	17.20	0.25	30	30
	CP0402A1842CL	1805 ÷ 1880	17.00	0.25	30	
PCS	CP0402A1880CL	1850 ÷ 1910	16.80	0.25	30	
	CP0402A1960CL	1930 ÷ 1990	16.50	0.25	29	
PHP	CP0402A1907CL	1895 ÷ 1920	16.80	0.25	29	
DECT	CP0402A1890CL	1880 ÷ 1900	16.80	0.25	30	
Wireless LAN	CP0402A2442CL	2400 ÷ 2484	14.70	0.45	28	

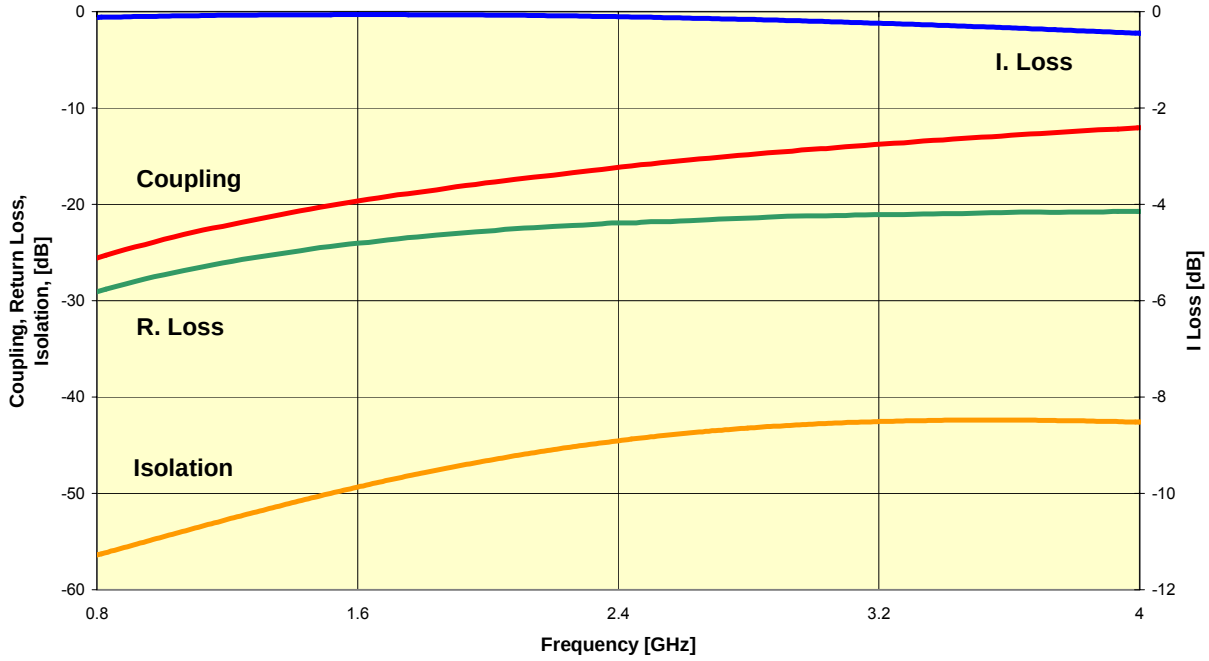
CP0402AxxxxCLTR



Directional Coupler Type CP0402AxxxxDLTR

APPLICATION	P/N	FREQUENCY BAND [MHz]	COUPLING [dB]	I. Loss max [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0402A0836DL	824 ÷ 849	25.20	0.20	29	20
	CP0402A0881DL	869 ÷ 894	24.80	0.20	28	
GSM	CP0402A0902DL	890 ÷ 915	24.70	0.20	28	
	CP0402A0947DL	935 ÷ 960	24.10	0.20	28	
E-GSM	CP0402A0897DL	880 ÷915	24.70	0.20	28	
	CP0402A0942DL	925 ÷960	24.10	0.20	28	
PDC	CP0402A1441DL	1429 ÷ 1453	20.50	0.20	25	
PCN	CP0402A1747DL	1710 ÷ 1785	19.00	0.20	24	23
	CP0402A1842DL	1805 ÷ 1880	18.50	0.25	23	
PCS	CP0402A1880DL	1850 ÷ 1910	18.20	0.25	23	
	CP0402A1960DL	1930 ÷ 1990	18.00	0.25	23	
PHP	CP0402A1907DL	1895 ÷ 1920	18.10	0.25	23	
DECT	CP0402A1890DL	1880 ÷ 1900	18.20	0.25	23	
Wireless LAN	CP0402A2442DL	2400 ÷ 2484	16.00	0.35	22	

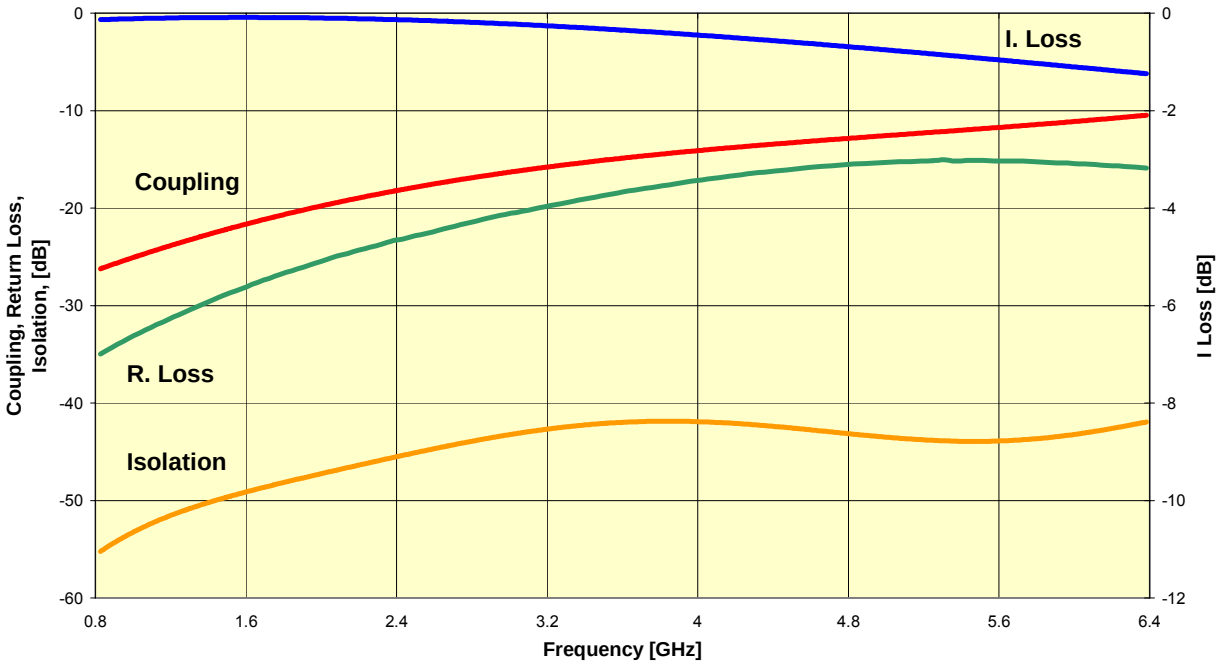
CP0402AxxxxDLTR



Directional Coupler Type CP0402AxxxxELTR

APPLICATION	P/N	FREQUENCY BAND [MHz]	COUPLING [dB]	I. Loss max [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0402A0836EL	824 ÷ 849	27.20	0.20	35	25
	CP0402A0881EL	869 ÷ 894	26.80	0.20	34	
GSM	CP0402A0902EL	890 ÷ 915	26.50	0.20	34	
	CP0402A0947EL	935 ÷ 960	26.00	0.20	34	
E-GSM	CP0402A0897EL	880 ÷915	26.50	0.20	34	
	CP0402A0942EL	925 ÷960	26.00	0.20	34	
PDC	CP0402A1441EL	1429 ÷ 1453	22.30	0.25	29	
PCN	CP0402A1747EL	1710 ÷ 1785	20.50	0.25	27	23
	CP0402A1842EL	1805 ÷ 1880	20.30	0.25	26	
PCS	CP0402A1880EL	1850 ÷ 1910	20.00	0.25	26	
	CP0402A1960EL	1930 ÷ 1990	20.00	0.25	26	
PHP	CP0402A1907EL	1895 ÷ 1920	20.00	0.25	26	
DECT	CP0402A1890EL	1880 ÷ 1900	20.00	0.25	26	
Wireless LAN	CP0402A2442EL	2400 ÷ 2484	18.00	0.35	23	

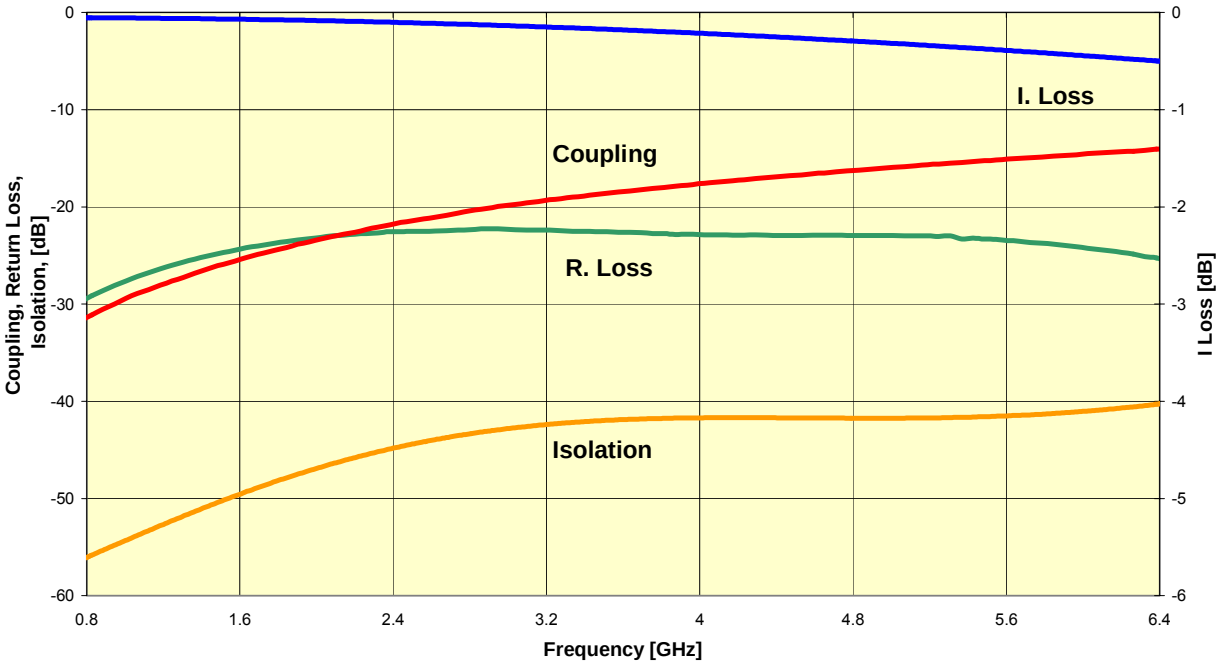
CP0402AxxxxELTR



Directional Coupler Type CP0402AxxxxFLTR

APPLICATION	P/N	FREQUENCY BAND [MHz]	COUPLING [dB]	I. Loss max [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0402A0836FL	824 ÷ 849	31.00	0.20	29.10	11
	CP0402A0881FL	869 ÷ 894	30.70	0.20	28.60	
GSM	CP0402A0902FL	890 ÷ 915	30.60	0.20	28.50	
	CP0402A0947FL	935 ÷ 960	30.00	0.20	28.10	
E-GSM	CP0402A0897FL	880 ÷915	30.60	0.20	28.50	
	CP0402A0942FL	925 ÷960	30.00	0.20	28.10	
PDC	CP0402A1441FL	1429 ÷ 1453	26.50	0.20	25.00	
PCN	CP0402A1747FL	1710 ÷ 1785	25.00	0.20	23.80	
	CP0402A1842FL	1805 ÷ 1880	24.50	0.20	23.60	
PCS	CP0402A1880FL	1850 ÷ 1910	24.20	0.20	23.50	
	CP0402A1960FL	1930 ÷ 1990	24.00	0.20	23.30	
PHP	CP0402A1907FL	1895 ÷ 1920	24.20	0.20	23.40	
DECT	CP0402A1890FL	1880 ÷ 1900	24.20	0.20	23.50	
Wireless LAN	CP0402A2442FL	2400 ÷ 2484	22.00	0.25	22.60	

CP0402AxxxxFLTR



CP0402 / CP0603 High Directivity Couplers Test Jigs

GENERAL DESCRIPTION

These jigs are designed for testing the CP0402 and CP0603 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 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:

Input (Coupler) ➔ Connector 1 (Jig). Termination (Coupler) ➔ Connector 3 (Jig).
Output (Coupler) ➔ Connector 2 (Jig). Coupling (Coupler) ➔ Connector 4 (Jig).

To measure I.Loss connect:

Connector1 (Jig) ➔ Port1 (VNA) Connector3 (Jig) ➔ 50Ω
Connector2 (Jig) ➔ Port2 (VNA) Connector4 (Jig) ➔ 50Ω.

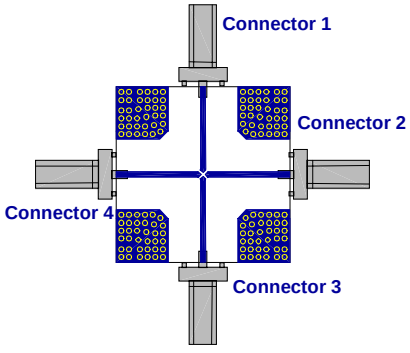
To measure R.Loss and Coupling connect:

Connector1 (Jig) ➔ Port1(VNA) Connector3 (Jig) ➔50Ω
Connector2 (Jig) ➔ 50Ω Connector4 (Jig) ➔ Port2 (VNA).

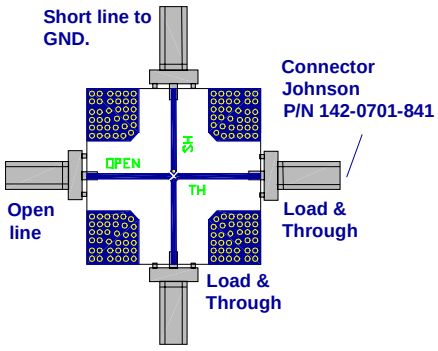
To measure Isolation connect:

Connector1 (Jig) ➔ 50Ω Connector3 (Jig) ➔ 50Ω
Connector2 (Jig) ➔ Port1(VNA) Connector4 (Jig) ➔ Port2 (VNA).

Measurement Jig



Calibration Jig



Mouser Electronics

Authorized Distributor

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