

# Thin-Film Directional Couplers



## CP0603 High Directivity LGA Termination

### GENERAL DESCRIPTION ITF (Integrated Thin-Film) TECHNOLOGY

The ITF 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 of frequency bands compatible with various types of high frequency wireless systems.

### APPLICATIONS

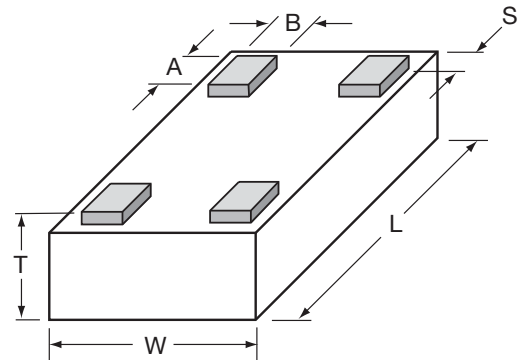
- Mobile Communications
- Satellite TV Receivers
- GPS
- Vehicle Location Systems
- Wireless LAN's

### FEATURES

- Inherent Low Profile
- Self Alignment during Reflow
- Excellent Solderability
- Low Parasitics
- Better Heat Dissipation
- Operating/Storage Temp -40°C to +85°C
- Power Rating 3W RF Cont

### DIMENSIONS: (Bottom View)

millimeters (inches)



L	1.60±0.10 (0.063±0.004)	A	0.25±0.05 (0.010±0.002)
W	0.84±0.10 (0.033±0.004)	B	0.20±0.05 (0.008±0.002)
T	0.60±0.10 (0.024±0.004)	S	0.05±0.05 (0.002±0.002)

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### HOW TO ORDER

<b>CP</b> T	<b>0603</b> T	<b>X</b> T	<b>****</b> T	<b>X</b> T	<b>N</b> T	<b>TR</b> T
<b>Style</b>	<b>Size</b>	<b>Type</b>	<b>Frequency</b>	<b>Sub Type</b>	<b>Termination Code</b>	<b>Packaging Code</b>
Directional Coupler	0603		(MHz)		L = LGA Sn90, Pb10 **N = LGA Sn100	TR = Tape and Reel

\*\*RoHS compliant

### 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, I<sub>R</sub>, 4 hours

### TERMINATION

Sn90Pb10 or Lead-Free Sn100 Nickel/Solder coating compatible with automatic soldering technologies: reflow, wave soldering, vapor phase and manual.

### ORIENTATION IN TAPE



### TERMINALS (Top View)

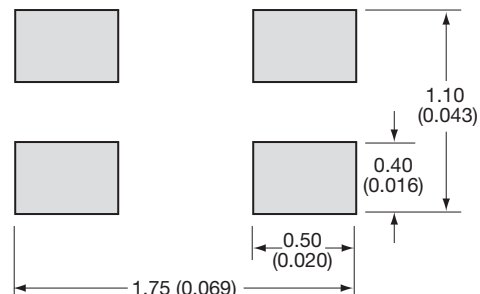
Not RoHS Compliant



For RoHS compliant products, please select correct termination style.

### Recommended Pad Layout Dimensions

mm (inches)



\*The recommended distance to the PCB Ground Plane is 0.254mm (0.010")

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### COUPLER TYPE SELECTION GRAPH

Coupling vs. Frequency



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Intermediate coupling factors are readily available.  
Please contact factory.



# Thin-Film Directional Couplers



## CP0603 High Directivity LGA Type

Coupler P/N CP0603AxxxxAL

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max. [dB]	Return Loss [dB]	Directivity [dB]	
AMPS	CP0603A0836AL	824 - 849	20.0	0.25	28	22	
	CP0603A0881AL	869 - 894	19.7				
GSM	CP0603A0902AL	890 - 915	19.4				
	CP0603A0947AL	935 - 960	19.0				
E-GSM	CP0603A0897AL	880 - 915	19.4				
	CP0603A0942AL	925 - 960	19.0				
PDC	CP0603A1441AL	1429 - 1453	15.5		0.40		24
PCN	CP0603A1747AL	1710 - 1785	14.0		0.50		22
	CP0603A1842AL	1805 - 1880	13.5				
PCS	CP0603A1880AL	1850 - 1910	13.2		0.55		21
	CP0603A1960AL	1930 - 1990	13.0				
PHP	CP0603A1907AL	1895 - 1920	13.2	0.50	22		
DECT	CP0603A1890AL	1880 - 1900	13.2	0.50	22		
Wireless LAN	CP0603A2442AL	2400 - 2484	11.5	0.75	20		

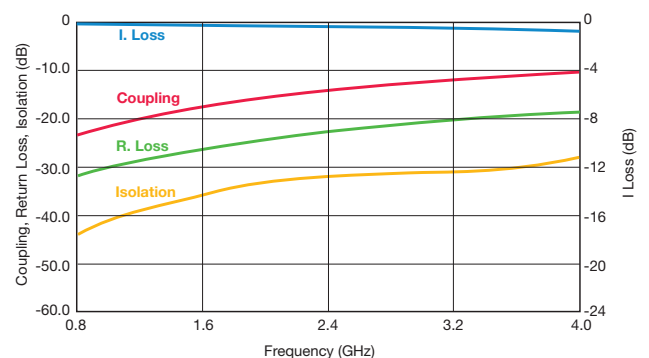
CP0603AxxxxALTR



Coupler P/N CP0603AxxxxBL

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max. [dB]	Return Loss [dB]	Directivity [dB]	
AMPS	CP0603A0836BL	824 - 849	23.0	0.20	31	20	
	CP0603A0881BL	869 - 894	22.7				
GSM	CP0603A0902BL	890 - 915	22.5				
	CP0603A0947BL	935 - 960	22.0				
E-GSM	CP0603A0897BL	880 - 915	22.5				
	CP0603A0942BL	925 - 960	22.0				
PDC	CP0603A1441BL	1429 - 1453	18.5		0.25		27
PCN	CP0603A1747BL	1710 - 1785	17.0				
	CP0603A1842BL	1805 - 1880	16.4		0.25		25
PCS	CP0603A1880BL	1850 - 1910	16.2				
	CP0603A1960BL	1930 - 1990	16.0	0.35	23		
PHP	CP0603A1907BL	1895 - 1920	16.1				
DECT	CP0603A1890BL	1880 - 1900	16.2	0.35	23		
Wireless LAN	CP0603A2442BL	2400 - 2484	14.2	0.35	23		

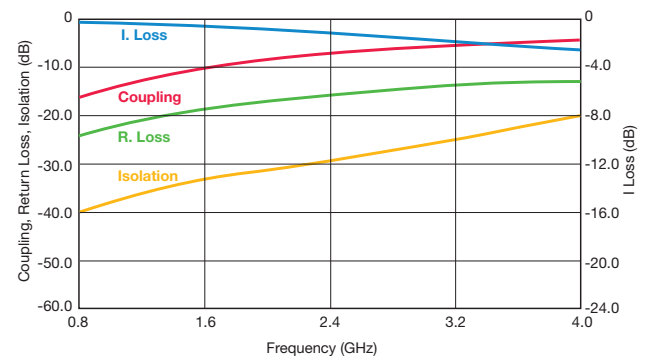
CP0603AxxxxBLTR



Coupler P/N CP0603AxxxxCL

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max. [dB]	Return Loss [dB]	Directivity [dB]	
AMPS	CP0603A0836CL	824 - 849	15.2	0.35	23	23	
	CP0603A0881CL	869 - 894	15.0				
GSM	CP0603A0902CL	890 - 915	14.7				
	CP0603A0947CL	935 - 960	14.3				
E-GSM	CP0603A0897CL	880 - 915	14.7				
	CP0603A0942CL	925 - 960	14.3				
PDC	CP0603A1441CL	1429 - 1453	11.0		0.70		19
PCN	CP0603A1747CL	1710 - 1785	9.5		0.80		18
	CP0603A1842CL	1805 - 1880	9.0				
PCS	CP0603A1880CL	1850 - 1910	8.8		0.90		17
	CP0603A1960CL	1930 - 1990	8.5				
PHP	CP0603A1907CL	1895 - 1920	8.8	0.90	17		
DECT	CP0603A1890CL	1880 - 1900	8.8	0.90	17		
Wireless LAN	CP0603A2442CL	2400 - 2484	7.0	1.40	15		

CP0603AxxxxCLTR



Important: Couplers can be used at any frequency within the indicated range.

# Thin-Film Directional Couplers

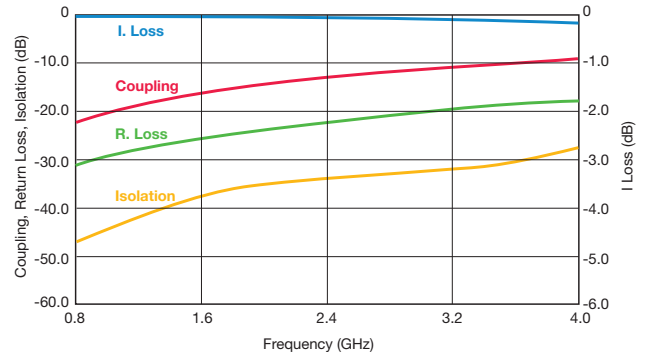


## CP0603 High Directivity LGA Type

Coupler P/N CP0603AxxxxDL

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max. [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0603A0836DL	824 - 849	22.0	0.25	31	22
	CP0603A0881DL	869 - 894	21.8			
GSM	CP0603A0902DL	890 - 915	21.3	0.30	30	
	CP0603A0947DL	935 - 960	21.0			
E-GSM	CP0603A0897DL	880 - 915	21.3	0.30	27	
	CP0603A0942DL	925 - 960	21.0			
PDC	CP0603A1441DL	1429 - 1453	17.7	0.40	25	
PCN	CP0603A1747DL	1710 - 1785	16.0		15.4	
	CP0603A1842DL	1805 - 1880	15.4			
PCS	CP0603A1880DL	1850 - 1910	15.2		15.0	24
	CP0603A1960DL	1930 - 1990	15.0			
PHP	CP0603A1907DL	1895 - 1920	15.2	0.55	22	
DECT	CP0603A1890DL	1880 - 1900	15.2			
Wireless LAN	CP0603A2442DL	2400 - 2484	13.3			

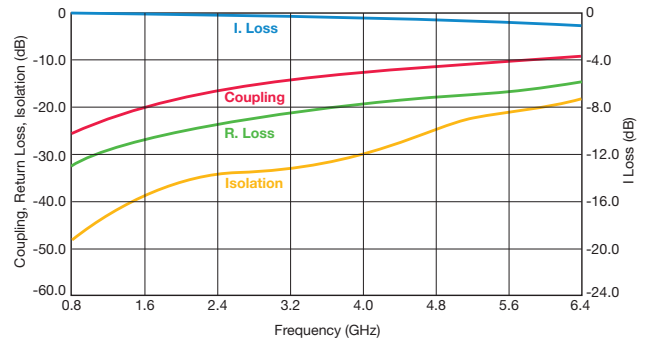
CP0603AxxxxDLTR



Coupler P/N CP0603AxxxxEL

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max. [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0603A0836EL	824 - 849	25.8	0.20	32	21
	CP0603A0881EL	869 - 894	25.3			
GSM	CP0603A0902EL	890 - 915	25.0	0.25	28	
	CP0603A0947EL	935 - 960	24.7			
E-GSM	CP0603A0897EL	880 - 915	25.0	0.30	26	
	CP0603A0942EL	925 - 960	24.7			
PDC	CP0603A1441EL	1429 - 1453	21.0	0.40	24	
PCN	CP0603A1747EL	1710 - 1785	19.5		19.0	
	CP0603A1842EL	1805 - 1880	19.0			
PCS	CP0603A1880EL	1850 - 1910	18.8		18.5	24
	CP0603A1960EL	1930 - 1990	18.5			
PHP	CP0603A1907EL	1895 - 1920	18.7	0.40	24	
DECT	CP0603A1890EL	1880 - 1900	18.8			
Wireless LAN	CP0603A2442EL	2400 - 2484	17.0			

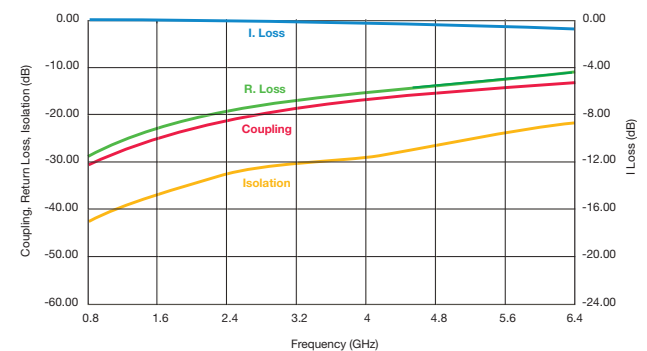
CP0603AxxxxELTR



Coupler P/N CP0603AxxxxFL

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max. [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0603A0836FL	824 - 849	31.2	0.20	28	12
	CP0603A0881FL	869 - 894	30.8			
GSM	CP0603A0902FL	890 - 915	30.5	0.25	27	
	CP0603A0947FL	935 - 960	30.2			
E-GSM	CP0603A0897FL	880 - 915	30.5	0.25	23	
	CP0603A0942FL	925 - 960	30.2			
PDC	CP0603A1441FL	1429 - 1453	27.0	0.25	21	
PCN	CP0603A1747FL	1710 - 1785	25.0		24.5	
	CP0603A1842FL	1805 - 1880	24.5			
PCS	CP0603A1880FL	1850 - 1910	24.3		24.0	21
	CP0603A1960FL	1930 - 1990	24.0			
PHP	CP0603A1907FL	1895 - 1920	24.2	0.25	20	
DECT	CP0603A1890FL	1880 - 1900	24.2			
Wireless LAN	CP0603A2442FL	2400 - 2484	21.5			

CP0603AxxxxFLTR



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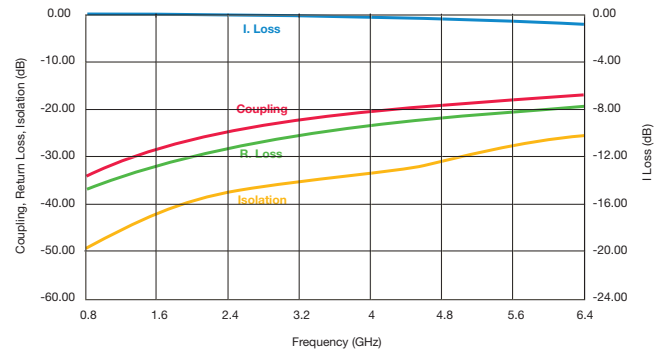


## CP0603 High Directivity LGA Type

Coupler P/N CP0603AxxxxGL

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max. [dB]	Return Loss [dB]	Directivity [dB]	
AMPS	CP0603A0836GL	824 - 849	34.2	0.20	39	13	
	CP0603A0881GL	869 - 894	33.8				
GSM	CP0603A0902GL	890 - 915	33.6				
	CP0603A0947GL	935 - 960	33.2				
E-GSM	CP0603A0897GL	880 - 915	33.6				
	CP0603A0942GL	925 - 960	33.2				
PDC	CP0603A1441GL	1429 - 1453	30.0		0.25		34
PCN	CP0603A1747GL	1710 - 1785	28.5				
		CP0603A1842GL	1805 - 1880				28.0
PCS	CP0603A1880GL	1850 - 1910	27.7				
	CP0603A1960GL	1930 - 1990	27.5				
PHP	CP0603A1907GL	1895 - 1920	27.6	32			
DECT	CP0603A1890GL	1880 - 1900	27.7				
Wireless LAN	CP0603A2442GL	2400 - 2484	25.5	31			

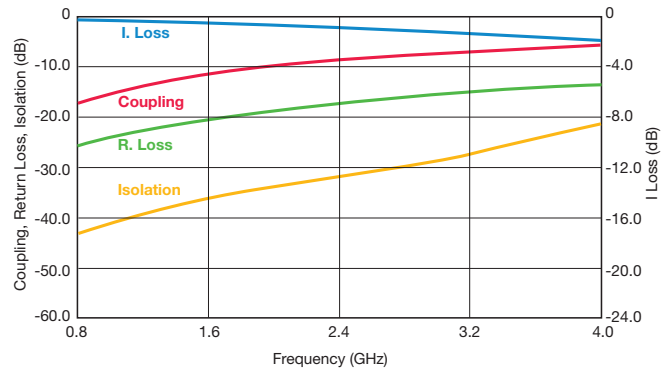
CP0603AxxxxGLTR



Coupler P/N CP0603AxxxxHL

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max. [dB]	Return Loss [dB]	Directivity [dB]
AMPS	CP0603A0836HL	824 - 849	17.3	0.30	26	26
	CP0603A0881HL	869 - 894	17.0			
GSM	CP0603A0902HL	890 - 915	16.7			
	CP0603A0947HL	935 - 960	16.3			
E-GSM	CP0603A0897HL	880 - 915	17.0	0.35	25	
	CP0603A0942HL	925 - 960	16.3			
PDC	CP0603A1441HL	1429 - 1453	13.0	0.55	22	
PCN	CP0603A1747HL	1710 - 1785	11.4			
		CP0603A1842HL	1805 - 1880		11.0	
PCS	CP0603A1880HL	1850 - 1910	10.8			
	CP0603A1960HL	1930 - 1990	10.5			
PHP	CP0603A1907HL	1895 - 1920	10.7		19	
DECT	CP0603A1890HL	1880 - 1900	10.8			
Wireless LAN	CP0603A2442HL	2400 - 2484	8.8		1.00	17

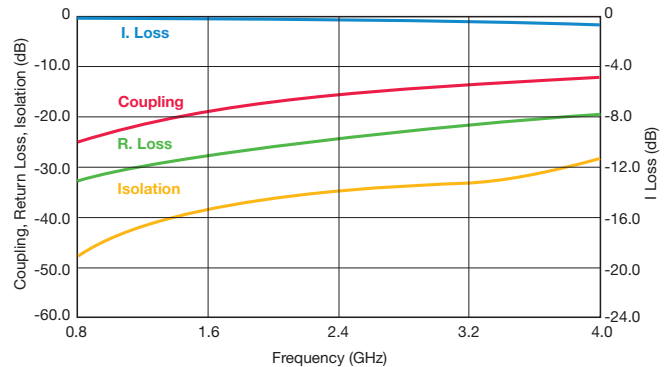
CP0603AxxxxHLTR



Coupler P/N CP0603AxxxxML

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max. [dB]	Return Loss [dB]	Directivity [dB]	
AMPS	CP0603A0836ML	824 - 849	24.2	0.20	33	23	
	CP0603A0881ML	869 - 894	23.8				
GSM	CP0603A0902ML	890 - 915	23.4				
	CP0603A0947ML	935 - 960	23.2				
E-GSM	CP0603A0897ML	880 - 915	23.4				
	CP0603A0942ML	925 - 960	23.2				
PDC	CP0603A1441ML	1429 - 1453	20.0		0.25		28
PCN	CP0603A1747ML	1710 - 1785	18.4				
		CP0603A1842ML	1805 - 1880				18.0
PCS	CP0603A1880ML	1850 - 1910	17.8				
	CP0603A1960ML	1930 - 1990	17.5				
PHP	CP0603A1907ML	1895 - 1920	17.7	26			
DECT	CP0603A1890ML	1880 - 1900	17.8				
Wireless LAN	CP0603A2442ML	2400 - 2484	15.6	0.35		24	

CP0603AxxxxMLTR



Important: Couplers can be used at any frequency within the indicated range.