

# Thin-Film Directional Couplers



## CP0402 High Directivity LGA Termination

### GENERAL DESCRIPTION

#### ITF (Integrated Thin-Film) 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 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 | 1.00±0.05<br>(0.040±0.002) |
| W | 0.58±0.04<br>(0.023±0.002) |
| T | 0.35±0.05<br>(0.014±0.002) |

|   |                            |
|---|----------------------------|
| A | 0.20±0.05<br>(0.008±0.002) |
| B | 0.18±0.05<br>(0.007±0.002) |
| S | 0.05±0.05<br>(0.002±0.002) |

3

### HOW TO ORDER

|   |   |                              |   |                                  |  |   |
|---|---|------------------------------|---|----------------------------------|--|---|
| <b>CP</b><br>T<br><b>Style</b><br>Directional Coupler | <b>0402</b><br>T<br><b>Size</b><br>0402 | <b>X</b><br>T<br><b>Type</b> | <b>****</b><br>T<br><b>Frequency</b><br>(MHz) | <b>X</b><br>T<br><b>Sub Type</b> | <b>N</b><br>T<br><b>LGA Termination</b><br>L = LGA Sn90, Pb10<br>**N = LGA Sn100 | <b>TR</b><br>T<br><b>Packaging Code</b><br>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.*

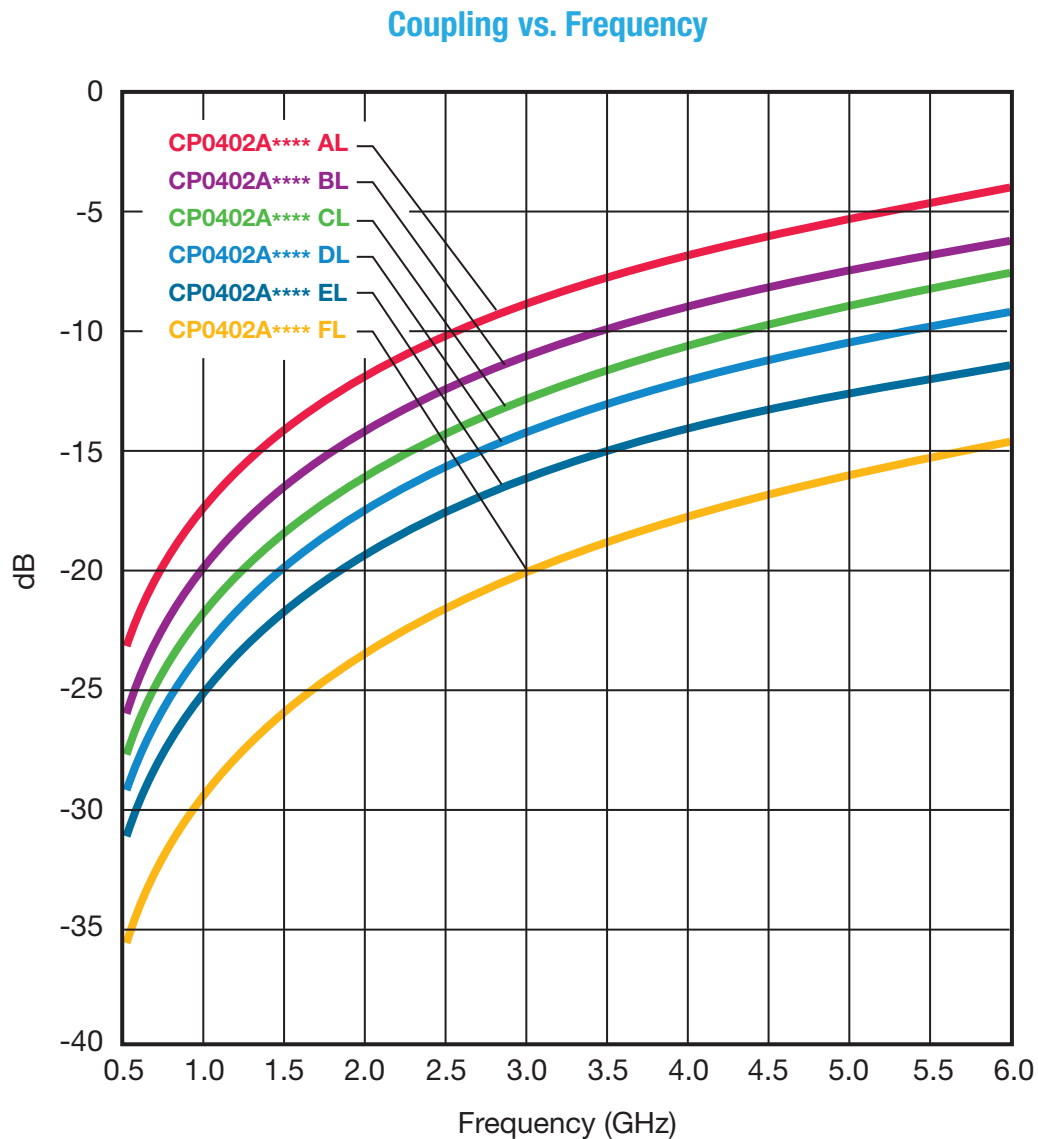
### Recommended Pad Layout Dimensions

mm (inches)



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

### COUPLER TYPE SELECTION GRAPH



3

Intermediate coupling factors are readily available.  
Please contact factory.

# Thin-Film Directional Couplers



## CP0402 High Directivity LGA Termination

Coupler P/N CP0402AxxxxAL

| Application  | P/N Examples  | 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         |                   |                  |                  |
| GSM          | CP0402A0902AL | 890 - 915            | 18.50         | 0.25              | 31               |                  |
|              | CP0402A0947AL | 935 - 960            | 18.00         |                   |                  |                  |
| E-GSM        | CP0402A0897AL | 880 - 915            | 18.50         | 0.25              | 31               |                  |
|              | CP0402A0942AL | 925 - 960            | 18.00         |                   |                  |                  |
| PDC          | CP0402A1441AL | 1429 - 1453          | 14.50         | 0.40              | 28               |                  |
| PCN          | CP0402A1747AL | 1710 - 1785          | 13.00         | 0.50              | 26               |                  |
|              | CP0402A1842AL | 1805 - 1880          | 12.50         |                   |                  |                  |
| PCS          | CP0402A1880AL | 1850 - 1910          | 12.30         | 0.50              | 25               |                  |
|              | CP0402A1960AL | 1930 - 1990          | 12.00         |                   |                  |                  |
| 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



Coupler P/N CP0402AxxxxBL

| Application  | P/N Examples  | 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         |                   |                  |                  |
| GSM          | CP0402A0902BL | 890 - 915            | 21.50         | 0.25              | 27               |                  |
|              | CP0402A0947BL | 935 - 960            | 21.00         |                   |                  |                  |
| E-GSM        | CP0402A0897BL | 880 - 915            | 21.50         | 0.20              | 28               |                  |
|              | CP0402A0942BL | 925 - 960            | 21.00         |                   |                  |                  |
| PDC          | CP0402A1441BL | 1429 - 1453          | 17.50         | 0.25              | 24               |                  |
| PCN          | CP0402A1747BL | 1710 - 1785          | 16.00         | 0.30              | 23               |                  |
|              | CP0402A1842BL | 1805 - 1880          | 15.50         |                   |                  |                  |
| PCS          | CP0402A1880BL | 1850 - 1910          | 15.00         | 0.35              | 22               |                  |
|              | CP0402A1960BL | 1930 - 1990          | 15.00         |                   |                  |                  |
| 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



Coupler P/N CP0402AxxxxCL

| Application  | P/N Examples  | 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         |                   |                  |                  |
| GSM          | CP0402A0902CL | 890 - 915            | 23.00         | 0.20              | 26               |                  |
|              | CP0402A0947CL | 935 - 960            | 22.50         |                   |                  |                  |
| E-GSM        | CP0402A0897CL | 880 - 915            | 23.00         | 0.20              | 25               |                  |
|              | CP0402A0942CL | 925 - 960            | 22.50         |                   |                  |                  |
| PDC          | CP0402A1441CL | 1429 - 1453          | 19.00         | 0.25              | 31               |                  |
| PCN          | CP0402A1747CL | 1710 - 1785          | 17.20         | 0.25              | 30               |                  |
|              | CP0402A1842CL | 1805 - 1880          | 17.00         |                   |                  |                  |
| PCS          | CP0402A1880CL | 1850 - 1910          | 16.80         | 0.25              | 29               |                  |
|              | CP0402A1960CL | 1930 - 1990          | 16.50         |                   |                  |                  |
| 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



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

3

# Thin-Film Directional Couplers



## CP0402 High Directivity LGA Termination

Coupler P/N CP0402AxxxxDL

| Application  | P/N Examples  | 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         |                   | 28               |                  |
| GSM          | CP0402A0902DL | 890 - 915            | 24.70         |                   | 28               |                  |
|              | CP0402A0947DL | 935 - 960            | 24.10         |                   | 25               |                  |
| E-GSM        | CP0402A0897DL | 880 - 915            | 24.70         |                   | 24               |                  |
|              | CP0402A0942DL | 925 - 960            | 24.10         |                   | 23               |                  |
| PDC          | CP0402A1441DL | 1429 - 1453          | 20.50         |                   | 23               |                  |
| PCN          | CP0402A1747DL | 1710 - 1785          | 19.00         |                   | 23               |                  |
|              | CP0402A1842DL | 1805 - 1880          | 18.50         |                   | 22               |                  |
| PCS          | CP0402A1880DL | 1850 - 1910          | 18.20         |                   | 22               |                  |
|              | CP0402A1960DL | 1930 - 1990          | 18.00         | 22                |                  |                  |
| PHP          | CP0402A1907DL | 1895 - 1920          | 18.10         | 22                |                  |                  |
| DECT         | CP0402A1890DL | 1880 - 1900          | 18.20         | 22                |                  |                  |
| Wireless LAN | CP0402A2442DL | 2400 - 2484          | 16.00         | 0.35              | 22               |                  |

CP0402AxxxxDLTR



Coupler P/N CP0402AxxxxEL

| Application  | P/N Examples  | 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         |                   | 34               |                  |
| GSM          | CP0402A0902EL | 890 - 915            | 26.50         |                   | 34               |                  |
|              | CP0402A0947EL | 935 - 960            | 26.00         |                   | 29               |                  |
| E-GSM        | CP0402A0897EL | 880 - 915            | 26.50         |                   | 27               |                  |
|              | CP0402A0942EL | 925 - 960            | 26.00         |                   | 23               |                  |
| PDC          | CP0402A1441EL | 1429 - 1453          | 22.30         |                   | 23               |                  |
| PCN          | CP0402A1747EL | 1710 - 1785          | 20.50         |                   | 26               |                  |
|              | CP0402A1842EL | 1805 - 1880          | 20.30         |                   | 23               |                  |
| PCS          | CP0402A1880EL | 1850 - 1910          | 20.00         |                   | 23               |                  |
|              | CP0402A1960EL | 1930 - 1990          | 20.00         | 23                |                  |                  |
| PHP          | CP0402A1907EL | 1895 - 1920          | 20.00         | 23                |                  |                  |
| DECT         | CP0402A1890EL | 1880 - 1900          | 18.00         | 23                |                  |                  |
| Wireless LAN | CP0402A2442EL | 2400 - 2484          | 18.00         | 0.35              | 23               |                  |

CP0402AxxxxELTR



Coupler P/N CP0402AxxxxFL

| Application  | P/N Examples  | 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         |                   | 28.60            |                  |
| GSM          | CP0402A0902FL | 890 - 915            | 30.60         |                   | 28.50            |                  |
|              | CP0402A0947FL | 935 - 960            | 30.00         |                   | 28.10            |                  |
| E-GSM        | CP0402A0897FL | 880 - 915            | 30.60         |                   | 28.50            |                  |
|              | CP0402A0942FL | 925 - 960            | 30.00         |                   | 28.10            |                  |
| PDC          | CP0402A1441FL | 1429 - 1453          | 26.50         |                   | 25.00            |                  |
| PCN          | CP0402A1747FL | 1710 - 1785          | 25.00         |                   | 23.80            |                  |
|              | CP0402A1842FL | 1805 - 1880          | 24.50         |                   | 23.60            |                  |
| PCS          | CP0402A1880FL | 1850 - 1910          | 24.20         |                   | 23.50            |                  |
|              | CP0402A1960FL | 1930 - 1990          | 24.00         | 23.30             |                  |                  |
| PHP          | CP0402A1907FL | 1895 - 1920          | 24.20         | 23.40             |                  |                  |
| DECT         | CP0402A1890FL | 1880 - 1900          | 24.20         | 23.50             |                  |                  |
| Wireless LAN | CP0402A2442FL | 2400 - 2484          | 22.00         | 0.25              | 22.60            |                  |

CP0402AxxxxFLTR



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



Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А