

# 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

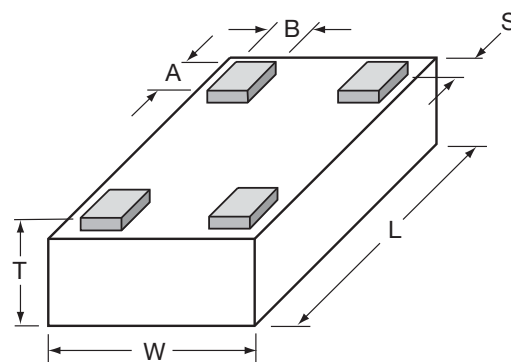
- Mobile Communications
- Satellite TV Receivers
- GPS
- Vehicle Location Systems
- Wireless LAN's

### 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<br>(0.063±0.004) |
| W | 0.84±0.10<br>(0.033±0.004) |
| T | 0.60±0.10<br>(0.024±0.004) |

|   |                            |
|---|----------------------------|
| A | 0.25±0.05<br>(0.010±0.002) |
| B | 0.20±0.05<br>(0.008±0.002) |
| S | 0.05±0.05<br>(0.002±0.002) |

### HOW TO ORDER

|                                                       |                                         |                              |                                               |                                  |                                                                                   |                                                               |
|-------------------------------------------------------|-----------------------------------------|------------------------------|-----------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>CP</b><br>T<br><b>Style</b><br>Directional Coupler | <b>0603</b><br>T<br><b>Size</b><br>0603 | <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>Termination Code</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

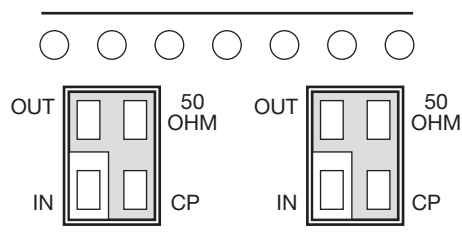
Finished parts are 100% tested for electrical parameters and visual characteristics. Each production lot is evaluated on a sample basis for:

- Static Humidity: 85°C, 85% RH, 160 hours
- Endurance: 125°C, I<sub>R</sub>, 4 hours

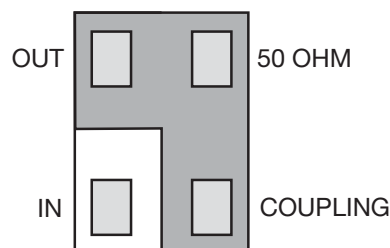
### TERMINATION

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)



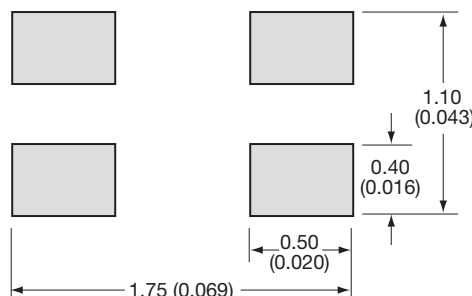
Not RoHS Compliant



For RoHS compliant products, please select correct termination style.

### Recommended Pad Layout Dimensions

mm (inches)

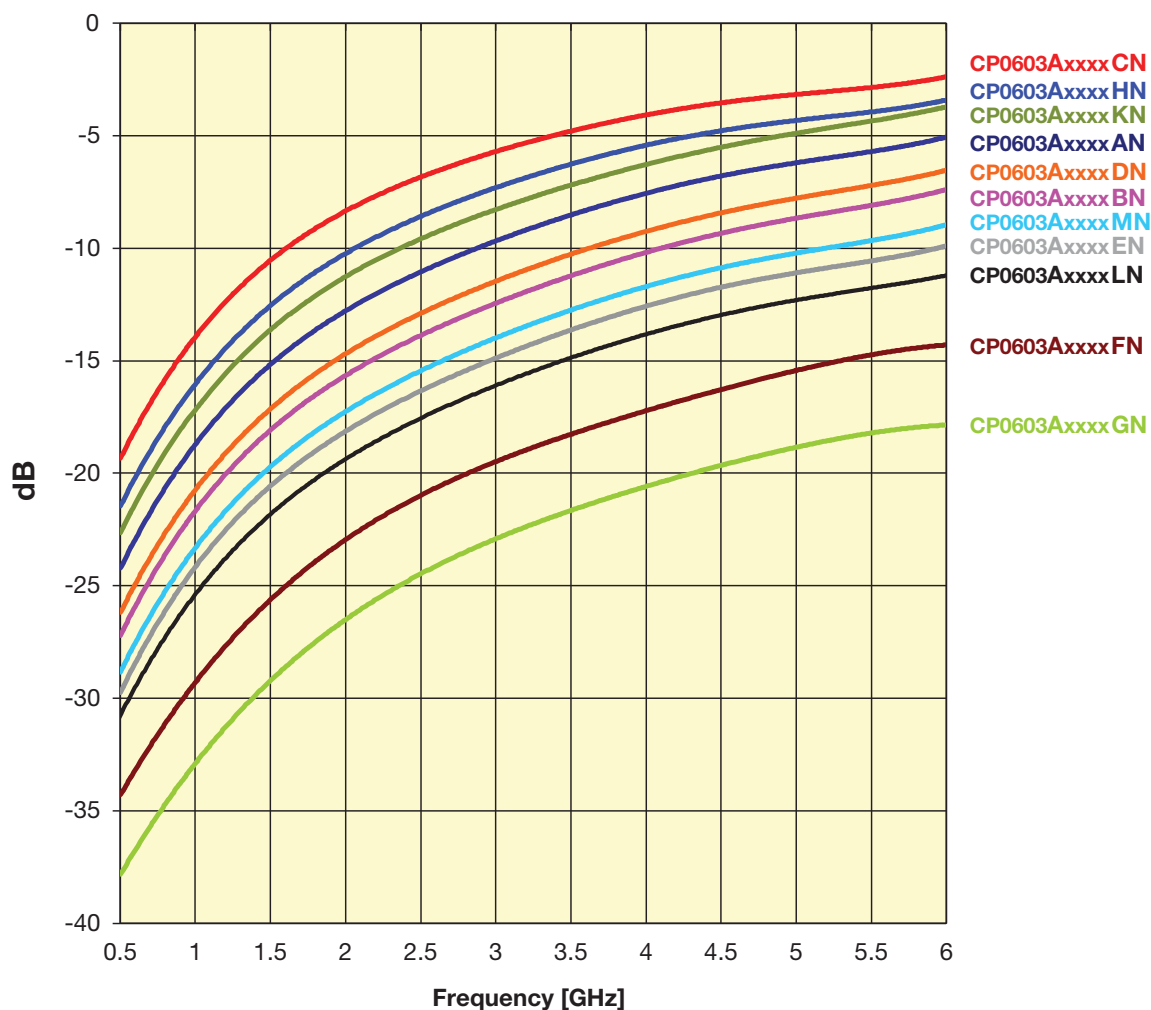


\*The recommended distance to the PCB Ground Plane is 0.254mm (0.010")



### CP0603 - TYPE SELECTION CHART

Coupling vs. Frequency



Intermediate coupling factors are readily available.  
Please contact factory.

# Thin-Film Directional Couplers

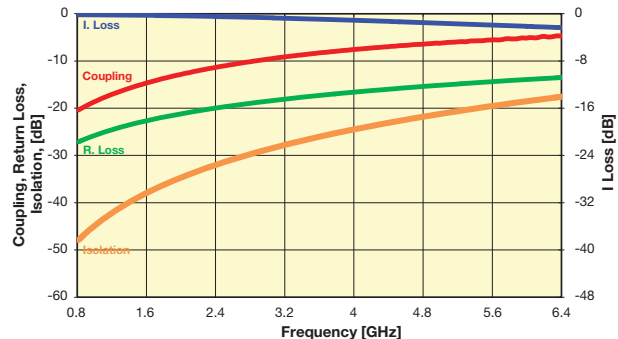


## CP0603 High Directivity LGA Type

Coupler P/N CP0603AxxxxAN

| Application  | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|--------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS         | CP0603A0836AN | 824 - 849            | 20.0          | 0.25              | 28               | 22               |
| GSM          | CP0603A0881AN | 869 - 894            | 19.7          | 0.25              | 28               |                  |
|              | CP0603A0902AN | 890 - 915            | 19.4          | 0.25              | 27               |                  |
| E-GSM        | CP0603A0947AN | 935 - 960            | 19.0          | 0.25              | 27               |                  |
|              | CP0603A0897AN | 880 - 915            | 19.4          | 0.25              | 28               |                  |
| PDC          | CP0603A0942AN | 925 - 960            | 19.0          | 0.25              | 27               |                  |
|              | CP0603A1441AN | 1429 - 1453          | 15.5          | 0.40              | 24               |                  |
| PCN          | CP0603A1747AN | 1710 - 1785          | 14.0          | 0.50              | 22               |                  |
|              | CP0603A1842AN | 1805 - 1880          | 13.5          | 0.50              | 22               |                  |
| PCS          | CP0603A1880AN | 1850 - 1910          | 13.2          | 0.50              | 22               |                  |
|              | CP0603A1960AN | 1930 - 1990          | 13.0          | 0.55              | 21               |                  |
| PHP          | CP0603A1907AN | 1895 - 1920          | 13.2          | 0.50              | 22               |                  |
| DECT         | CP0603A1890AN | 1880 - 1900          | 13.2          | 0.50              | 22               |                  |
| Wireless LAN | CP0603A2442AN | 2400 - 2484          | 11.5          | 0.75              | 20               |                  |
| WiFi         | CP0603A3500AN | 3450 - 3550          | 8.6           | 1.3               | 17               | 20               |
|              | CP0603A5000AN | 4950 - 5050          | 6.1           | 2.2               | 13               | 14               |
|              | CP0603A5500AN | 5450 - 5550          | 5.5           | 2.5               | 15               | 13               |
|              | CP0603A6000AN | 5950 - 6050          | 5             | 3                 | 11.6             | 13               |

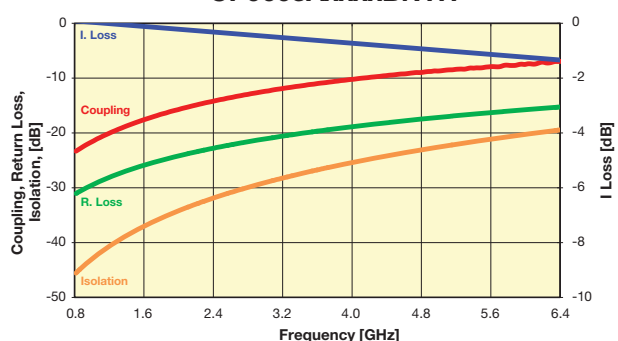
CP0603AxxxxANTR



Coupler P/N CP0603AxxxxBN

| Application | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|-------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS        | CP0603A0836BN | 824 - 849            | 23.0          | 0.20              | 31               | 24               |
| GSM         | CP0603A0881BN | 869 - 894            | 22.7          | 0.20              | 31               |                  |
|             | CP0603A0902BN | 890 - 915            | 22.5          | 0.20              | 31               |                  |
|             | CP0603A0947BN | 935 - 960            | 22.0          | 0.20              | 30               |                  |
| E-GSM       | CP0603A0897BN | 880 - 915            | 22.5          | 0.20              | 31               | 21               |
|             | CP0603A0942BN | 925 - 960            | 22.0          | 0.20              | 30               |                  |
| PDC         | CP0603A1441BN | 1429 - 1453          | 18.5          | 0.25              | 27               |                  |
|             | CP0603A1747BN | 1710 - 1785          | 17.0          | 0.25              | 25               |                  |
| PCN         | CP0603A1842BN | 1805 - 1880          | 16.4          | 0.25              | 25               |                  |
|             | CP0603A1880BN | 1850 - 1910          | 16.2          | 0.25              | 25               |                  |
| PCS         | CP0603A1960BN | 1930 - 1990          | 16.0          | 0.25              | 24               |                  |
|             | CP0603A1907BN | 1895 - 1920          | 16.1          | 0.25              | 25               |                  |
| DECT        | CP0603A1890BN | 1880 - 1900          | 16.2          | 0.25              | 25               |                  |
|             | CP0603A2442BN | 2400 - 2484          | 14.2          | 0.35              | 23               |                  |
| WiFi        | CP0603A3500BN | 3450 - 3550          | 11.2          | 0.6               | 20               | 20               |
|             | CP0603A5000BN | 4950 - 5050          | 8.4           | 1.1               | 16.7             | 17               |
|             | CP0603A5500BN | 5450 - 5550          | 7.8           | 1.4               | 15.7             | 16               |
|             | CP0603A6000BN | 5950 - 6050          | 7.2           | 1.6               | 15               | 15               |

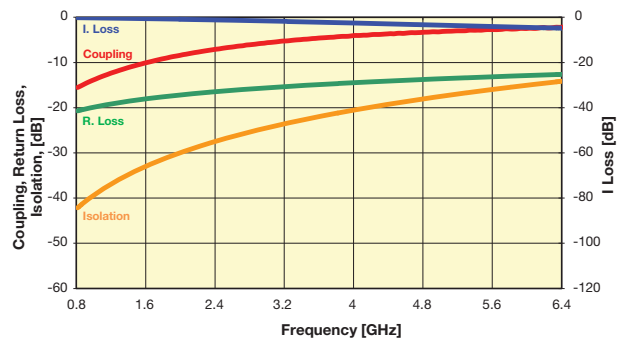
CP0603AxxxxBNTR



Coupler P/N CP0603AxxxxCN

| Application | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|-------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS        | CP0603A0836CN | 824 - 849            | 15.2          | 0.35              | 23               | 23               |
| GSM         | CP0603A0881CN | 869 - 894            | 15.0          | 0.35              | 23               |                  |
|             | CP0603A0902CN | 890 - 915            | 14.7          | 0.35              | 23               |                  |
|             | CP0603A0947CN | 935 - 960            | 14.3          | 0.40              | 22               |                  |
| E-GSM       | CP0603A0897CN | 880 - 915            | 14.7          | 0.35              | 23               | 21               |
|             | CP0603A0942CN | 925 - 960            | 14.3          | 0.40              | 22               |                  |
| PDC         | CP0603A1441CN | 1429 - 1453          | 11.0          | 0.70              | 19               |                  |
|             | CP0603A1747CN | 1710 - 1785          | 9.5           | 0.80              | 18               |                  |
| PCN         | CP0603A1842CN | 1805 - 1880          | 9.0           | 0.90              | 17               |                  |
|             | CP0603A1880CN | 1850 - 1910          | 8.8           | 0.90              | 17               |                  |
| PCS         | CP0603A1960CN | 1930 - 1990          | 8.5           | 1.00              | 17               |                  |
|             | CP0603A1907CN | 1895 - 1920          | 8.8           | 0.90              | 17               |                  |
| DECT        | CP0603A1890CN | 1880 - 1900          | 8.8           | 0.90              | 17               |                  |
|             | CP0603A2442CN | 2400 - 2484          | 7.0           | 1.40              | 15               |                  |
| WiFi        | CP0603A3500CN | 3450 - 3550          | 4.8           | 2.0               | 23               | 20               |
|             | CP0603A5000CN | 4950 - 5050          | 3.0           | 3.6               | 21               | 17               |
|             | CP0603A5500CN | 5450 - 5550          | 3.0           | 4.0               | 20.6             | 16               |
|             | CP0603A6000CN | 5950 - 6050          | 2.5           | 4.5               | 20.5             | 16               |

CP0603AxxxxCNTR



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



# Thin-Film Directional Couplers

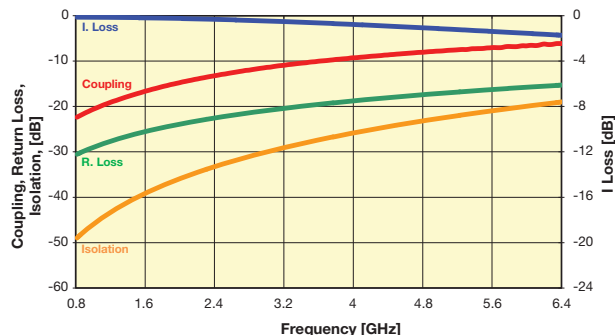


## CP0603 High Directivity LGA Type

Coupler P/N CP0603AxxxxDN

| Application  | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|--------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS         | CP0603A0836DN | 824 - 849            | 22.0          | 0.25              | 31               | 30               |
|              | CP0603A0881DN | 869 - 894            | 21.8          | 0.25              | 30               |                  |
| GSM          | CP0603A0902DN | 890 - 915            | 21.3          | 0.25              | 30               |                  |
|              | CP0603A0947DN | 935 - 960            | 21.0          | 0.30              | 30               |                  |
| E-GSM        | CP0603A0897DN | 880 - 915            | 21.3          | 0.25              | 30               | 25               |
|              | CP0603A0942DN | 925 - 960            | 21.0          | 0.30              | 30               |                  |
| PDC          | CP0603A1441DN | 1429 - 1453          | 17.7          | 0.40              | 27               |                  |
|              | CP0603A1747DN | 1710 - 1785          | 16.0          | 0.40              | 25               |                  |
| PCN          | CP0603A1842DN | 1805 - 1880          | 15.4          | 0.40              | 25               |                  |
|              | CP0603A1880DN | 1850 - 1910          | 15.2          | 0.40              | 24               |                  |
| PCS          | CP0603A1960DN | 1930 - 1990          | 15.0          | 0.40              | 24               |                  |
| PHP          | CP0603A1907DN | 1895 - 1920          | 15.2          | 0.40              | 24               |                  |
| DECT         | CP0603A1890DN | 1880 - 1900          | 15.2          | 0.40              | 24               | 20               |
| Wireless LAN | CP0603A2442DN | 2400 - 2484          | 13.3          | 0.55              | 22               |                  |
|              | CP0603A3500DN | 3450 - 3550          | 10.1          | 0.66              | 25.3             |                  |
|              | CP0603A5000DN | 4950 - 5050          | 7.8           | 1.17              | 21.1             |                  |
| WiFi         | CP0603A5500DN | 5450 - 5550          | 6.8           | 1.39              | 19.9             | 18               |
|              | CP0603A6000DN | 5950 - 6050          | 6.3           | 1.64              | 18.8             | 17               |

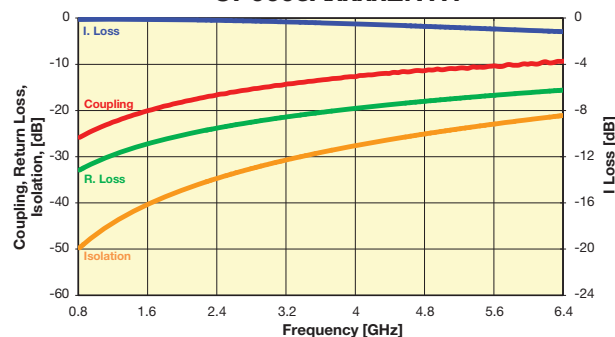
CP0603AxxxxDNTR



Coupler P/N CP603AxxxxEN

| Application  | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|--------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS         | CP0603A0836EN | 824 - 849            | 25.8          | 0.20              | 32               | 21               |
|              | CP0603A0881EN | 869 - 894            | 25.3          | 0.20              | 32               |                  |
| GSM          | CP0603A0902EN | 890 - 915            | 25.0          | 0.20              | 32               |                  |
|              | CP0603A0947EN | 935 - 960            | 24.7          | 0.20              | 31               |                  |
| E-GSM        | CP0603A0897EN | 880 - 915            | 26.0          | 0.20              | 32               |                  |
|              | CP0603A0942EN | 925 - 960            | 24.7          | 0.20              | 31               |                  |
| PDC          | CP0603A1441EN | 1429 - 1453          | 22.0          | 0.25              | 28               |                  |
|              | CP0603A1747EN | 1710 - 1785          | 19.5          | 0.30              | 26               |                  |
| PCN          | CP0603A1842EN | 1805 - 1880          | 19.0          | 0.30              | 26               | 20               |
|              | CP0603A1880EN | 1850 - 1910          | 18.8          | 0.30              | 26               |                  |
| PCS          | CP0603A1960EN | 1930 - 1990          | 18.5          | 0.30              | 26               |                  |
| PHP          | CP0603A1907EN | 1895 - 1920          | 18.7          | 0.30              | 26               |                  |
| DECT         | CP0603A1890EN | 1880 - 1900          | 18.8          | 0.30              | 26               |                  |
| Wireless LAN | CP0603A2442EN | 2400 - 2484          | 17.0          | 0.40              | 24               |                  |
|              | CP0603A3500EN | 3450 - 3550          | 13.2          | 0.5               | 18               |                  |
|              | CP0603A5000EN | 4950 - 5050          | 10.7          | 0.9               | 13               |                  |
| WiFi         | CP0603A5500EN | 5450 - 5550          | 10.2          | 1.2               | 12               | 15               |
|              | CP0603A6000EN | 5950 - 6050          | 9.7           | 1.4               | 12               | 14               |

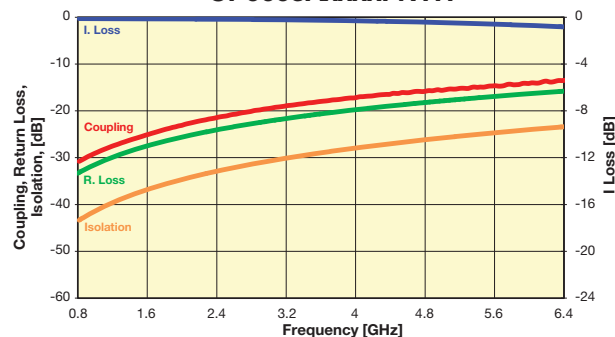
CP0603AxxxxENTR



Coupler P/N CP603AxxxxFN

| Application  | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|--------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS         | CP0603A0836FN | 824 - 849            | 31.2          | 0.20              | 32               | 12               |
|              | CP0603A0881FN | 869 - 894            | 30.8          | 0.20              | 32               |                  |
| GSM          | CP0603A0902FN | 890 - 915            | 30.5          | 0.20              | 30               |                  |
|              | CP0603A0947FN | 935 - 960            | 30.2          | 0.20              | 30               |                  |
| E-GSM        | CP0603A0897FN | 880 - 915            | 30.5          | 0.20              | 30               |                  |
|              | CP0603A0942FN | 925 - 960            | 30.2          | 0.20              | 30               |                  |
| PDC          | CP0603A1441FN | 1429 - 1453          | 27.0          | 0.25              | 28               |                  |
|              | CP0603A1747FN | 1710 - 1785          | 25.0          | 0.25              | 27               |                  |
| PCN          | CP0603A1842FN | 1805 - 1880          | 26.5          | 0.25              | 27               | 13               |
|              | CP0603A1880FN | 1850 - 1910          | 24.3          | 0.25              | 27               |                  |
| PCS          | CP0603A1960FN | 1930 - 1990          | 24.0          | 0.25              | 28               |                  |
| PHP          | CP0603A1907FN | 1895 - 1920          | 24.2          | 0.25              | 27               |                  |
| DECT         | CP0603A1890FN | 1880 - 1900          | 24.2          | 0.25              | 27               |                  |
| Wireless LAN | CP0603A2442FN | 2400 - 2484          | 21.5          | 0.25              | 25               |                  |
|              | CP0603A3500FN | 3450 - 3550          | 17.8          | 0.33              | 20.0             |                  |
|              | CP0603A5000FN | 4950 - 5050          | 15.4          | 0.62              | 14.86            |                  |
| WiFi         | CP0603A5500FN | 5450 - 5550          | 14.8          | 0.86              | 13.58            | 12               |
|              | CP0603A6000FN | 5950 - 6050          | 14.3          | 1.02              | 12.58            | 11               |

CP0603AxxxxFNTR



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

# Thin-Film Directional Couplers

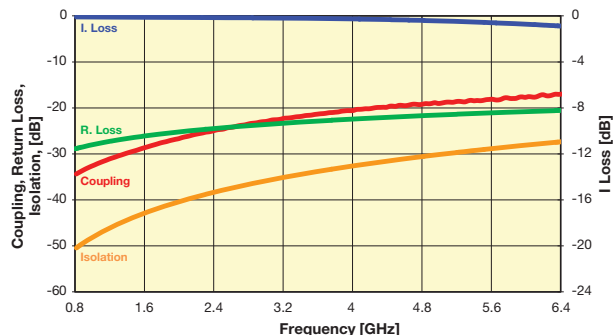


## CP0603 High Directivity LGA Type

Coupler P/N CP603AxxxxGN

| Application  | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|--------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS         | CP0603A0836GN | 824 - 849            | 34.2          | 0.20              | 30               | 13               |
|              | CP0603A0881GN | 869 - 894            | 33.8          | 0.20              | 30               |                  |
| GSM          | CP0603A0902GN | 890 - 915            | 33.6          | 0.20              | 30               |                  |
|              | CP0603A0947GN | 935 - 960            | 33.2          | 0.20              | 29               |                  |
| E-GSM        | CP0603A0897GN | 880 - 915            | 33.6          | 0.20              | 30               |                  |
|              | CP0603A0942GN | 925 - 960            | 33.2          | 0.20              | 29               |                  |
| PDC          | CP0603A1441GN | 1429 - 1453          | 30.0          | 0.25              | 25               |                  |
|              | CP0603A1747GN | 1710 - 1785          | 28.5          | 0.25              | 24               |                  |
| PCN          | CP0603A1842GN | 1805 - 1880          | 28.0          | 0.25              | 24               |                  |
|              | CP0603A1880GN | 1850 - 1910          | 27.7          | 0.25              | 24               |                  |
| PCS          | CP0603A1960GN | 1930 - 1990          | 27.5          | 0.25              | 23               |                  |
| PHP          | CP0603A1907GN | 1895 - 1920          | 27.6          | 0.25              | 24               |                  |
| DECT         | CP0603A1890GN | 1880 - 1900          | 27.7          | 0.25              | 24               |                  |
| Wireless LAN | CP0603A2442GN | 2400 - 2484          | 25.5          | 0.25              | 22               |                  |
|              | CP0603A3500GN | 3450 - 3550          | 21.6          | 0.31              | 20               | 13               |
| WiFi         | CP0603A5000GN | 4950 - 5050          | 19            | 0.39              | 16               | 12               |
|              | CP0603A5500GN | 5450 - 5550          | 18.5          | 0.57              | 15               | 12               |
|              | CP0603A6000GN | 5950 - 6050          | 18.0          | 0.74              | 14               | 11               |

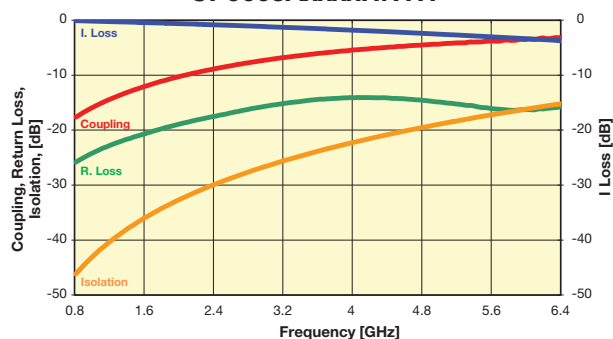
CP0603AxxxxGNTR



Coupler P/N CP603AxxxxHN

| Application  | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|--------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS         | CP0603A0836HN | 824 - 849            | 17.3          | 0.30              | 26               | 26               |
|              | CP0603A0881HN | 869 - 894            | 17.0          | 0.30              | 25               |                  |
| GSM          | CP0603A0902HN | 890 - 915            | 16.7          | 0.30              | 25               |                  |
|              | CP0603A0947HN | 935 - 960            | 16.3          | 0.35              | 25               | 24               |
| E-GSM        | CP0603A0897HN | 880 - 915            | 17.0          | 0.35              | 25               |                  |
|              | CP0603A0942HN | 925 - 960            | 16.3          | 0.35              | 25               |                  |
| PDC          | CP0603A1441HN | 1429 - 1453          | 13.0          | 0.55              | 22               |                  |
|              | CP0603A1747HN | 1710 - 1785          | 11.4          | 0.75              | 20               |                  |
| PCN          | CP0603A1842HN | 1805 - 1880          | 11.0          | 0.75              | 20               |                  |
|              | CP0603A1880HN | 1850 - 1910          | 10.8          | 0.75              | 19               |                  |
| PCS          | CP0603A1960HN | 1930 - 1990          | 10.5          | 0.75              | 19               |                  |
| PHP          | CP0603A1907HN | 1895 - 1920          | 10.7          | 0.75              | 19               |                  |
| DECT         | CP0603A1890HN | 1880 - 1900          | 10.8          | 0.75              | 19               |                  |
| Wireless LAN | CP0603A2442HN | 2400 - 2484          | 8.8           | 1.00              | 17               |                  |
|              | CP0603A3500HN | 3450 - 3550          | 5.9           | 1.48              | 25               | 21               |
| WiFi         | CP0603A5000HN | 4950 - 5050          | 4.4           | 2.59              | 22               | 18               |
|              | CP0603A5500HN | 5450 - 5550          | 4             | 2.95              | 22               | 17               |
|              | CP0603A6000HN | 5950 - 6050          | 3.5           | 3.37              | 21               | 17               |

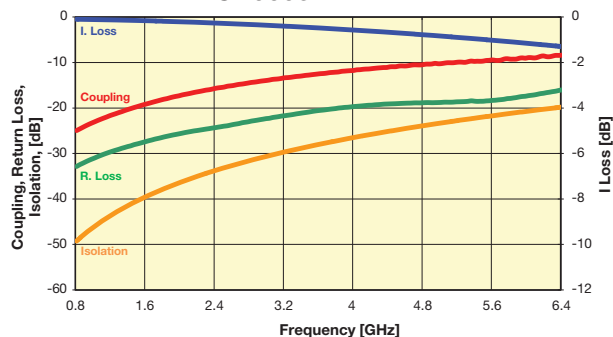
CP0603AxxxxHNTR



Coupler P/N CP603AxxxxMN

| Application  | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|--------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS         | CP0603A0836MN | 824 - 849            | 24.2          | 0.20              | 33               | 23               |
|              | CP0603A0881MN | 869 - 894            | 23.8          | 0.20              | 32               |                  |
| GSM          | CP0603A0902MN | 890 - 915            | 23.4          | 0.20              | 32               |                  |
|              | CP0603A0947MN | 935 - 960            | 23.2          | 0.20              | 32               | 20               |
| E-GSM        | CP0603A0897MN | 880 - 915            | 23.4          | 0.20              | 32               |                  |
|              | CP0603A0942MN | 925 - 960            | 23.2          | 0.20              | 32               |                  |
| PDC          | CP0603A1441MN | 1429 - 1453          | 20.0          | 0.25              | 28               |                  |
|              | CP0603A1747MN | 1710 - 1785          | 18.4          | 0.25              | 27               |                  |
| PCN          | CP0603A1842MN | 1805 - 1880          | 18.0          | 0.25              | 26               |                  |
|              | CP0603A1880MN | 1850 - 1910          | 17.8          | 0.25              | 26               |                  |
| PCS          | CP0603A1960MN | 1930 - 1990          | 17.5          | 0.25              | 26               |                  |
| PHP          | CP0603A1907MN | 1895 - 1920          | 17.7          | 0.25              | 26               |                  |
| DECT         | CP0603A1890MN | 1880 - 1900          | 17.8          | 0.25              | 26               |                  |
| Wireless LAN | CP0603A2442MN | 2400 - 2484          | 15.6          | 0.35              | 24               |                  |
|              | CP0603A3500MN | 3450 - 3550          | 12.8          | 0.58              | 18               | 20               |
| WiFi         | CP0603A5000MN | 4950 - 5050          | 10.2          | 1.0               | 15               | 16               |
|              | CP0603A5500MN | 5450 - 5550          | 9.7           | 1.2               | 15               | 14               |
|              | CP0603A6000MN | 5950 - 6050          | 8.9           | 1.5               | 13.5             | 9                |

CP0603AxxxxMNTR



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

# Thin-Film Directional Couplers

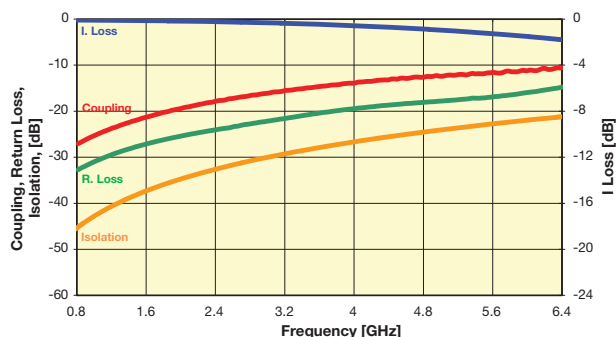


## CP0603 High Directivity LGA Type

Coupler P/N CP603AxxxxLN

| Application  | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|--------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS         | CP0603A0836LN | 824 - 849            | 26.89         | 0.08              | 32.5             | 18               |
|              | CP0603A0881LN | 869 - 894            | 26.55         | 0.08              | 32.2             |                  |
| GSM          | CP0603A0902LN | 890 - 915            | 26.2          | 0.09              | 31.9             |                  |
|              | CP0603A0947LN | 935 - 960            | 25.87         | 0.09              | 31.5             | 17.5             |
| E-GSM        | CP0603A0897LN | 880 - 915            | 26.2          | 0.09              | 31.9             |                  |
|              | CP0603A0942LN | 925 - 960            | 25.87         | 0.09              | 31.5             |                  |
| PDC          | CP0603A1441LN | 1429 - 1453          | 22.31         | 0.12              | 28.1             | 16.5             |
| PCN          | CP0603A1747LN | 1710 - 1785          | 20.51         | 0.15              | 26.4             |                  |
|              | CP0603A1842LN | 1805 - 1880          | 20.03         | 0.15              | 26               |                  |
| PCS          | CP0603A1880LN | 1850 - 1910          | 19.87         | 0.16              | 26               | 16               |
|              | CP0603A1960LN | 1930 - 1990          | 19.57         | 0.17              | 25.5             |                  |
| PHP          | CP0603A1907LN | 1895 - 1920          | 19.77         | 0.16              | 25.7             |                  |
| DECT         | CP0603A1890LN | 1880 - 1900          | 19.87         | 0.16              | 25.8             | 11               |
| Wireless LAN | CP0603A2442LN | 2400 - 2484          | 17.7          | 0.22              | 23.9             |                  |
|              | CP0603A3500LN | 3450 - 3550          | 14.85         | 0.56              | 20.6             |                  |
| WiFi         | CP0603A5000LN | 4950 - 5050          | 12.4          | 0.95              | 17.8             | 9                |
|              | CP0603A5500LN | 5450 - 5550          | 11.83         | 1.2               | 17.1             |                  |
|              | CP0603A6000LN | 5950 - 6050          | 11.08         | 1.33              | 15.9             |                  |

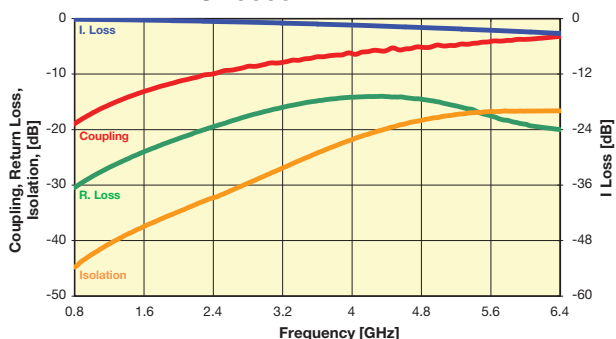
CP0603AxxxxLNTR



Coupler P/N CP603AxxxxKN

| Application  | P/N Examples* | Frequency Band [MHz] | Coupling [dB] | I. Loss max. [dB] | Return Loss [dB] | Directivity [dB] |
|--------------|---------------|----------------------|---------------|-------------------|------------------|------------------|
| AMPS         | CP0603A0836KN | 824 - 849            | 18.5          | 0.14              | 30               | 26               |
|              | CP0603A0881KN | 869 - 894            | 18.1          | 0.14              | 29               |                  |
| GSM          | CP0603A0902KN | 890 - 915            | 17.6          | 0.15              | 29               |                  |
|              | CP0603A0947KN | 935 - 960            | 17.3          | 0.15              | 29               | 25               |
| E-GSM        | CP0603A0897KN | 880 - 915            | 17.9          | 0.147             | 29               |                  |
|              | CP0603A0942KN | 925 - 960            | 17.6          | 0.15              | 29               |                  |
| PDC          | CP0603A1441KN | 1429 - 1453          | 14            | 0.27              | 25               | 24               |
| PCN          | CP0603A1747KN | 1710 - 1785          | 12.4          | 0.36              | 23               |                  |
|              | CP0603A1842KN | 1805 - 1880          | 12            | 0.39              | 22.5             |                  |
| PCS          | CP0603A1880KN | 1850 - 1910          | 11.8          | 0.4               | 22               | 23               |
|              | CP0603A1960KN | 1930 - 1990          | 11.4          | 0.44              | 22               |                  |
| PHP          | CP0603A1907KN | 1895 - 1920          | 11.5          | 0.43              | 22               |                  |
| DECT         | CP0603A1890KN | 1880 - 1900          | 11.7          | 0.41              | 22               | 19               |
| Wireless LAN | CP0603A2442KN | 2400 - 2484          | 9.7           | 0.6               | 19               |                  |
|              | CP0603A3500KN | 3450 - 3550          | 7.2           | 1.15              | 15               |                  |
| WiFi         | CP0603A5000KN | 4950 - 5050          | 4.7           | 2.15              | 15               | 13               |
|              | CP0603A5500KN | 5450 - 5550          | 4.2           | 2.5               | 17               |                  |
|              | CP0603A6000KN | 5950 - 6050          | 3.7           | 2.8               | 19               |                  |

CP0603AxxxxKNTR



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

# Thin-Film Directional Couplers

## 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 (0.010") 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:

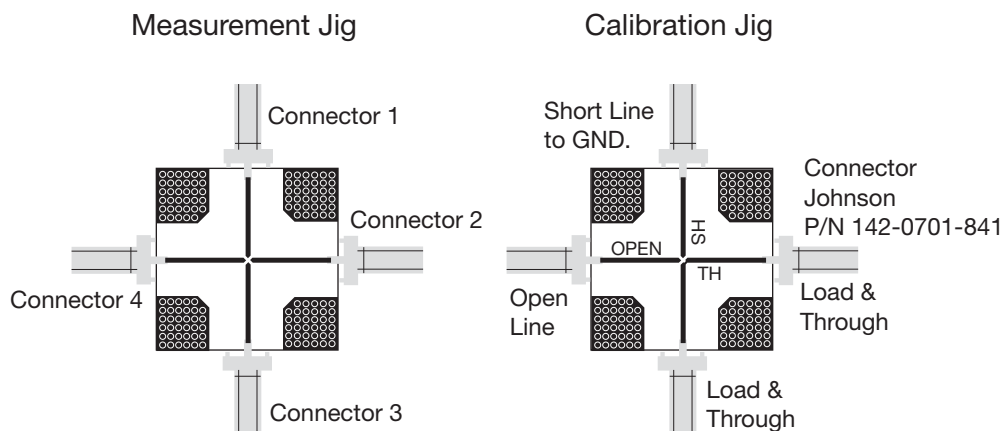
Connector 1 (Jig) → Port 1 (VNA)      Connector 3 (Jig) → 50Ω  
Connector 2 (Jig) → Port 2 (VNA)      Connector 4 (Jig) → 50Ω

#### To measure R. Loss and Coupling connect:

Connector 1 (Jig) → Port 1 (VNA)      Connector 3 (Jig) → 50Ω  
Connector 2 (Jig) → 50Ω      Connector 4 (Jig) → Port 2 (VNA)

#### To measure Isolation connect:

Connector 1 (Jig) → 50Ω      Connector 3 (Jig) → 50Ω  
Connector 2 (Jig) → Port 1 (VNA)      Connector 4 (Jig) → Port 2 (VNA)



# Mouser Electronics

Authorized Distributor

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## AVX:

|                                        |                                        |                                        |                                        |                                        |
|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| <a href="#"><u>CP0603A0836HNTR</u></a> | <a href="#"><u>CP0603A1880ENTR</u></a> | <a href="#"><u>CP0603A0336CNTR</u></a> | <a href="#"><u>CP0603A0836ENTR</u></a> | <a href="#"><u>CP0603A0902HLTR</u></a> |
| <a href="#"><u>CP0603A1880GNTR</u></a> | <a href="#"><u>CP0603A2140BNTR</u></a> | <a href="#"><u>CP0603A2140HNTR</u></a> | <a href="#"><u>CP0603A2442MNTR</u></a> | <a href="#"><u>CP0603A0881ALTR</u></a> |
| <a href="#"><u>CP0603A0450CLTR</u></a> | <a href="#"><u>CP0603A0836CLTR</u></a> | <a href="#"><u>CP0603A0836HLTR</u></a> | <a href="#"><u>CP0603A0836MLTR</u></a> | <a href="#"><u>CP0603A0837CLTR</u></a> |
| <a href="#"><u>CP0603A0837CNTR</u></a> | <a href="#"><u>CP0603A0880CLTR</u></a> | <a href="#"><u>CP0603A0881CLTR</u></a> | <a href="#"><u>CP0603A0897MLTR</u></a> | <a href="#"><u>CP0603A0902ALTR</u></a> |
| <a href="#"><u>CP0603A0902CLTR</u></a> | <a href="#"><u>CP0603A0942ALTR</u></a> | <a href="#"><u>CP0603A0947CLTR</u></a> | <a href="#"><u>CP0603A0967CLTR</u></a> | <a href="#"><u>CP0603A0976CLTR</u></a> |
| <a href="#"><u>CP0603A1441CLTR</u></a> | <a href="#"><u>CP0603A1747MLTR</u></a> | <a href="#"><u>CP0603A1880ALTR</u></a> | <a href="#"><u>CP0603A1880BLTR</u></a> | <a href="#"><u>CP0603A1880BNTR</u></a> |
| <a href="#"><u>CP0603A1880CLTR</u></a> | <a href="#"><u>CP0603A1880ELTR</u></a> | <a href="#"><u>CP0603A1880HLTR</u></a> | <a href="#"><u>CP0603A1880MLTR</u></a> | <a href="#"><u>CP0603A1900ANTR</u></a> |
| <a href="#"><u>CP0603A1900MLTR</u></a> | <a href="#"><u>CP0603A1900MNTR</u></a> | <a href="#"><u>CP0603A1950FLTR</u></a> | <a href="#"><u>CP0603A1960BLTR</u></a> | <a href="#"><u>CP0603A2400FLTR</u></a> |
| <a href="#"><u>CP0603A2400GLTR</u></a> | <a href="#"><u>CP0603A2442BLTR</u></a> | <a href="#"><u>CP0603A2442BNTR</u></a> | <a href="#"><u>CP0603A2442CLTR</u></a> | <a href="#"><u>CP0603A2442FLTR</u></a> |
| <a href="#"><u>CP0603A2442FNTR</u></a> | <a href="#"><u>CP0603A2442GLTR</u></a> | <a href="#"><u>CP0603A0550HNTR</u></a> | <a href="#"><u>CP0603A0700ANTR</u></a> | <a href="#"><u>CP0603A0707ANTR</u></a> |
| <a href="#"><u>CP0603A0707HNTR</u></a> | <a href="#"><u>CP0603A0707KNTR</u></a> | <a href="#"><u>CP0603A0781ANTR</u></a> | <a href="#"><u>CP0603A0870BNTR</u></a> | <a href="#"><u>CP0603A0898ANTR</u></a> |
| <a href="#"><u>CP0603A0900BNTR</u></a> | <a href="#"><u>CP0603A0902FNTR</u></a> | <a href="#"><u>CP0603A0942ANTR</u></a> | <a href="#"><u>CP0603A0942DNTR</u></a> | <a href="#"><u>CP0603A1250CNTR</u></a> |
| <a href="#"><u>CP0603A1300DNTR</u></a> | <a href="#"><u>CP0603A1441BLTR</u></a> | <a href="#"><u>CP0603A1441BNTR</u></a> | <a href="#"><u>CP0603A1747ANTR</u></a> | <a href="#"><u>CP0603A1800ENTR</u></a> |
| <a href="#"><u>CP0603A1880CNTR</u></a> | <a href="#"><u>CP0603A1880FNTR</u></a> | <a href="#"><u>CP0603A2000FNTR</u></a> | <a href="#"><u>CP0603A2535FNTR</u></a> | <a href="#"><u>CP0603A2650ANTR</u></a> |
| <a href="#"><u>CP0603A5500GNTR</u></a> | <a href="#"><u>CP0603A1950CNTR</u></a> | <a href="#"><u>CP0603A1950LNTR</u></a> | <a href="#"><u>CP0603A0430DNTR</u></a> | <a href="#"><u>CP0603A0836BNTR</u></a> |
| <a href="#"><u>CP0603A0942MNTR</u></a> | <a href="#"><u>CP0603A1441CNTR</u></a> | <a href="#"><u>CP0603A1650ENTR</u></a> | <a href="#"><u>CP0603A1960GNTR</u></a> | <a href="#"><u>CP0603A0836ALTR</u></a> |
| <a href="#"><u>CP0603A0881ELTR</u></a> | <a href="#"><u>CP0603A0902HNTR</u></a> | <a href="#"><u>CP0603A0915HLTR</u></a> | <a href="#"><u>CP0603A1747CLTR</u></a> | <a href="#"><u>CP0603A1950ALTR</u></a> |
| <a href="#"><u>CP0603A1960BNTR</u></a> | <a href="#"><u>CP0603A1960DNTR</u></a> | <a href="#"><u>CP0603A1960HNTR</u></a> | <a href="#"><u>CP0603A2100BLTR</u></a> | <a href="#"><u>CP0603A2100DLTR</u></a> |
| <a href="#"><u>CP0603A2100FLTR</u></a> | <a href="#"><u>CP0603A3125ELTR</u></a> | <a href="#"><u>CP0603A0460HLTR</u></a> | <a href="#"><u>CP0603A0836ANTR</u></a> | <a href="#"><u>CP0603A0836CNTR</u></a> |
| <a href="#"><u>CP0603A0881CNTR</u></a> | <a href="#"><u>CP0603A0897MNTR</u></a> | <a href="#"><u>CP0603A0902CNTR</u></a> | <a href="#"><u>CP0603A0902DNTR</u></a> | <a href="#"><u>CP0603A0902ELTR</u></a> |