

Thin-Film RF/Microwave Directional Couplers

CP0302/CP0402/CP0603/CP0805 and DB0603N/DB0805 3dB 90°

CP0805 SMD Type



GENERAL DESCRIPTION

ITF (INTEGRATED THIN-FILM) TECHNOLOGY

The ITF SMD 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.

FEATURES

- Small Size: 0805
- Frequency Range: 800MHz - 3GHz
- Characteristic Impedance: 50Ω
- Operating / Storage Temp.: -40°C to +85°C
- Power Rating: 3W Continuous
- Low Profile
- Rugged Construction
- Taped and Reeled

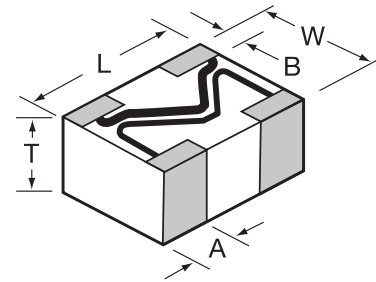
APPLICATIONS

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

DIMENSIONS:

millimeters (inches)

(Top View)



| | 0805 |
|---|-------------------------|
| L | 2.03±0.1 (0.080±0.004) |
| W | 1.55±0.1 (0.061±0.004) |
| T | 0.98±0.1 (0.039±0.004) |
| A | 0.56±0.25 (0.022±0.010) |
| B | 0.35±0.15 (0.014±0.006) |

HOW TO ORDER

| | | | | | | |
|---|---|---|---|--|--|---|
| CP Style Directional Coupler | 0805 Size 0805 | A Layout Type (see layout types) | 0902 Frequency MHz | A Sub-Type (see layout sub-types) | S Termination Code W = Nickel/Solder (Sn/Pb) **S = Nickel / Lead Free Solder (Sn100) | TR Packaging Code TR = Tape and Reel |
|---|---|---|---|--|--|---|

Not RoHS Compliant



LEAD-FREE

LEAD-FREE COMPATIBLE COMPONENT



RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

****RoHS compliant**

QUALITY INSPECTION

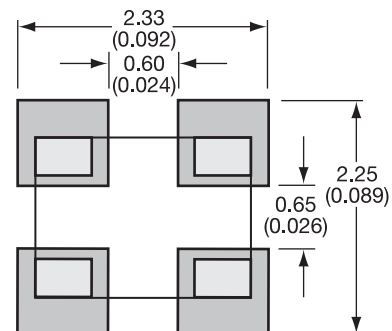
Finished parts are 100% tested for electrical parameters and visual characteristics. Each production lot is evaluated on a sample basis for:

- Static Humidity: 85°C, 85% RH, 160 hours
- Endurance: 125°C, I_R, 4 hours

TERMINATION

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

Recommended Pad Layout Dimensions mm (inches)

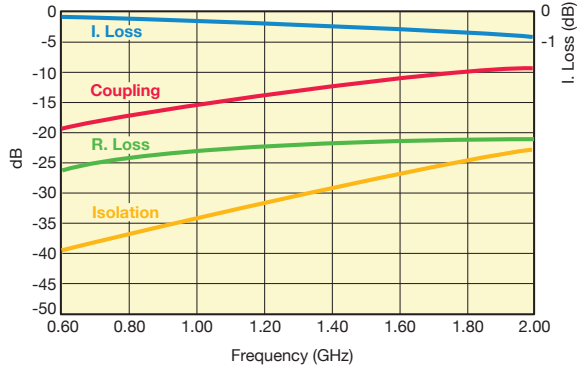
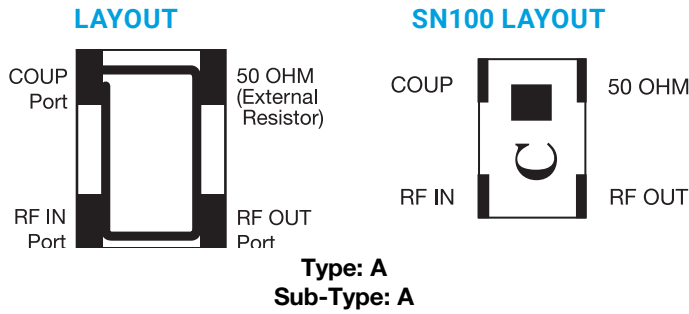


NOTE: Components must be mounted on the board with the white (Alumina) side DOWN.

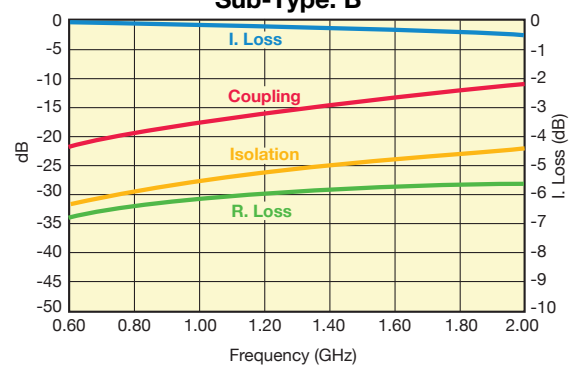
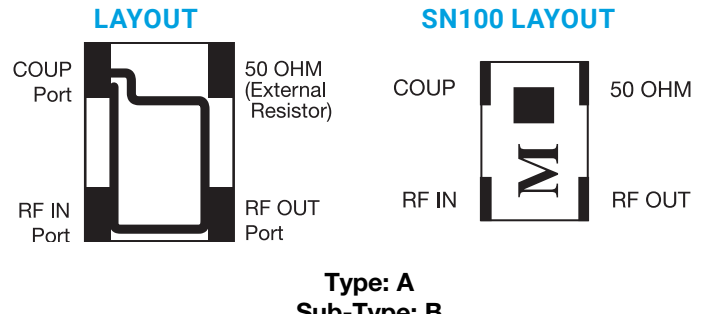
Thin-Film RF/Microwave Directional Couplers

CP0302/CP0402/CP0603/CP0805 and DB0603N/DB0805 3dB 90°

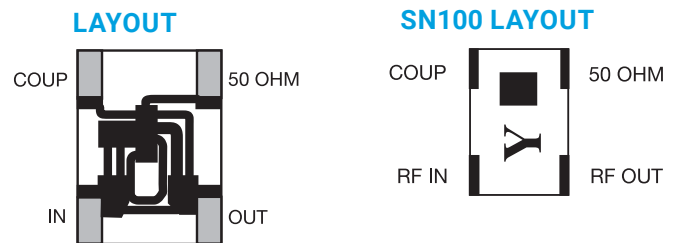
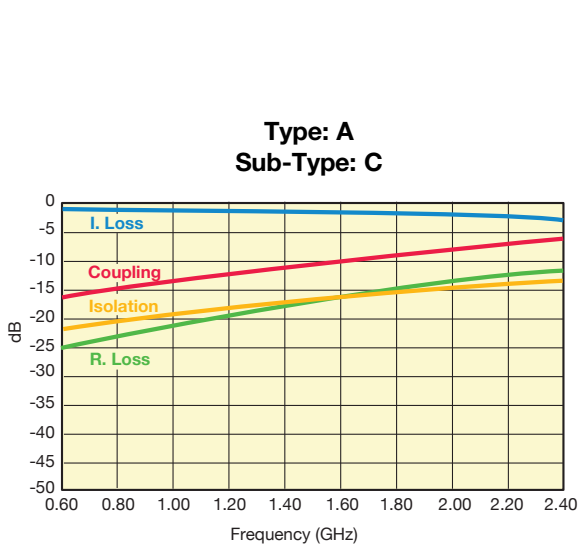
CP0805 Layout Types



| P/N Examples | Frequency Band [MHz] | Coupling [dB] | I. Loss max | VSWR max |
|---------------|----------------------|---------------|-------------|----------|
| CP0805A0836AS | 824 - 849 | 16.5±1 | 0.25 | 1.2 |
| CP0805A0881AS | 869 - 894 | 16±1 | 0.25 | 1.2 |
| CP0805A0902AS | 890 - 915 | 16±1 | 0.25 | 1.2 |
| CP0805A0947AS | 935 - 960 | 15.5±1 | 0.25 | 1.2 |
| CP0805A0897AS | 880 - 915 | 16±1 | 0.25 | 1.2 |
| CP0805A0942AS | 925 - 960 | 15.5±1 | 0.25 | 1.2 |
| CP0805A1441AS | 1429 - 1453 | 12±1 | 0.5 | 1.3 |
| CP0805A1747AS | 1710 - 1785 | 10.5±1 | 0.7 | 1.4 |
| CP0805A1842AS | 1805 - 1880 | 10±1 | 0.8 | 1.4 |
| CP0805A1880AS | 1850 - 1910 | 9.5±1 | 0.8 | 1.4 |
| CP0805A1960AS | 1930 - 1990 | 9.5±1 | 0.8 | 1.4 |
| CP0805A1907AS | 1895 - 1920 | 9.5±1 | 0.8 | 1.4 |
| CP0805A1890AS | 1880 - 1900 | 9.5±1 | 0.8 | 1.4 |



| P/N Examples | Frequency Band [MHz] | Coupling [dB] | I. Loss max | VSWR max |
|---------------|----------------------|---------------|-------------|----------|
| CP0805A0836BS | 824 - 849 | 19±1 | 0.25 | 1.2 |
| CP0805A0881BS | 869 - 894 | 18.5±1 | 0.25 | 1.2 |
| CP0805A0902BS | 890 - 915 | 18±1 | 0.25 | 1.2 |
| CP0805A0947BS | 935 - 960 | 18±1 | 0.25 | 1.2 |
| CP0805A0897BS | 880 - 915 | 18.5±1 | 0.25 | 1.2 |
| CP0805A0942BS | 925 - 960 | 18±1 | 0.25 | 1.2 |
| CP0805A1441BS | 1429 - 1453 | 14.5±1 | 0.35 | 1.2 |
| CP0805A1747BS | 1710 - 1785 | 12.5±1 | 0.5 | 1.4 |
| CP0805A1842BS | 1805 - 1880 | 12.5±1 | 0.5 | 1.4 |
| CP0805A1880BS | 1850 - 1910 | 12±1 | 0.6 | 1.4 |
| CP0805A1960BS | 1930 - 1990 | 11.5±1 | 0.7 | 1.4 |
| CP0805A1907BS | 1895 - 1920 | 12±1 | 0.6 | 1.4 |
| CP0805A1890BS | 1880 - 1900 | 12±1 | 0.6 | 1.4 |
| CP0805A2442BS | 2400 - 2484 | 10±1 | 0.9 | 1.4 |



| P/N Examples | Frequency Band [MHz] | Coupling [dB] | I. Loss max | VSWR max |
|---------------|----------------------|---------------|-------------|----------|
| CP0805A0836CS | 824 - 849 | 14±1 | 0.5 | 1.4 |
| CP0805A0881CS | 869 - 894 | 13.5±1 | 0.5 | 1.4 |
| CP0805A0902CS | 890 - 915 | 13.5±1 | 0.5 | 1.4 |
| CP0805A0947CS | 935 - 960 | 13±1 | 0.5 | 1.4 |
| CP0805A0897CS | 880 - 915 | 13.5±1 | 0.5 | 1.4 |
| CP0805A0942CS | 925 - 960 | 13±1 | 0.5 | 1.4 |
| CP0805A1441CS | 1429 - 1453 | 9.5±1 | 1.15 | 1.8 |
| CP0805A1747CS | 1710 - 1785 | 8±1 | 1.6 | 2.2 |
| CP0805A1842CS | 1805 - 1880 | 8±1 | 1.6 | 2.2 |
| CP0805A1880CS | 1850 - 1910 | 7.5±1 | 1.75 | 2.2 |
| CP0805A1960CS | 1930 - 1990 | 7.5±1 | 1.75 | 2.2 |
| CP0805A1907CS | 1895 - 1920 | 7.5±1 | 1.75 | 2.2 |
| CP0805A1890CS | 1880 - 1900 | 7.5±1 | 1.75 | 2.2 |
| CP0805A2442CS | 2400 - 2484 | 6±1 | 2.5 | 2.2 |

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



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

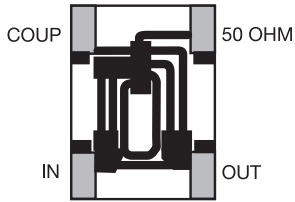
Thin-Film RF/Microwave Directional Couplers

CP0302/CP0402/CP0603/CP0805 and DB0603N/DB0805 3dB 90°

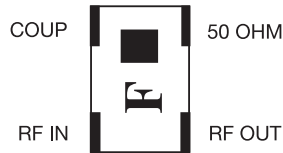
CP0805 Layout Types



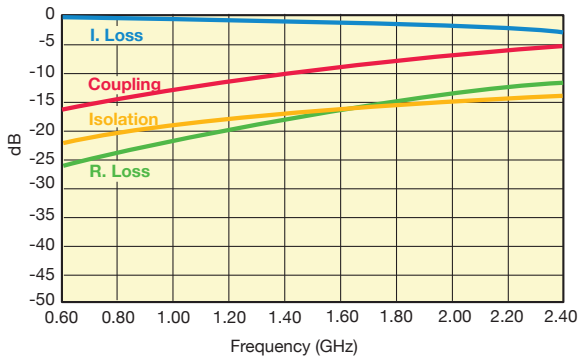
LAYOUT



SN100 LAYOUT

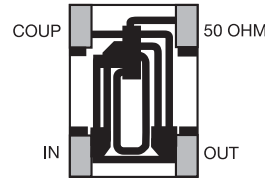


**Type: A
Sub-Type: D**

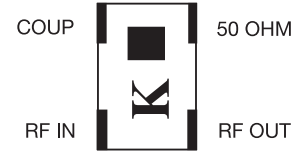


| P/N Examples | Frequency Band [MHz] | Coupling [dB] | I. Loss max | VSWR max |
|---------------|----------------------|---------------|-------------|----------|
| CP0805A0836DS | 824 - 849 | 13.0±1 | 0.5 | 1.4 |
| CP0805A0881DS | 869 - 894 | 12.5±1 | 0.5 | 1.4 |
| CP0805A0902DS | 890 - 915 | 12.5±1 | 0.5 | 1.4 |
| CP0805A0947DS | 935 - 960 | 12±1 | 0.5 | 1.4 |
| CP0805A0897DS | 880 - 915 | 12.5±1 | 0.5 | 1.4 |
| CP0805A0942DS | 925 - 960 | 12±1 | 0.5 | 1.4 |
| CP0805A1441DS | 1429 - 1453 | 8.5±1 | 1.25 | 1.8 |
| CP0805A1747DS | 1710 - 1785 | 7±1 | 1.85 | 1.8 |
| CP0805A1842DS | 1805 - 1880 | 7±1 | 1.85 | 1.8 |
| CP0805A1880DS | 1850 - 1910 | 7±1 | 1.85 | 1.8 |
| CP0805A1960DS | 1930 - 1990 | 6.5±1 | 2.15 | 2.1 |
| CP0805A1907DS | 1895 - 1920 | 6.5±1 | 2.15 | 2.1 |
| CP0805A1890DS | 1880 - 1900 | 7±1 | 1.85 | 1.8 |
| CP0805A2442DS | 2400 - 2484 | 5.5±1 | 2.4 | 2.1 |

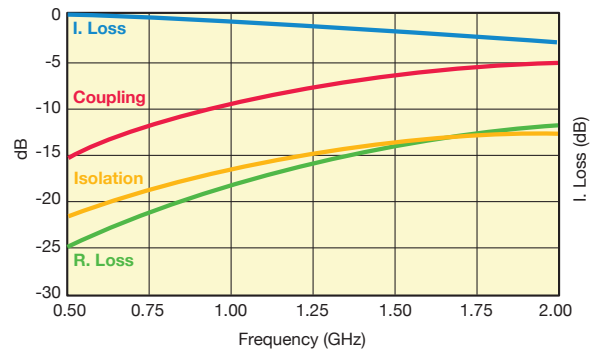
LAYOUT



SN100 LAYOUT



**Type: A
Sub-Type: E**



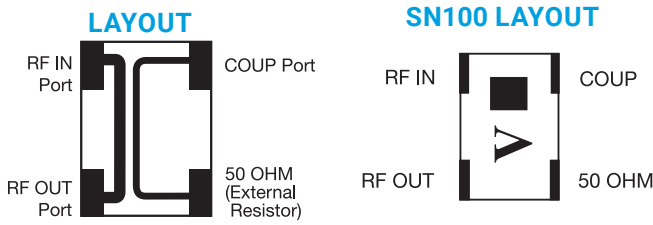
| P/N Examples | Frequency Band [MHz] | Coupling [dB] | I. Loss max | VSWR max |
|---------------|----------------------|---------------|-------------|----------|
| CP0805A0836ES | 824 - 849 | 11±1 | 0.85 | 1.4 |
| CP0805A0881ES | 869 - 894 | 10.5±1 | 0.85 | 1.4 |
| CP0805A0902ES | 890 - 915 | 10.5±1 | 0.85 | 1.4 |
| CP0805A0947ES | 935 - 960 | 10±1 | 0.85 | 1.4 |
| CP0805A0897ES | 880 - 915 | 10.5±1 | 0.85 | 1.4 |
| CP0805A0942ES | 925 - 960 | 10±1 | 0.85 | 1.4 |
| CP0805A1441ES | 1429 - 1453 | 7±1 | 1.8 | 1.8 |
| CP0805A1747ES | 1710 - 1785 | 5.5±1 | 2.7 | 2.2 |
| CP0805A1842ES | 1805 - 1880 | 5.5±1 | 2.7 | 2.2 |
| CP0805A1880ES | 1850 - 1910 | 5±1 | 3.15 | 2.4 |
| CP0805A1960ES | 1930 - 1990 | 5±1 | 3.15 | 2.4 |
| CP0805A1907ES | 1895 - 1920 | 5±1 | 3.15 | 2.4 |
| CP0805A1890ES | 1880 - 1900 | 5±1 | 3.15 | 2.4 |
| CP0805A2442ES | 2400 - 2484 | 4±1 | 4.2 | 2.4 |

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

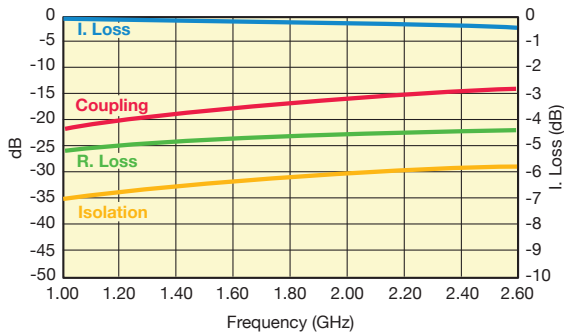
Thin-Film RF/Microwave Directional Couplers

CP0302/CP0402/CP0603/CP0805 and DB0603N/DB0805 3dB 90°

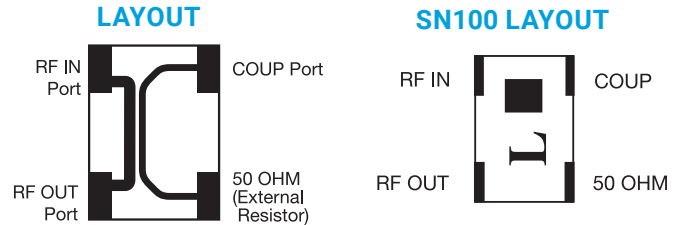
CP0805 Layout Types



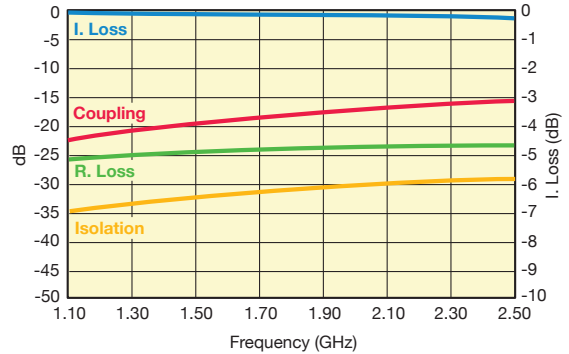
**Type: B
Sub-Type: B**



| P/N Examples | Frequency Band [MHz] | Coupling [dB] | I. Loss max | VSWR max |
|---------------|----------------------|---------------|-------------|----------|
| CP0805B0836BS | 824 - 849 | 23.5±1 | 0.25 | 1.2 |
| CP0805B0881BS | 869 - 894 | 23±1 | 0.25 | 1.2 |
| CP0805B0902BS | 890 - 915 | 22.5±1 | 0.25 | 1.2 |
| CP0805B0947BS | 935 - 960 | 22±1 | 0.25 | 1.2 |
| CP0805B0897BS | 880 - 915 | 23±1 | 0.25 | 1.2 |
| CP0805B0942BS | 925 - 960 | 22±1 | 0.25 | 1.2 |
| CP0805B1441BS | 1429 - 1453 | 18.5±1 | 0.25 | 1.2 |
| CP0805B1747BS | 1710 - 1785 | 17±1 | 0.25 | 1.2 |
| CP0805B1842BS | 1805 - 1880 | 16.5±1 | 0.25 | 1.2 |
| CP0805B1880BS | 1850 - 1910 | 16.5±1 | 0.25 | 1.2 |
| CP0805B1960BS | 1930 - 1990 | 16±1 | 0.25 | 1.2 |
| CP0805B1907BS | 1895 - 1920 | 16±1 | 0.25 | 1.2 |
| CP0805B1890BS | 1880 - 1900 | 16±1 | 0.25 | 1.2 |
| CP0805B2442BS | 2400 - 2484 | 14±1 | 0.4 | 1.2 |

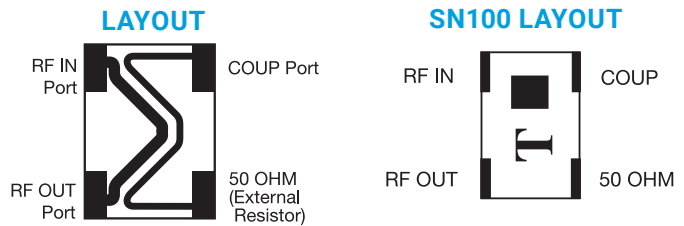
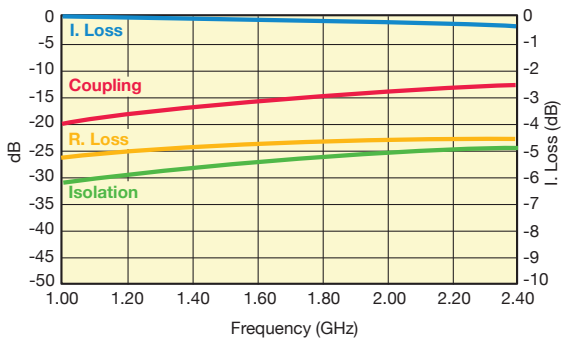


**Type: B
Sub-Type: C**



| P/N Examples | Frequency Band [MHz] | Coupling [dB] | I. Loss max | VSWR max |
|---------------|----------------------|---------------|-------------|----------|
| CP0805B0836CS | 824 - 849 | 25±1 | 0.25 | 1.2 |
| CP0805B0881CS | 869 - 894 | 24.5±1 | 0.25 | 1.2 |
| CP0805B0902CS | 890 - 915 | 24±1 | 0.25 | 1.2 |
| CP0805B0947CS | 935 - 960 | 24±1 | 0.25 | 1.2 |
| CP0805B0897CS | 880 - 915 | 24.5±1 | 0.25 | 1.2 |
| CP0805B0942CS | 925 - 960 | 24±1 | 0.25 | 1.2 |
| CP0805B1441CS | 1429 - 1453 | 20±1 | 0.25 | 1.2 |
| CP0805B1747CS | 1710 - 1785 | 18.5±1 | 0.25 | 1.2 |
| CP0805B1842CS | 1805 - 1880 | 18.5±1 | 0.25 | 1.2 |
| CP0805B1880CS | 1850 - 1910 | 18±1 | 0.25 | 1.2 |
| CP0805B1960CS | 1930 - 1990 | 17.5±1 | 0.25 | 1.2 |
| CP0805B1907CS | 1895 - 1920 | 18±1 | 0.25 | 1.2 |
| CP0805B1890CS | 1880 - 1900 | 18±1 | 0.25 | 1.2 |
| CP0805B2442CS | 2400 - 2484 | 16±1 | 0.4 | 1.2 |

**Type: B
Sub-Type: B**



| P/N Examples | Frequency Band [MHz] | Coupling [dB] | I. Loss max | VSWR max |
|---------------|----------------------|---------------|-------------|----------|
| CP0805B0836AS | 824 - 849 | 21.5±1 | 0.25 | 1.2 |
| CP0805B0881AS | 869 - 894 | 21±1 | 0.25 | 1.2 |
| CP0805B0902AS | 890 - 915 | 21±1 | 0.25 | 1.2 |
| CP0805B0947AS | 935 - 960 | 20.5±1 | 0.25 | 1.2 |
| CP0805B0897AS | 880 - 915 | 21±1 | 0.25 | 1.2 |
| CP0805B0942AS | 925 - 960 | 20.5±1 | 0.25 | 1.2 |
| CP0805B1441AS | 1429 - 1453 | 17±1 | 0.25 | 1.2 |
| CP0805B1747AS | 1710 - 1785 | 15.5±1 | 0.25 | 1.2 |
| CP0805B1842AS | 1805 - 1880 | 15.5±1 | 0.3 | 1.2 |
| CP0805B1880AS | 1850 - 1910 | 15±1 | 0.3 | 1.2 |
| CP0805B1960AS | 1930 - 1990 | 14.5±1 | 0.4 | 1.2 |
| CP0805B1907AS | 1895 - 1920 | 15±1 | 0.3 | 1.2 |
| CP0805B1890AS | 1880 - 1900 | 15±1 | 0.3 | 1.2 |
| CP0805B2442AS | 2400 - 2484 | 13±1 | 0.4 | 1.2 |

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

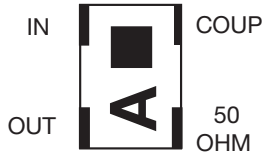
Thin-Film RF/Microwave Directional Couplers

CP0302/CP0402/CP0603/CP0805 and DB0603N/DB0805 3dB 90°

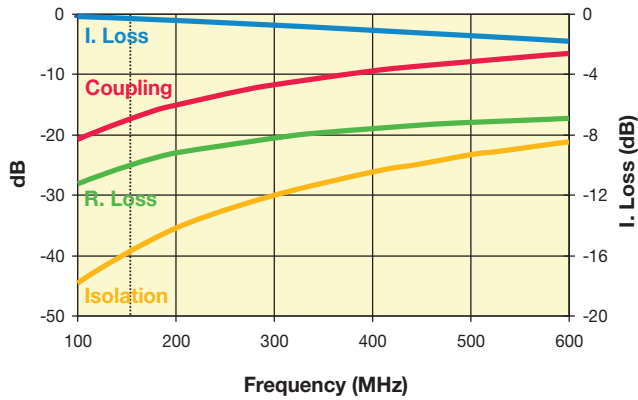
CP0805 Layout Types



VHF DIRECTIONAL COUPLER CP0805L0155ASTR SN100 LAYOUT



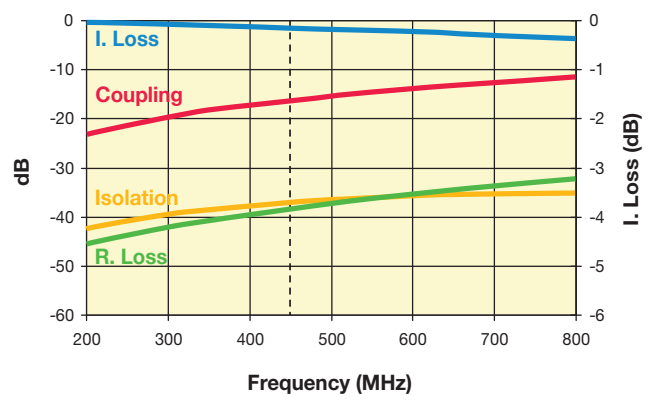
| P/N | Frequency [MHz] | Coupling [dB] | R. Loss [dB] | I. Loss max [dB] | Directivity [dB] |
|-----------------|-----------------|---------------|--------------|------------------|------------------|
| CP0805L0155ASTR | 155 | 17.1±1 | 24 | 0.35 | 22 |



UHF DIRECTIONAL COUPLER CP0805L0436BSTR SN100 LAYOUT



| P/N | Frequency [MHz] | Coupling [dB] | R. Loss [dB] | I. Loss max [dB] | Directivity [dB] |
|-----------------|-----------------|---------------|--------------|------------------|------------------|
| CP0805L0436BSTR | 403-470 | 15.85±1 | 35 | 0.25 | 22 |



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

Thin-Film RF/Microwave Directional Couplers

CP0302/CP0402/CP0603/CP0805 and DB0603N/DB0805 3dB 90°

CP0805 and CP0603 Test Jig



ITF TEST JIG FOR COUPLER TYPES 0805 AND 0603 SMD

GENERAL DESCRIPTION

This jig is designed for the testing of CP0805 and CP0603 series Directional Couplers using a vector network analyzer.

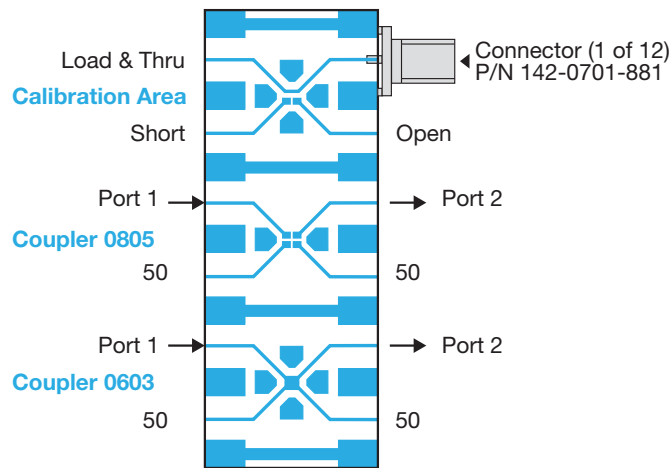
It consists of a FR4 multi-layer substrate, having 50Ω microstrips as conducting lines and a ground plane in the middle layer, located at a distance of 0.2mm from the microstrips.

The connectors are SMA type (female), 'Johnson Components Inc.' Product P/N: 142-0701-881.

The jig is designed for a full 2-port calibration. LOAD calibration can be done either by a 50Ω SMA termination, or by soldering a 50Ω chip resistor at the 50Ω ports.

MEASUREMENT PROCEDURE

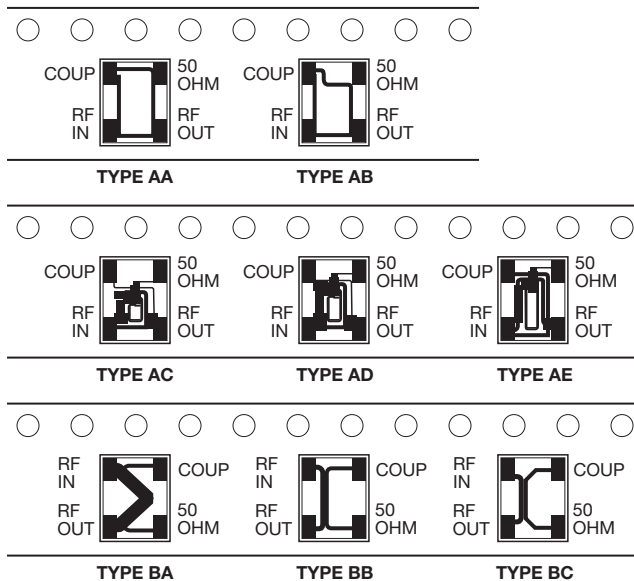
When measuring a component, it can be either soldered or pressed by a non-metallic stick until all four ports touch the appropriate pads. To measure the coupling (and the R. Loss) place the component on the Port 1 & Port 2 pads. Use two SMA 50Ω terminations (male) to terminate the ports, which are not connected to the network analyzer, and connect the network analyzer to the two ports. A 90° rotation of the component on its pads allows measuring a second parameter (I. Loss).



CP0805 SERIES DIRECTIONAL COUPLERS

Orientation and Tape and Reel Packaging Specification

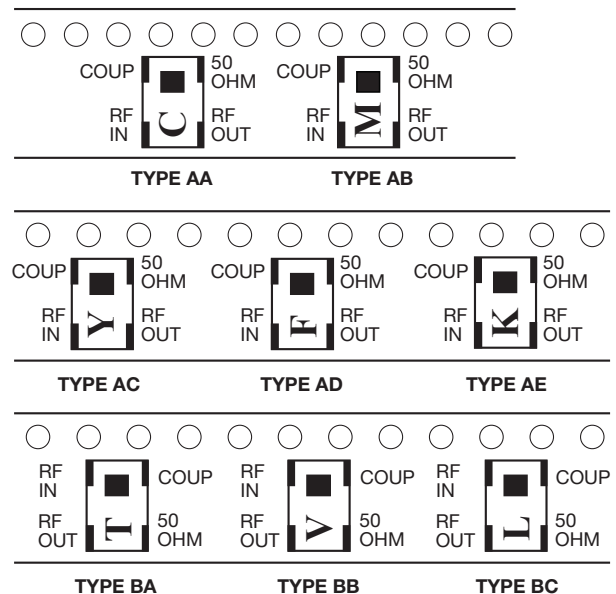
(Top View)



The parts should be mounted on the PCB with White (Alumina) side down and the "dark" side up.

CP0805xxxxxxSTR (Sn100)

(Top View)



The parts should be mounted on the PCB with printed side up.



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

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