

# Thin-Film Directional Couplers

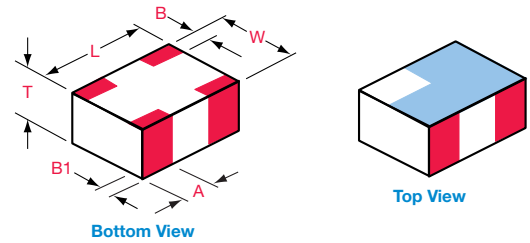


## CP0603 SMD Type

### 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.

### DIMENSIONS: millimeters (inches)



	0603
L	1.6±0.1 (0.063±0.004)
W	0.84±0.1 (0.033±0.004)
T	0.60±0.1 (0.028±0.004)
A	0.35±0.15 (0.014±0.006)
B	0.175±0.1 (0.007±0.004)
B1	0.00+0.1/0-0.0 (0.00+0.004/-0.0)

### APPLICATIONS

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

### FEATURES

- Miniature Size: 0603
- 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

### HOW TO ORDER

<b>CP</b> ↓ <b>Style</b> Directional Coupler	<b>0603</b> ↓ <b>Size</b> 0603	<b>X</b> ↓ <b>Type</b>	<b>****</b> ↓ <b>Frequency</b> MHz	<b>X</b> ↓ <b>Sub Type</b>	<b>S</b> ↓ <b>Termination Code</b> W = Sn90, Pb10 **S = Sn100	<b>TR</b> ↓ <b>Packaging Code</b> TR = Tape and Reel
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**\*\*RoHS compliant**

### QUALITY INSPECTION

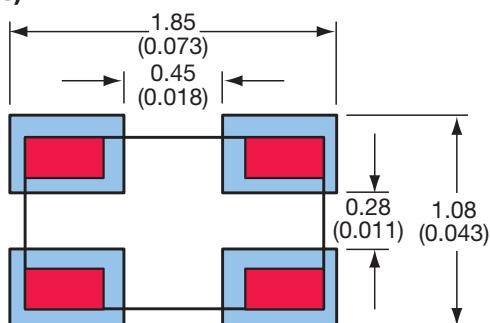
Finished parts are 100% tested for electrical parameters and visual characteristics. Each production lot is evaluated on a sample basis for:

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

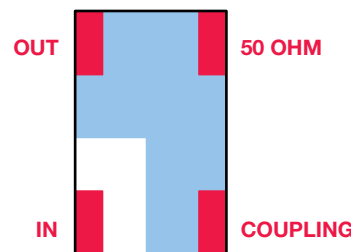
### TERMINATION

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

### Recommended Pad Layout Dimensions mm (inches)



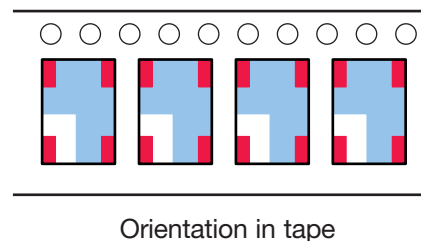
### TERMINALS (Top View)



**Not RoHS Compliant**



For RoHS compliant products, please select correct termination style.



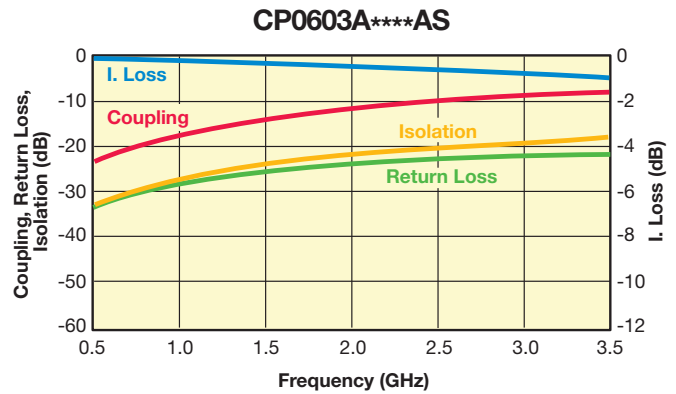
# Thin-Film Directional Couplers



## CP0603 SMD Type

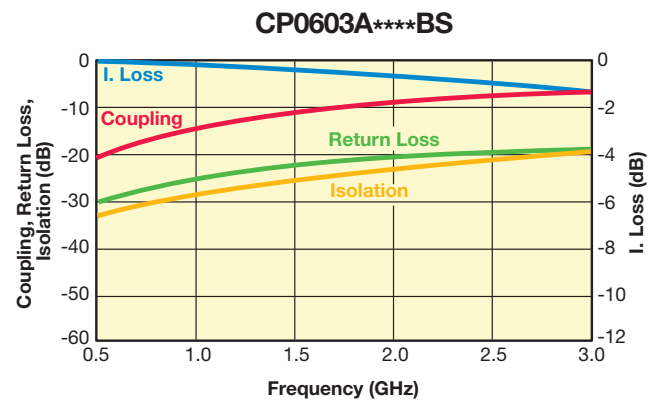
### Coupler P/N CP0603A\*\*\*\*AS

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max	VSWR max
AMPS	CP0603A0836AS	824 - 849	18.5±1	0.25	1.2
	CP0603A0881AS	869 - 894	18.5±1		
GSM	CP0603A0902AS	890 - 915	18±1	0.25	
	CP0603A0947AS	935 - 960	17.5±1		
E-GSM	CP0603A0897AS	880 - 915	18±1	0.25	
	CP0603A0942AS	925 - 960	17.5±1		
PDC	CP0603A1441AS	1429 - 1453	14±1	0.4	
PCN	CP0603A1747AS	1710 - 1785	12.5±1	0.6	
	CP0603A1842AS	1805 - 1880	12±1		
PCS	CP0603A1880AS	1850 - 1910	12±1	0.65	
	CP0603A1960AS	1930 - 1990	11.5±1		
PHP	CP0603A1907AS	1895 - 1920	12±1	0.6	
DECT	CP0603A1890AS	1880 - 1900	12±1	0.6	
Wireless LAN	CP0603A2442AS	2400 - 2484	10±1	0.85	



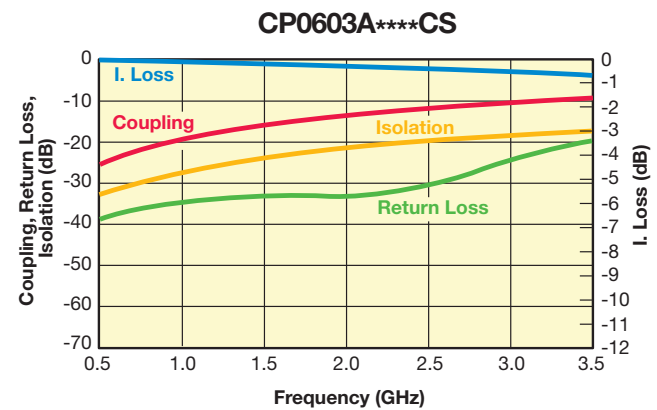
### Coupler P/N CP0603A\*\*\*\*BS

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max	VSWR max
AMPS	CP0603A0836BS	824 - 849	16±1	0.25	1.2
	CP0603A0881BS	869 - 894	15.5±1		
GSM	CP0603A0902BS	890 - 915	15.5±1	0.25	
	CP0603A0947BS	935 - 960	15±1		
E-GSM	CP0603A0897BS	880 - 915	15.5±1	0.55	
	CP0603A0942BS	925 - 960	15±1		
PDC	CP0603A1441BS	1429 - 1453	11.5±1	0.55	
PCN	CP0603A1747BS	1710 - 1785	10±1	0.8	
	CP0603A1842BS	1805 - 1880	9.5±1		
PCS	CP0603A1880BS	1850 - 1910	9±1	0.8	
	CP0603A1960BS	1930 - 1990	9±1		
PHP	CP0603A1907BS	1895 - 1920	9±1	0.8	
DECT	CP0603A1890BS	1880 - 1900	9±1	0.8	
Wireless LAN	CP0603A2442BS	2400 - 2484	7.5±1	1.1	



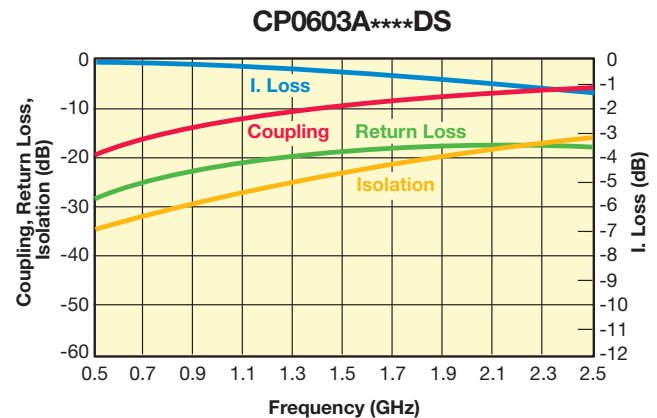
### Coupler P/N CP0603A\*\*\*\*CS

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max	VSWR max
AMPS	CP0603A0836CS	824 - 849	21±1	0.25	1.2
	CP0603A0881CS	869 - 894	20.5±1		
GSM	CP0603A0902CS	890 - 915	20.5±1	0.25	
	CP0603A0947CS	935 - 960	20±1		
E-GSM	CP0603A0897CS	880 - 915	20.5±1	0.40	
	CP0603A0942CS	925 - 960	20±1		
PDC	CP0603A1441CS	1429 - 1453	16.5±1	0.40	
PCN	CP0603A1747CS	1710 - 1785	15±1	0.5	
	CP0603A1842CS	1805 - 1880	14.5±1		
PCS	CP0603A1880CS	1850 - 1910	14.5±1	0.5	
	CP0603A1960CS	1930 - 1990	14±1		
PHP	CP0603A1907CS	1895 - 1920	14.5±1	0.5	
DECT	CP0603A1890CS	1880 - 1900	14.5±1	0.5	
Wireless LAN	CP0603A2442CS	2400 - 2484	12.5±1	0.65	



### Coupler P/N CP0603A\*\*\*\*DS

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max	VSWR max
AMPS	CP0603A0836DS	824 - 849	15.0±1	0.40	1.2
	CP0603A0881DS	869 - 894	14.5±1		
GSM	CP0603A0902DS	890 - 915	14.5±1	0.40	
	CP0603A0947DS	935 - 960	14±1		
E-GSM	CP0603A0897DS	880 - 915	14.5±1	0.7	
	CP0603A0942DS	925 - 960	14±1		
PDC	CP0603A1441DS	1429 - 1453	10.5±1	0.7	
PCN	CP0603A1747DS	1710 - 1785	9±1	0.9	
	CP0603A1842DS	1805 - 1880	8.5±1		
PCS	CP0603A1880DS	1850 - 1910	8.5±1	1.0	
	CP0603A1960DS	1930 - 1990	8±1		
PHP	CP0603A1907DS	1895 - 1920	8.5±1	1.0	
DECT	CP0603A1890DS	1880 - 1900	8.5±1	1.0	
Wireless LAN	CP0603A2442DS	2400 - 2484	6.5±1	1.5	



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



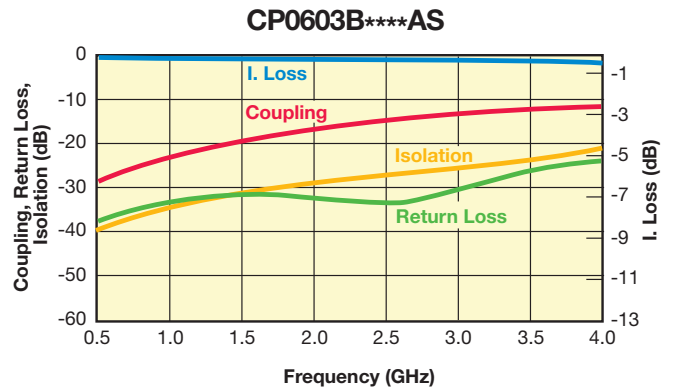
# Thin-Film Directional Couplers



## CP0603 SMD Type

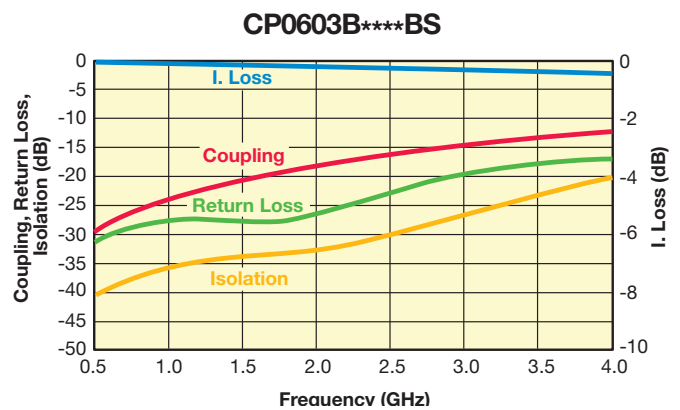
Coupler P/N CP0603B\*\*\*\*AS

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max	VSWR max
AMPS	CP0603B0836AS	824 - 849	24.5±1	0.2	1.2
	CP0603B0881AS	869 - 894	24±1		
GSM	CP0603B0902AS	890 - 915	24±1		
	CP0603B0947AS	935 - 960	23.5±1		
E-GSM	CP0603B0897AS	880 - 915	24±1		
	CP0603B0942AS	925 - 960	23.5±1		
PDC	CP0603B1441AS	1429 - 1453	20±1	0.25	
PCN	CP0603B1747AS	1710 - 1785	18±1		
PCS	CP0603B1842AS	1805 - 1880	17.5±1	0.3	
	CP0603B1880AS	1850 - 1910	17.5±1		
PHP	CP0603B1960AS	1930 - 1990	17.5±1		
DECT	CP0603B1907AS	1895 - 1920	17.5±1	0.45	
Wireless LAN	CP0603B1890AS	1880 - 1900	17.5±1		
	CP0603B2442AS	2400 - 2484	15.5±1		



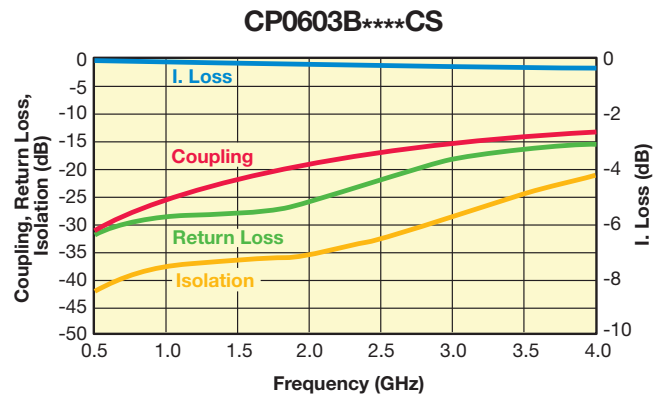
Coupler P/N CP0603B\*\*\*\*BS

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max	VSWR max
AMPS	CP0603B0836BS	824 - 849	25.5±1	0.2	1.2
	CP0603B0881BS	869 - 894	25±1		
GSM	CP0603B0902BS	890 - 915	25±1		
	CP0603B0947BS	935 - 960	24.5±1		
E-GSM	CP0603B0897BS	880 - 915	25±1		
	CP0603B0942BS	925 - 960	24.5±1		
PDC	CP0603B1441BS	1429 - 1453	21±1	0.25	
PCN	CP0603B1747BS	1710 - 1785	19±1		
PCS	CP0603B1842BS	1805 - 1880	19±1	0.25	
	CP0603B1880BS	1850 - 1910	18.5±1		
PHP	CP0603B1960BS	1930 - 1990	18.5±1		
DECT	CP0603B1907BS	1895 - 1920	18.5±1	0.35	
Wireless LAN	CP0603B1890BS	1880 - 1900	18.5±1		
	CP0603B2442BS	2400 - 2484	16.5±1		



Coupler P/N CP0603B\*\*\*\*CS

Application	P/N Examples	Frequency Band [MHz]	Coupling [dB]	I. Loss max	VSWR max
AMPS	CP0603B0836CS	824 - 849	26.5±1	0.2	1.2
	CP0603B0881CS	869 - 894	26±1		
GSM	CP0603B0902CS	890 - 915	26±1		
	CP0603B0947CS	935 - 960	25.5±1		
E-GSM	CP0603B0897CS	880 - 915	26±1		
	CP0603B0942CS	925 - 960	25.5±1		
PDC	CP0603B1441CS	1429 - 1453	22±1	0.25	
PCN	CP0603B1747CS	1710 - 1785	20.5±1		
PCS	CP0603B1842CS	1805 - 1880	20±1	0.25	
	CP0603B1880CS	1850 - 1910	20±1		
PHP	CP0603B1960CS	1930 - 1990	19.5±1		
DECT	CP0603B1907CS	1895 - 1920	20±1	0.35	
Wireless LAN	CP0603B1890CS	1880 - 1900	20±1		
	CP0603B2442CS	2400 - 2484	18±1		



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

# Thin-Film Directional Couplers



## CP0805 and CP0603 Test Jig

### ITF TEST JIG FOR COUPLER TYPES 0805 AND 0603 SMD

#### GENERAL DESCRIPTION

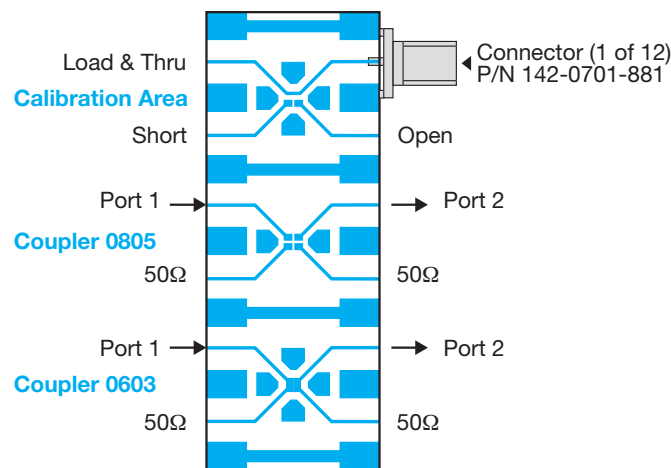
This jig is designed for the testing of CP0805 and CP0603 series Directional Couplers using a vector network analyzer. It consists of a FR4 multi-layer substrate, having 50Ω microstrips as conducting lines and a ground plane in the middle layer, located at a distance of 0.2mm from the microstrips.

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

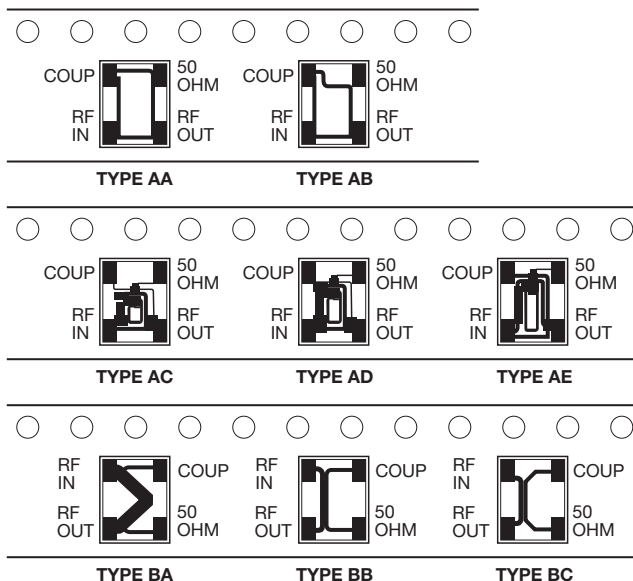
When measuring a component, it can be either soldered or pressed by a non-metallic stick until all four ports touch the appropriate pads. To measure the coupling (and the R. Loss) place the component on the Port 1 & Port 2 pads. Use two SMA 50Ω terminations (male) to terminate the ports, which are not 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

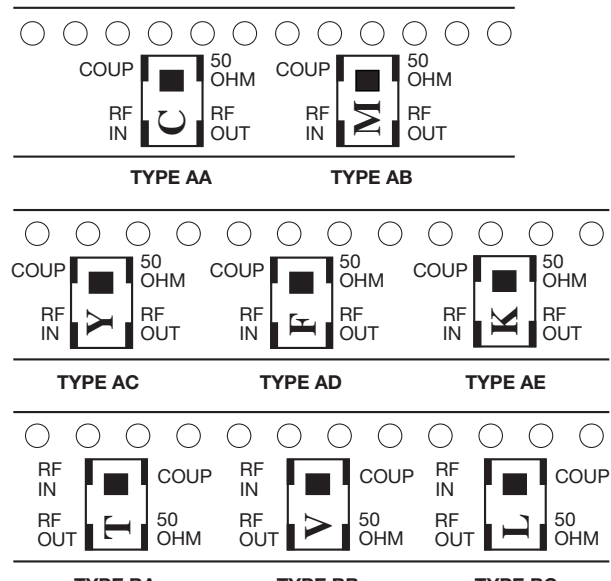
(Top View)



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.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## AVX:

[CP0603A0947BWTR](#) [CP0603A1747DWTR](#) [CP0603A2442CWTR](#) [CP0603B0881CWTR](#) [CP0603B2442BWTR](#)  
[CP0603A1747BWTR](#) [CP0603A2442BWTR](#) [CP0603A1890AWTR](#) [CP0603A0881DWTR](#) [CP0603A1441DWTR](#)  
[CP0603B1880BWTR](#) [CP0603B1960BWTR](#) [CP0603A2442CSTR](#) [CP0603A0460AWTR](#) [CP0603A0836AWTR](#)  
[CP0603A0967DWTR](#) [CP0603A0991DWTR](#) [CP0603A1550AWTR](#) [CP0603A1880AWTR](#) [CP0603A1880DWTR](#)  
[CP0603A1960CWTR](#) [CP0603A2070AWTR](#) [CP0603B0836BWTR](#) [CP0603B0902BWTR](#) [CP0603B1880AWTR](#)  
[CP0603B1960AWTR](#) [CP0603D0863BWTR](#) [CP0603D0880AWTR](#) [CP0603D1441AWTR](#) [CP0603D2442AWTR](#)  
[CP0603A0902DWTR](#) [CP0603A0942BWTR](#) [CP0603A1842DWTR](#) [CP0603A1890DWTR](#) [CP0603A1907DWTR](#)  
[CP0603B1441BWTR](#) [CP0603B1747AWTR](#) [CP0603A0836BWTR](#) [CP0603A0836CWTR](#) [CP0603A0836DWTR](#)  
[CP0603A0881AWTR](#) [CP0603A0902AWTR](#) [CP0603A0902BWTR](#) [CP0603A0902CWTR](#) [CP0603A0942AWTR](#)  
[CP0603A0947DWTR](#) [CP0603A1441AWTR](#) [CP0603A1441BWTR](#) [CP0603A1441CWTR](#) [CP0603A1575DWTR](#)  
[CP0603A1600CWTR](#) [CP0603A1747CWTR](#) [CP0603A1842CWTR](#) [CP0603A1890BWTR](#) [CP0603A1907BWTR](#)  
[CP0603A1960AWTR](#) [CP0603A1960BWTR](#) [CP0603A1960DWTR](#) [CP0603A1970BWTR](#) [CP0603A2442AWTR](#)  
[CP0603A2442DWTR](#) [CP0603B0836AWTR](#) [CP0603B0836CWTR](#) [CP0603B0902CWTR](#) [CP0603B0947CWTR](#)  
[CP0603B1441CWTR](#) [CP0603B1620AWTR](#) [CP0603B1747CWTR](#) [CP0603B1842CWTR](#) [CP0603B1950BWTR](#)  
[CP0603B1960CWTR](#) [CP0603B2442AWTR](#) [CP0603B2442CWTR](#) [CP0603B3550CWTR](#) [CP0603D0837AWTR](#)  
[CP0603D0881AWTR](#) [CP0603D1034AWTR](#) [CP0603D1880BWTR](#) [CP0603D1890BWTR](#) [CP0603D2442BWTR](#)  
[CP0603A0897DWTR](#) [CP0603A0942DWTR](#) [CP0603A1880BWTR](#) [CP0603A1907AWTR](#) [CP0603B0942CWTR](#)  
[CP0603B1842BWTR](#) [CP0603B3000AWTR](#) [CP0603B3000BWTR](#) [CP0603D0450AWTR](#) [CP0603D0836AWTR](#)  
[CP0603D0897AWTR](#) [CP0603D0902AWTR](#) [CP0603D0942AWTR](#) [CP0603D0947AWTR](#) [CP0603D1747AWTR](#)  
[CP0603D3000AWTR](#) [CP0603A1842AWTR](#) [CP0603A0836DWTR/500](#) [CP0603D0902BSTR](#) [CP0805A1880BSTR](#)