

Directional Coupler 10 dB SMA Female 300 MHz to 8 GHz

Directional Couplers Technical Data Sheet

Product Description

Directional couplers are important components for use in isolating, separating, replicating, and combining microwave signals. They can serve as accurate attenuator measurements as they eliminate reflections. They are incredibly useful in sampling RF signals for use in detectors, gain control and feedback loops.

Model APTDC-10-00300800-SMA operates from 300 MHz to 8 GHz with broadband flat coupling response, high directivity, and excellent return loss performance.

Specifications		Min	Typ	Max	Min
Frequency		300		8000	MHz
Impedance			50		Ohm
Coupling			10 ± 1.2		dB
Frequency Sensitivity (Flatness)			± 0.6	± 1.2	dB
Mainline Loss ¹			1.3	1.7	dB
Directivity	(0.3 -6 GHz)	18	25		dB
	(6 to 8 GHz)	16	22		
Main Line Return Loss	(up to 6 GHz)	20	25		dB
	(6 to 8 GHz)	17	23		
Secondary Line Return Loss	(up to 6 GHz)	20	24		dB
	(6 to 8 GHz)	17	21		
Input Power (CW) ²				20	Watts (CW)

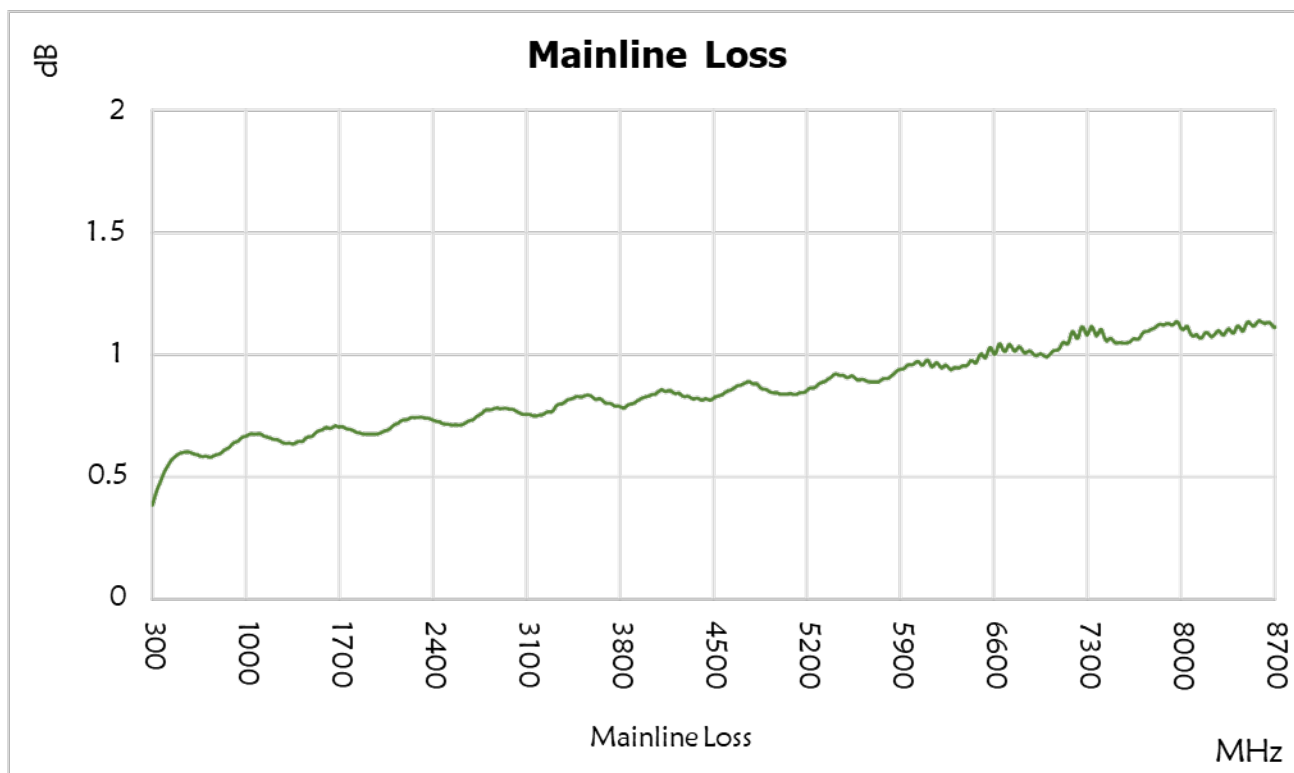
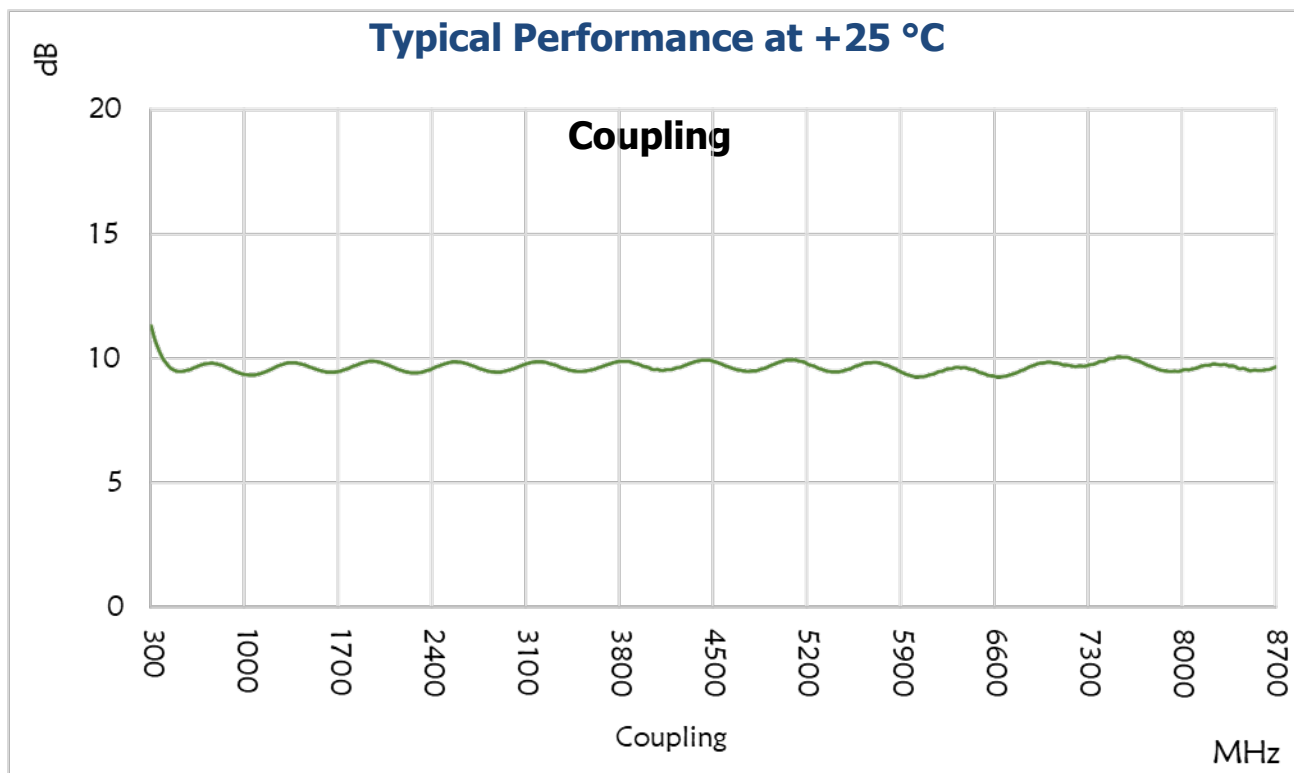
Mechanical

Connector Interface	SMA-Female
Operating Temperature ²	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight Estimate	3.5 oz (86 g)
Humidity	10-90% non-condensing
Environment	Indoors Use Only

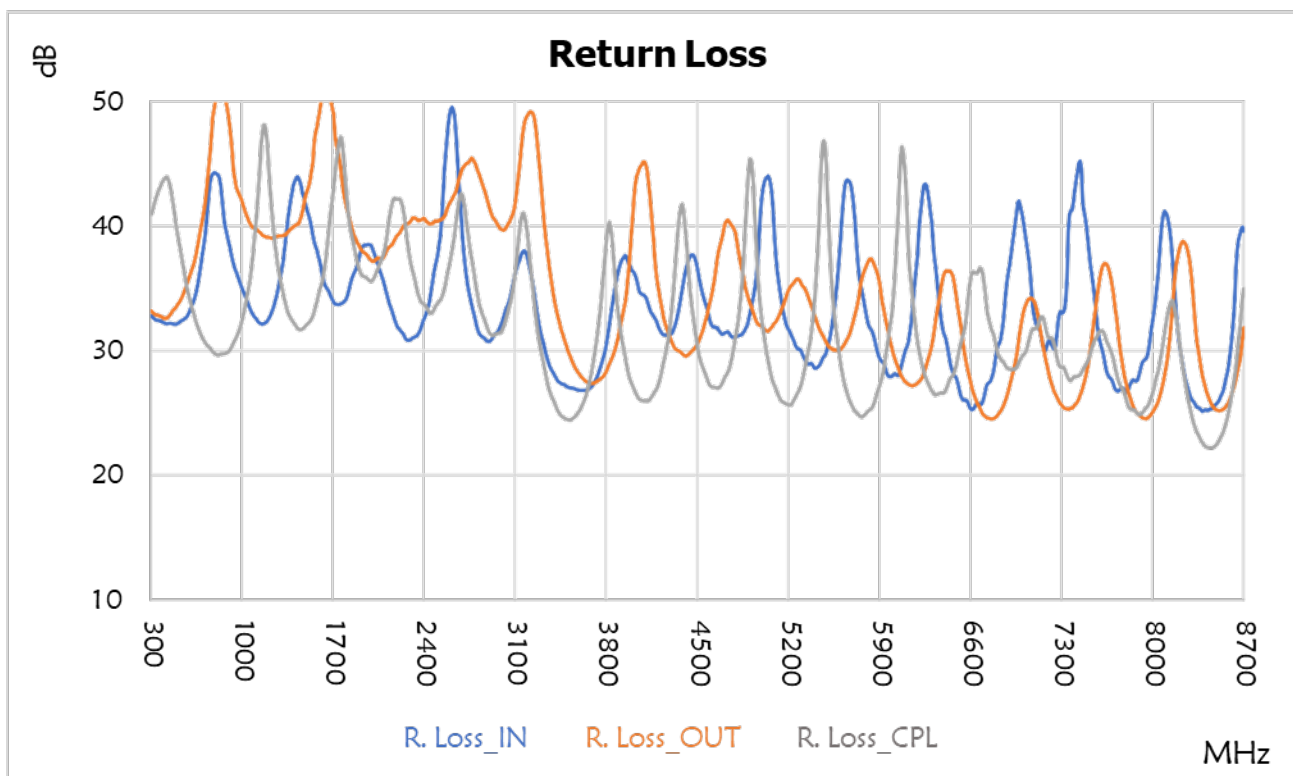
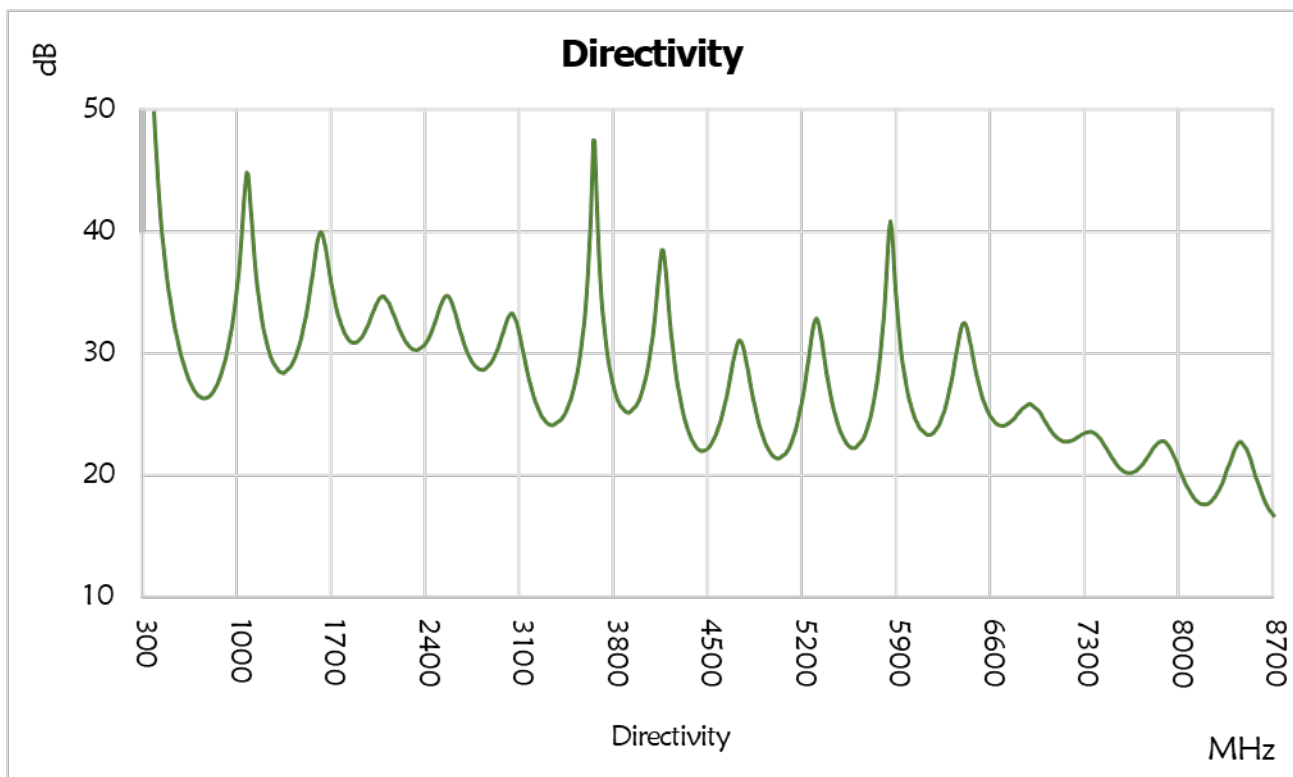
Materials

RoHS /REACH Compliant ³	Yes
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Gray Paint

1. Mainline loss includes coupling loss.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Electrical specifications at +25 °C only.
4. To the best of our knowledge at the time of publication.
5. Non-RoHS solder is available upon request.



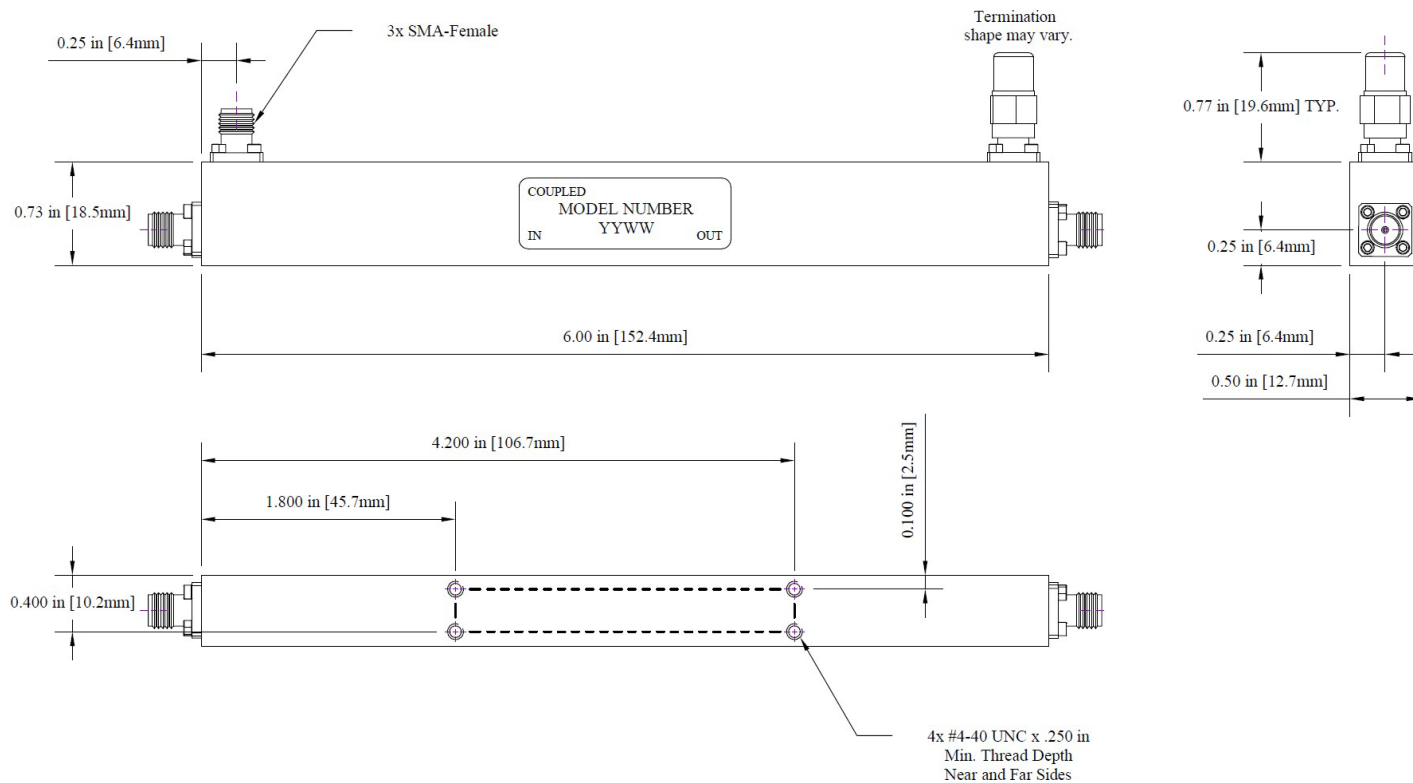
Typical Performance at +25 °C



Typical Performance at +25 °C

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl.	Directivity (dB)
	In	Out	Cpl.			
300	32.1	31.3	42.6	0.5	10.5	47.1
500	32.4	36.4	38.5	0.6	9.6	32.9
700	41.8	46.3	30.7	0.6	9.8	26.6
900	36.3	42.0	30.5	0.7	9.5	30.3
1100	32.2	38.8	43.4	0.7	9.5	38.5
1300	39.2	38.5	33.8	0.7	9.9	28.6
1500	40.8	46.5	32.4	0.7	9.6	34.1
1700	33.3	41.7	45.6	0.7	9.6	34.5
1900	39.9	37.5	35.9	0.7	9.9	31.5
2100	32.6	40.4	40.4	0.7	9.6	34.4
2300	31.6	41.0	35.8	0.8	9.5	30.4
2500	39.8	38.6	33.8	0.7	9.9	34.4
2700	34.6	44.4	39.8	0.8	9.7	29.9
2900	31.1	39.4	31.2	0.8	9.5	30.2
3100	38.5	50.8	39.5	0.8	9.9	30.4
3300	29.2	35.0	28.3	0.8	9.8	24.3
3500	26.9	27.9	24.5	0.9	9.5	28.3
3700	28.5	28.0	30.9	0.8	9.9	32.9
3900	37.6	36.6	30.7	0.8	9.7	25.4
4100	33.2	35.1	25.9	0.9	9.6	35.1
4300	32.3	29.4	36.8	0.8	9.9	25.0
4500	33.2	33.3	28.9	0.9	9.8	22.7
4700	31.3	41.9	28.2	0.9	9.6	31.1
4900	36.0	31.7	44.1	0.9	9.8	23.0
5100	33.1	33.3	26.2	0.8	10.0	22.9
5300	28.7	32.8	28.8	0.9	9.5	32.7
5500	33.2	29.7	35.2	0.9	9.7	23.0
5700	34.8	36.4	25.0	0.9	9.9	25.6
5900	28.2	31.0	28.0	0.9	9.5	31.9
6100	31.9	27.0	36.4	1.0	9.5	23.6
6300	33.2	35.4	26.2	1.0	9.7	28.5
6500	25.2	27.1	31.3	1.0	9.4	27.3
6700	28.5	24.3	33.0	1.1	9.4	24.4
6900	39.9	31.2	28.6	1.0	9.8	25.9
7100	30.6	28.2	32.0	1.1	9.7	23.1
7300	33.4	26.3	28.9	1.0	9.9	23.7
7500	32.2	33.5	29.9	1.0	10.1	21.4
7700	25.7	28.5	27.7	1.2	9.8	21.0
7900	30.8	24.2	25.4	1.2	9.4	22.7
8100	35.2	34.1	33.9	1.1	9.8	18.3
8300	25.4	28.0	23.9	1.0	10.0	19.4
8500	26.9	25.4	23.1	1.3	9.4	21.9
8700	30.6	42.6	35.8	1.1	9.7	16.7

Outline Dimensions



Dimensions are in inches, [mm] shown for convenience.
Tolerances on 2-pl decimals: $\pm .03$. 3-pl decimals: $\pm .015$.