

Directional Coupler 30 dB SMA Female 500 MHz to 2 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-30-00500200-SMA operates from 500 MHz to 2 GHz with broadband flat coupling response, high directivity, and excellent return loss performance.

Specifications	Min	Typ	Max	Min
Frequency	500		2000	MHz
Impedance		50		Ohm
Coupling		30 ± 1.0		dB
Frequency Sensitivity (Flatness)		± 0.50	± 0.75	dB
Mainline Loss ¹		0.25	0.35	dB
Directivity	23	26		dB
Return Loss (In and Out)	20	24		dB
Return Loss (Coupling)	20	23		dB
Input Power (CW) ²			50	Watts (CW)

Mechanical

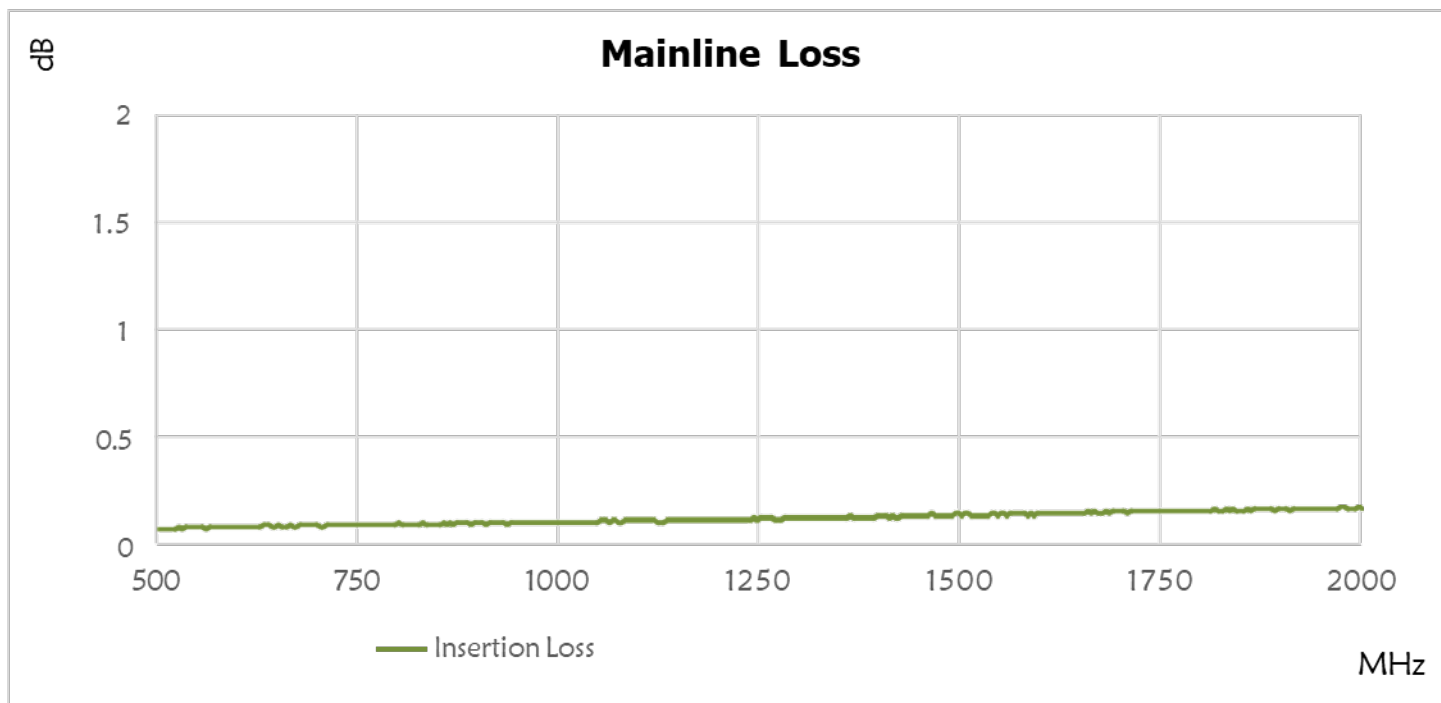
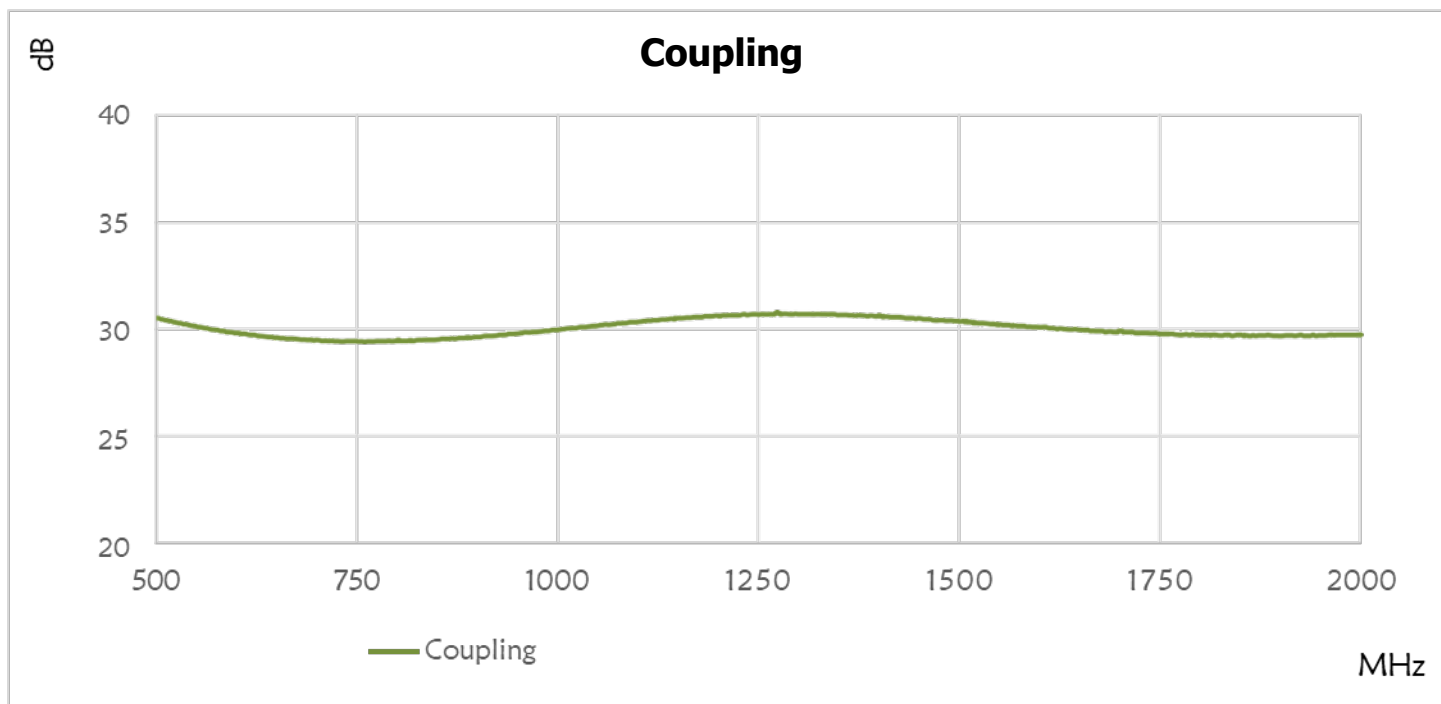
Connector Interface	SMA-Female
Operating Temperature ²	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight Estimate	1.5 oz (42 g)
Humidity	10-90% non-condensing
Environment	Indoors Use Only

Materials

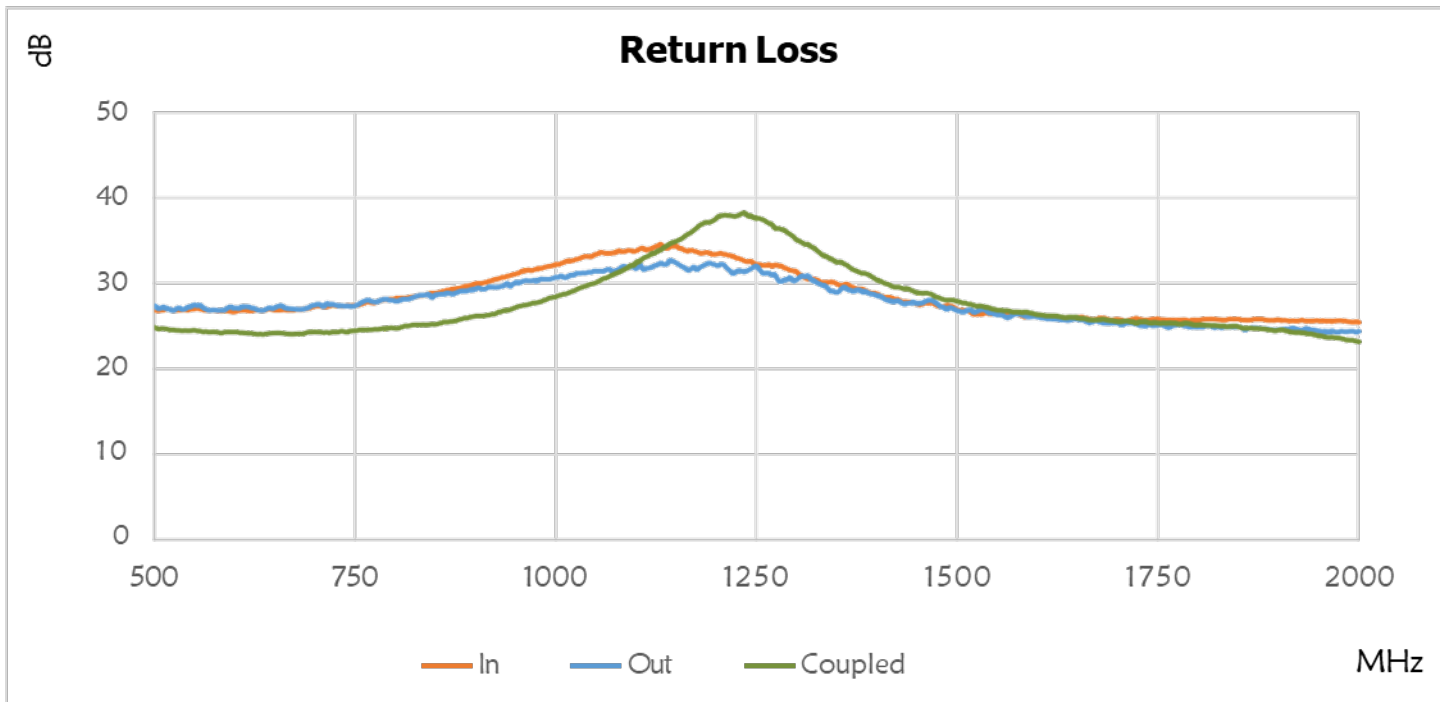
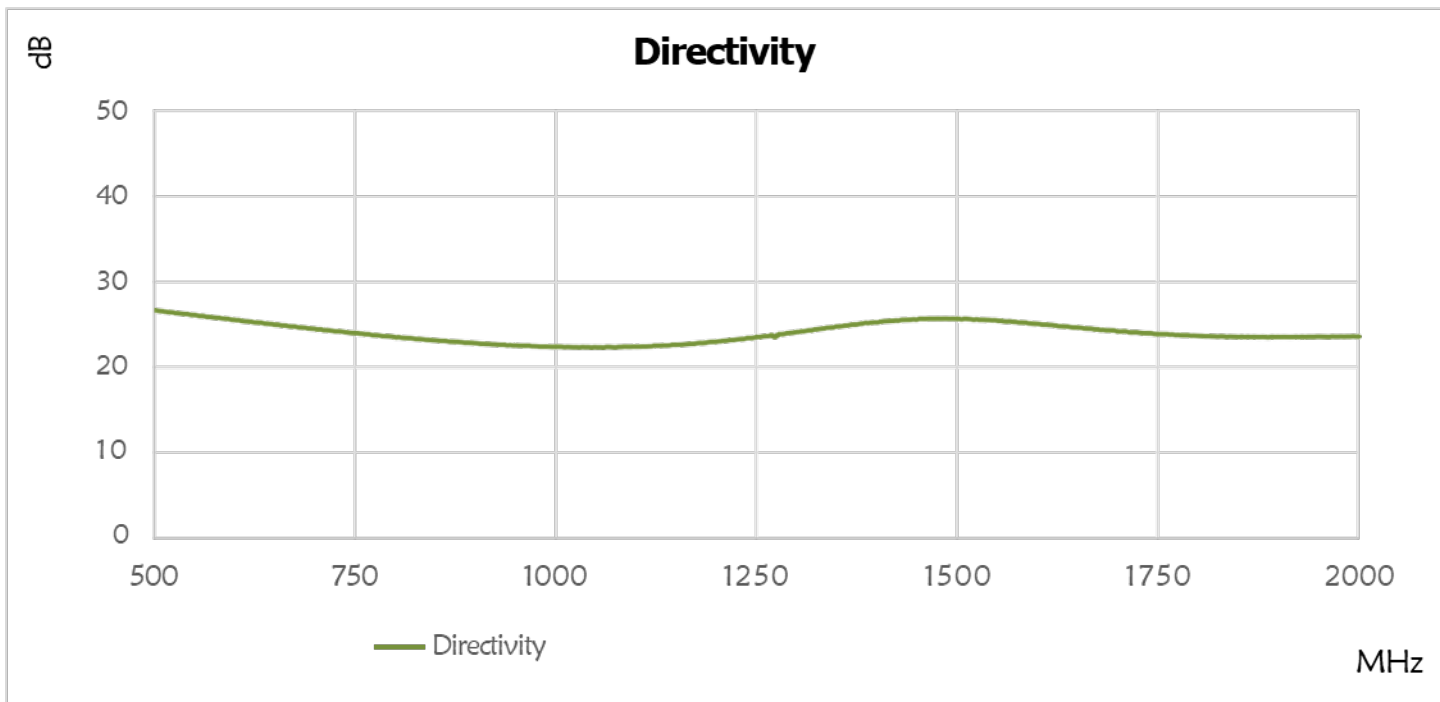
RoHS /REACH Compliant ³	Yes
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Gray Paint

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



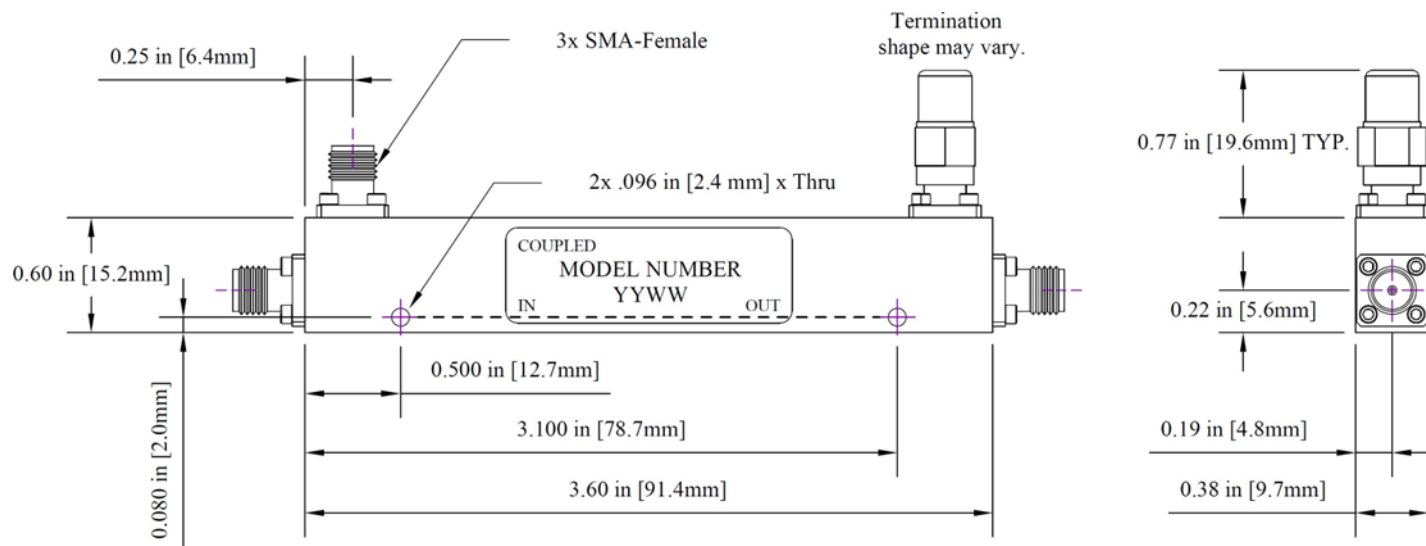
Typical Performance at +25 °C



Typical Performance at +25 °C

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB)		Coupling (dB)	Directivity (dB)
	In	Out	Cpl.	In-Out	In-Cpl.		
500	26.9	27.5	24.9	0.1	30.6	26.8	
530	27.0	27.2	24.6	0.1	30.3	26.5	
560	27.0	27.3	24.4	0.1	30.1	26.1	
590	26.8	27.2	24.4	0.1	29.9	25.8	
620	26.9	27.2	24.2	0.1	29.8	25.5	
650	27.0	27.3	24.3	0.1	29.7	25.1	
680	27.0	27.0	24.2	0.1	29.6	24.8	
710	27.3	27.4	24.3	0.1	29.5	24.5	
740	27.5	27.4	24.4	0.1	29.5	24.2	
770	27.8	28.0	24.7	0.1	29.5	23.9	
800	28.3	28.0	24.8	0.1	29.5	23.6	
830	28.7	28.7	25.2	0.1	29.5	23.4	
860	29.2	28.8	25.6	0.1	29.6	23.2	
890	29.8	29.2	26.1	0.1	29.6	23.0	
920	30.4	29.6	26.5	0.1	29.7	22.8	
950	31.2	30.2	27.3	0.1	29.8	22.6	
980	31.8	30.6	27.9	0.1	29.9	22.5	
1010	32.6	30.7	28.8	0.1	30.1	22.4	
1040	33.2	31.4	29.9	0.1	30.2	22.4	
1070	33.6	31.4	31.0	0.1	30.3	22.4	
1100	33.9	31.8	32.6	0.1	30.4	22.5	
1130	34.6	32.4	34.0	0.1	30.5	22.6	
1160	33.9	31.9	35.6	0.1	30.6	22.8	
1190	33.6	32.4	37.2	0.1	30.6	23.0	
1220	33.3	31.2	37.9	0.1	30.7	23.3	
1250	32.2	32.0	37.7	0.1	30.7	23.6	
1280	32.1	30.3	36.4	0.1	30.8	24.0	
1310	30.7	30.9	34.6	0.1	30.8	24.4	
1340	30.2	29.3	33.0	0.1	30.7	24.7	
1370	29.6	29.2	31.7	0.1	30.7	25.1	
1400	28.8	28.6	30.4	0.1	30.7	25.4	
1430	27.9	27.8	29.5	0.1	30.6	25.7	
1460	27.8	28.0	28.9	0.1	30.5	25.8	
1490	27.5	27.2	28.2	0.1	30.4	25.8	
1520	26.5	26.7	27.5	0.1	30.4	25.7	
1550	26.5	26.4	27.0	0.1	30.3	25.6	
1580	26.3	26.4	26.7	0.1	30.2	25.4	
1640	26.0	25.8	26.1	0.1	30.0	24.8	
1700	25.9	25.4	25.6	0.2	30.0	24.3	
1760	25.8	25.0	25.4	0.2	29.8	24.0	
1820	25.9	24.9	25.2	0.2	29.8	23.7	
1880	25.9	24.8	24.7	0.2	29.8	23.6	
1940	25.7	24.7	24.1	0.2	29.8	23.7	
2000	25.5	24.5	23.3	0.2	29.8	23.7	

Outline Dimensions



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