

Directional Coupler 20 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-20-00500200-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		20 ± 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	23		dB
Return Loss (Coupling)	20	23		dB
Input Power (CW) ²			50	Watts (CW)

Mechanical

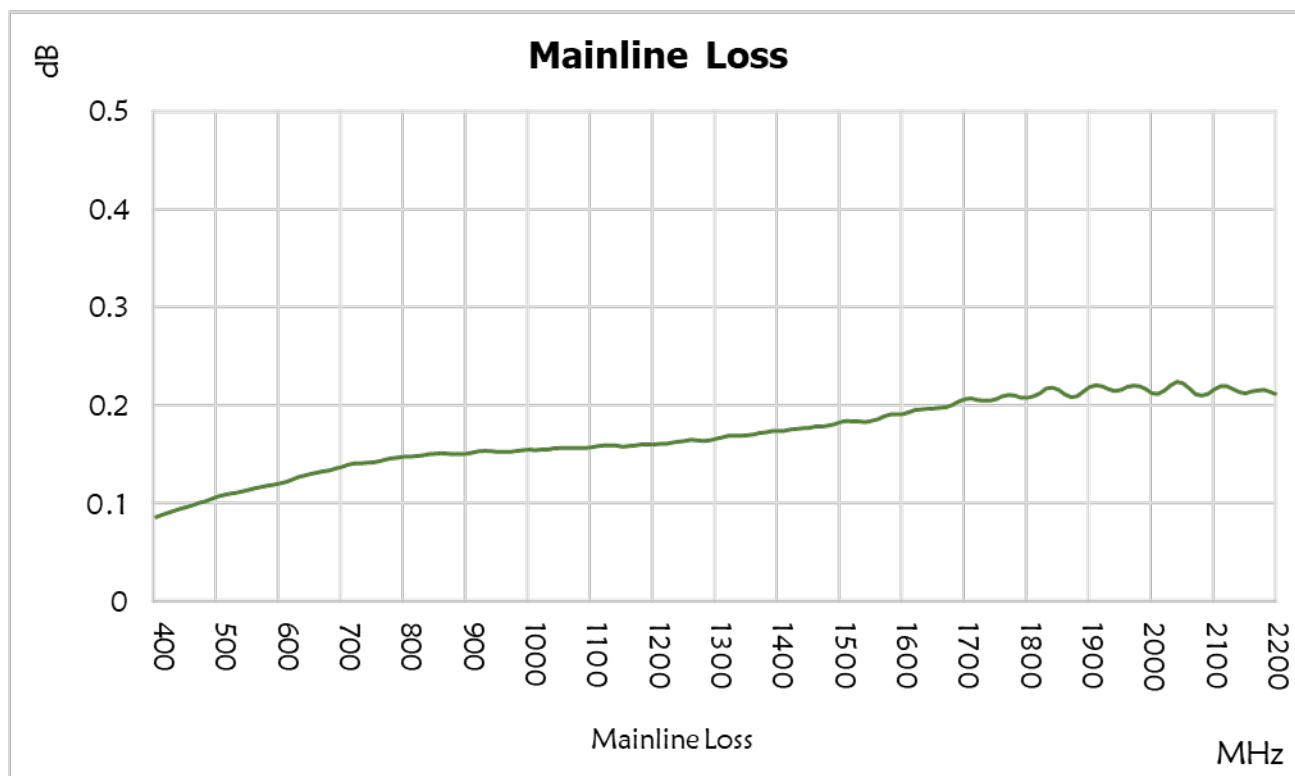
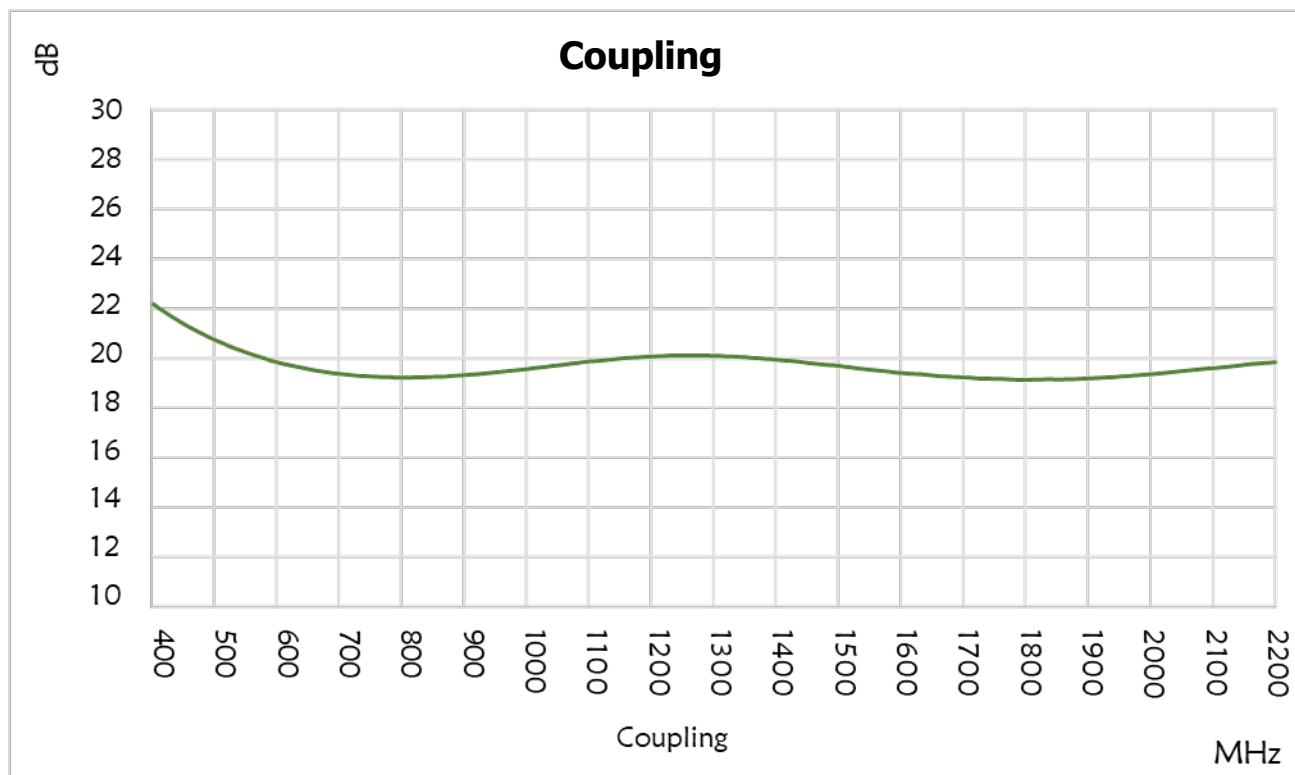
Connector Interface	SMA-Female
Operating Temperature ²	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight Estimate	1.5 oz (42 g)
Humidity	10-90% non-condensing
Environment	Indoors Use Only

Materials

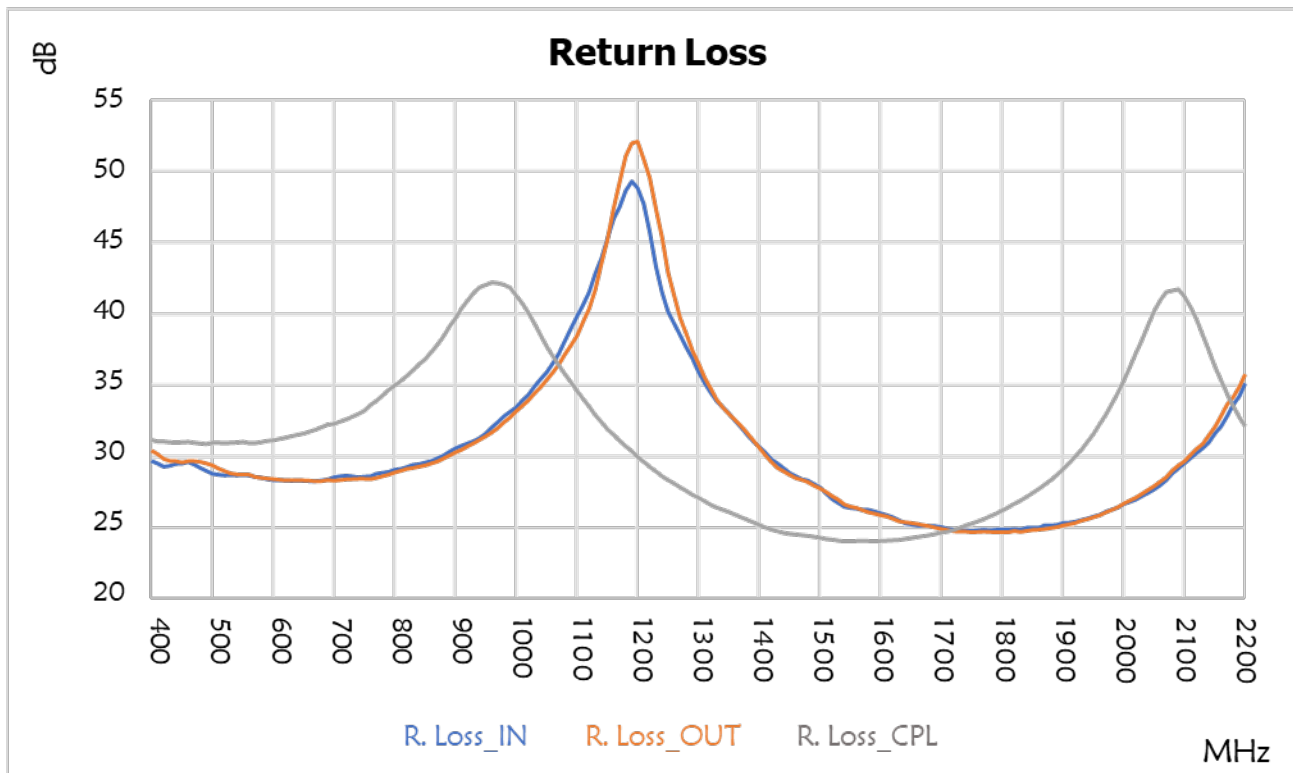
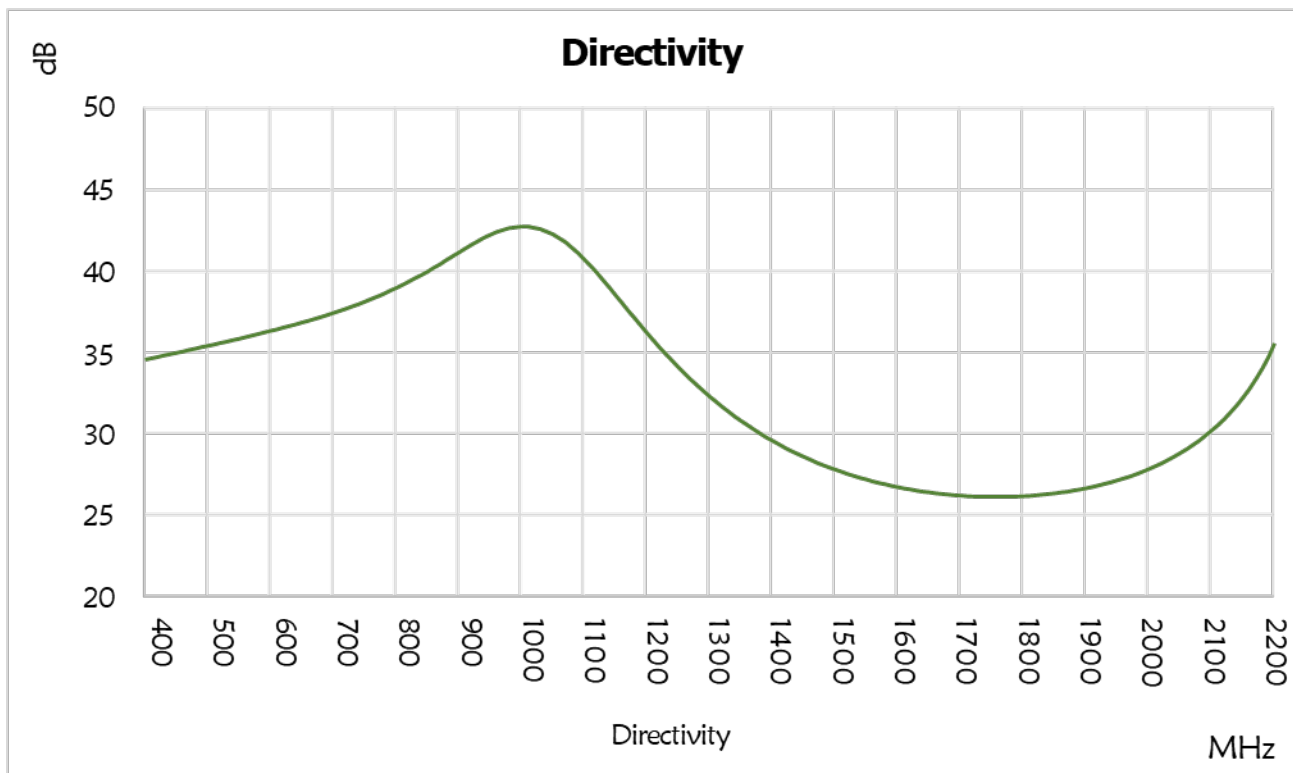
RoHS /REACH Compliant ³	Yes
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Gray Paint

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



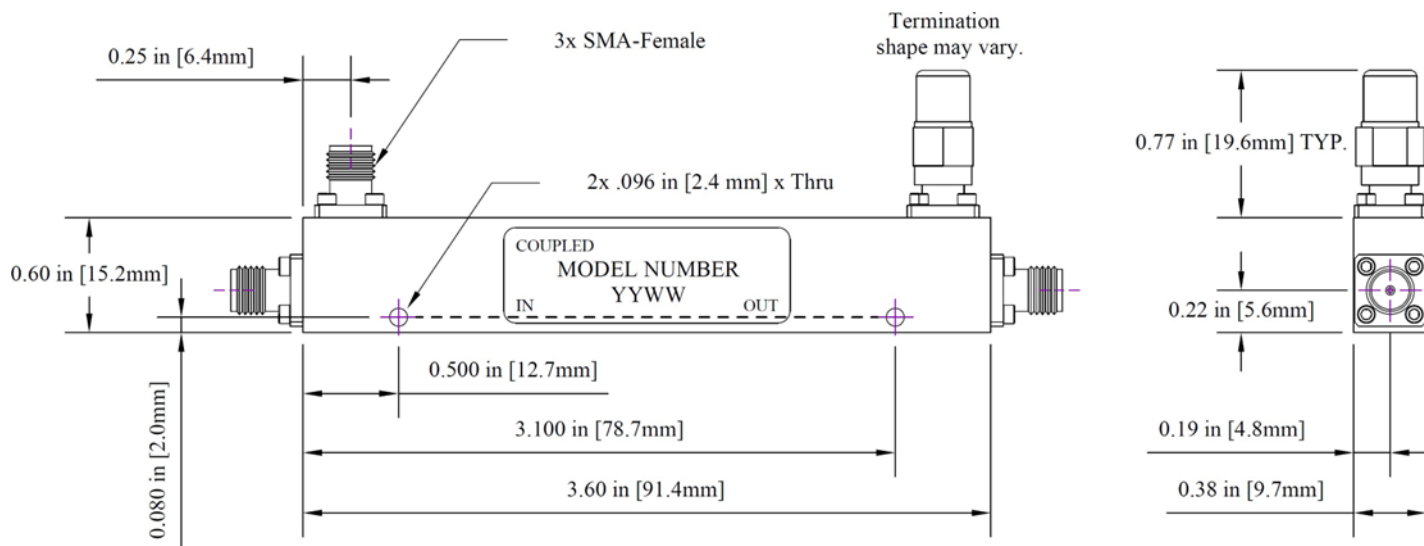
Typical Performance at +25 °C



Typical Performance at +25 °C

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl.	Directivity (dB)
	In	Out	Cpl.			
400	29.3	29.2	31.0	0.1	21.6	35.4
500	28.7	29.2	31.5	0.1	20.5	36.2
600	28.3	28.6	31.3	0.1	19.7	37.3
700	28.9	28.4	32.0	0.2	19.4	38.6
800	29.4	29.3	35.8	0.2	19.3	40.8
900	30.9	31.0	41.3	0.2	19.5	43.5
1000	34.1	34.6	39.4	0.2	19.7	41.9
1100	41.0	41.0	33.0	0.2	20.1	36.8
1200	47.1	47.6	29.1	0.2	20.2	32.7
1300	34.7	33.3	26.6	0.2	20.1	29.9
1400	30.0	29.0	24.8	0.2	19.9	28.0
1500	27.1	26.9	24.0	0.2	19.7	26.9
1600	25.9	25.4	24.1	0.2	19.4	26.3
1700	24.9	24.6	25.0	0.2	19.2	26.2
1800	24.8	24.9	26.8	0.2	19.2	26.6
1900	25.4	25.3	30.2	0.3	19.4	27.6
2000	27.0	27.4	37.6	0.2	19.5	29.6
2100	29.8	30.4	38.7	0.3	19.8	33.6
2200	36.9	38.1	30.8	0.2	20.0	45.2

Outline Dimensions



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