

Directional Coupler 30 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-30-00300800-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		30 ± 2.0		dB
Frequency Sensitivity (Flatness)		± 0.6	± 1.2	dB
Mainline Loss ¹		0.5	1.0	dB
Directivity	(up to -6 GHz)	16	23	dB
	(6 to 8 GHz)	14	19	
Return Loss (In and Out)	(up to 6 GHz)	16		dB
	(6 to 8 GHz)	15		
Return Loss (Coupling)	(up to 6 GHz)	16		dB
	(6 to 8 GHz)	15		
Input Power (CW) ²			50	Watts (CW)

Mechanical

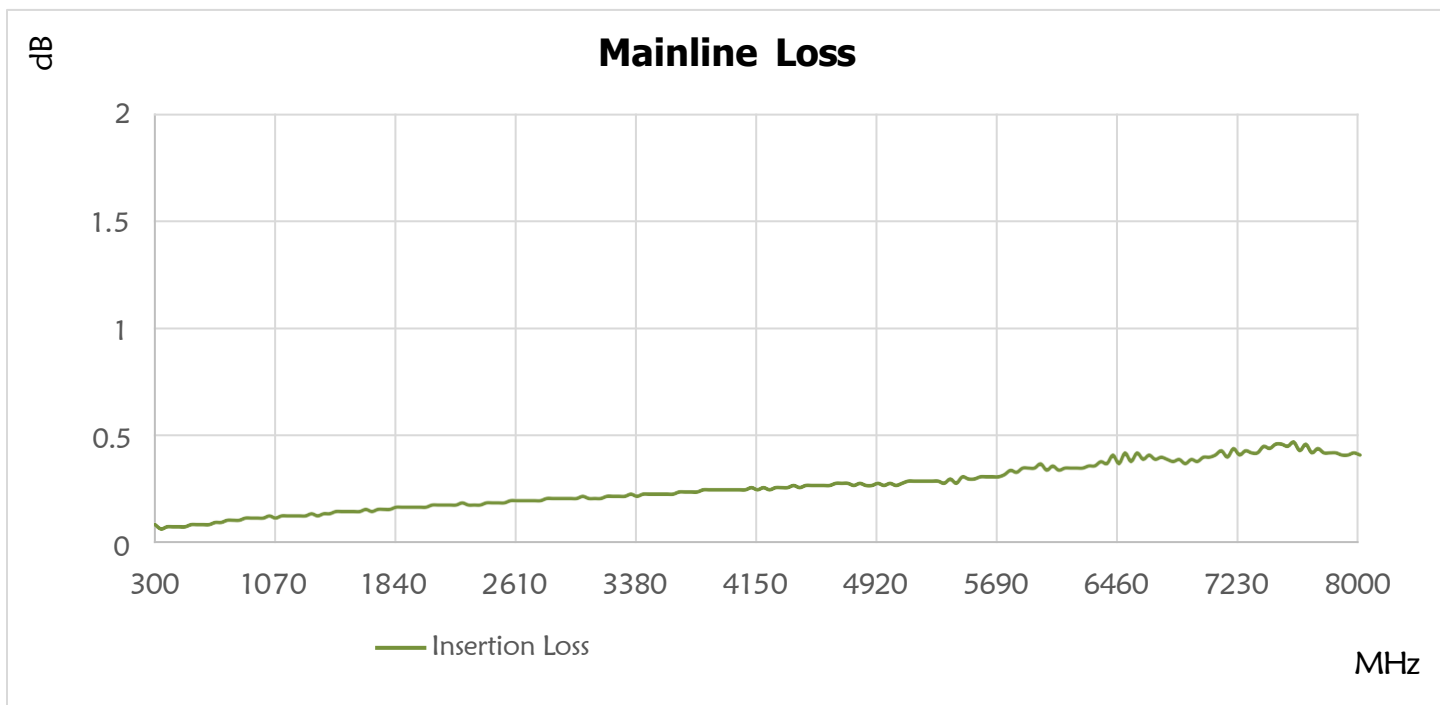
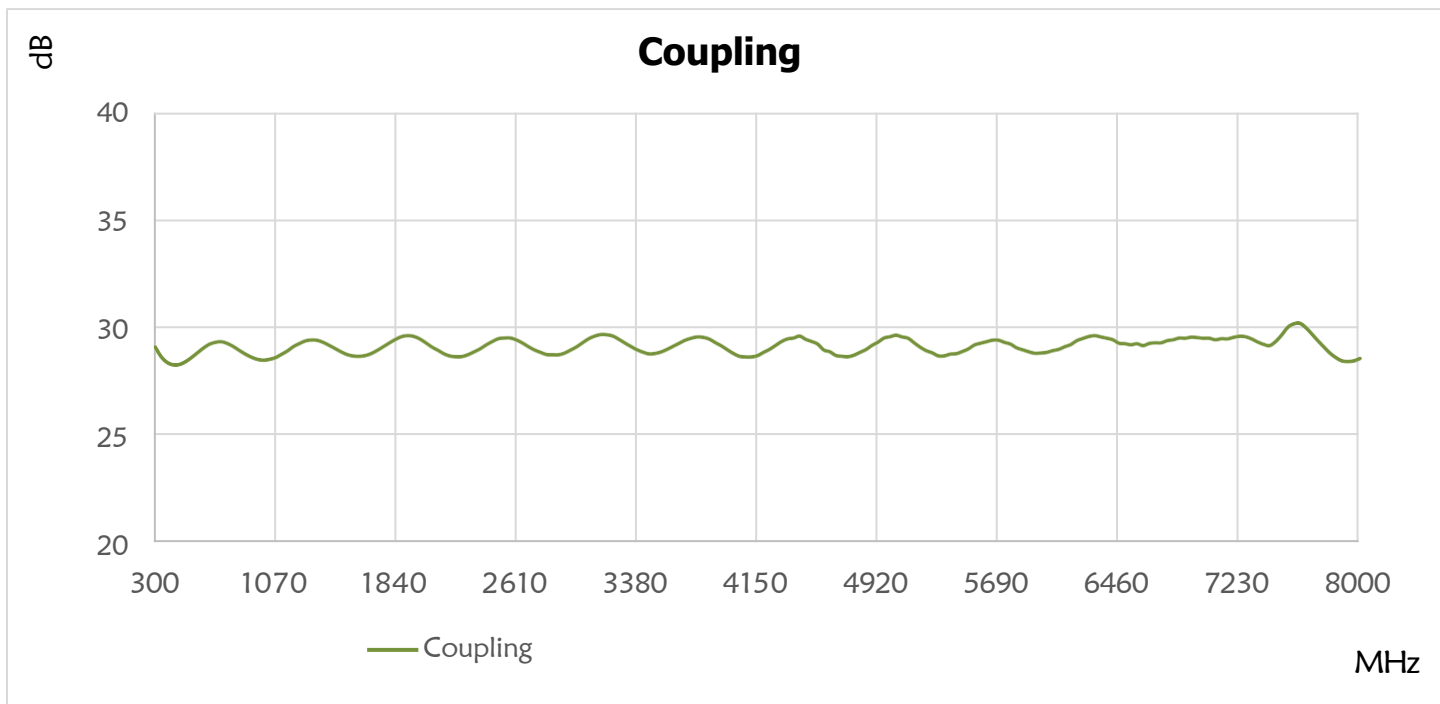
Connector Interface	SMA-Female
Operating Temperature ²	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight Estimate	3.5 oz (86 g)
Humidity	10-90% non-condensing
Environment	Indoors Use Only

Materials

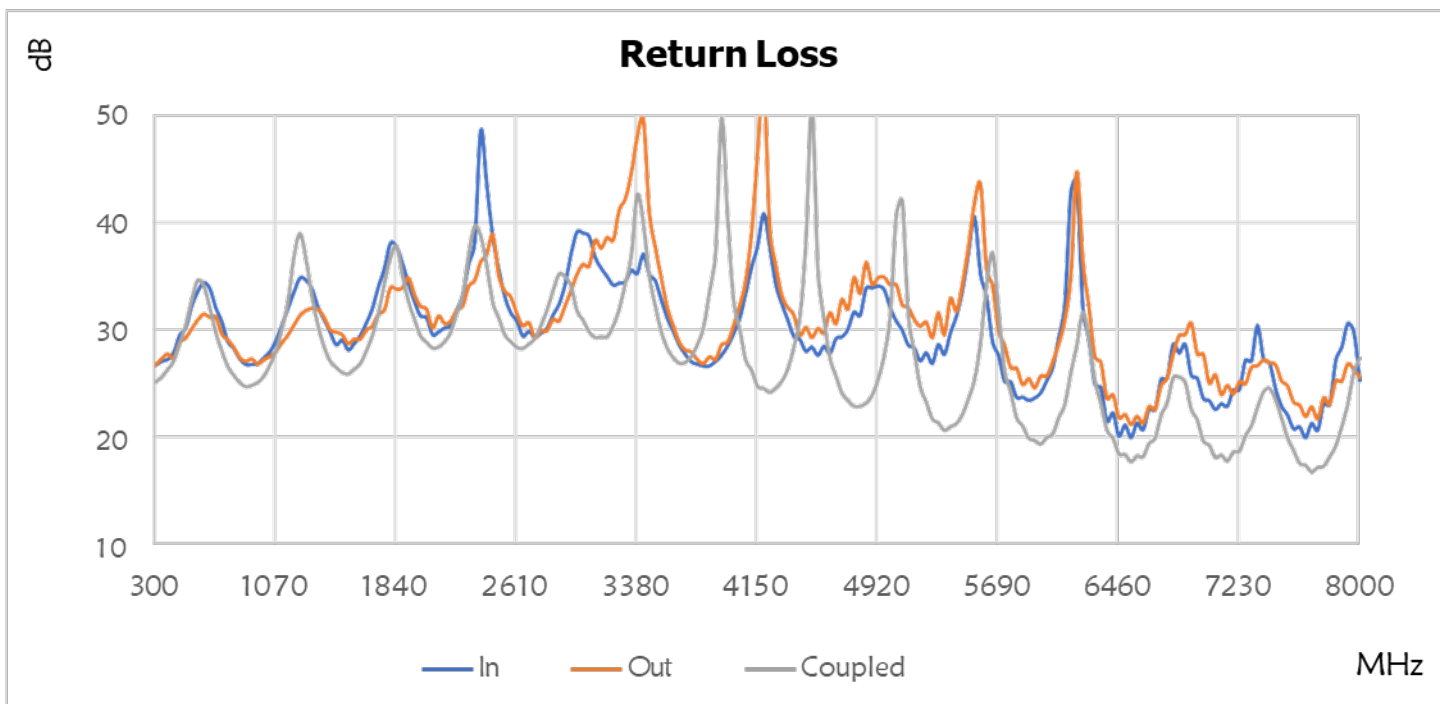
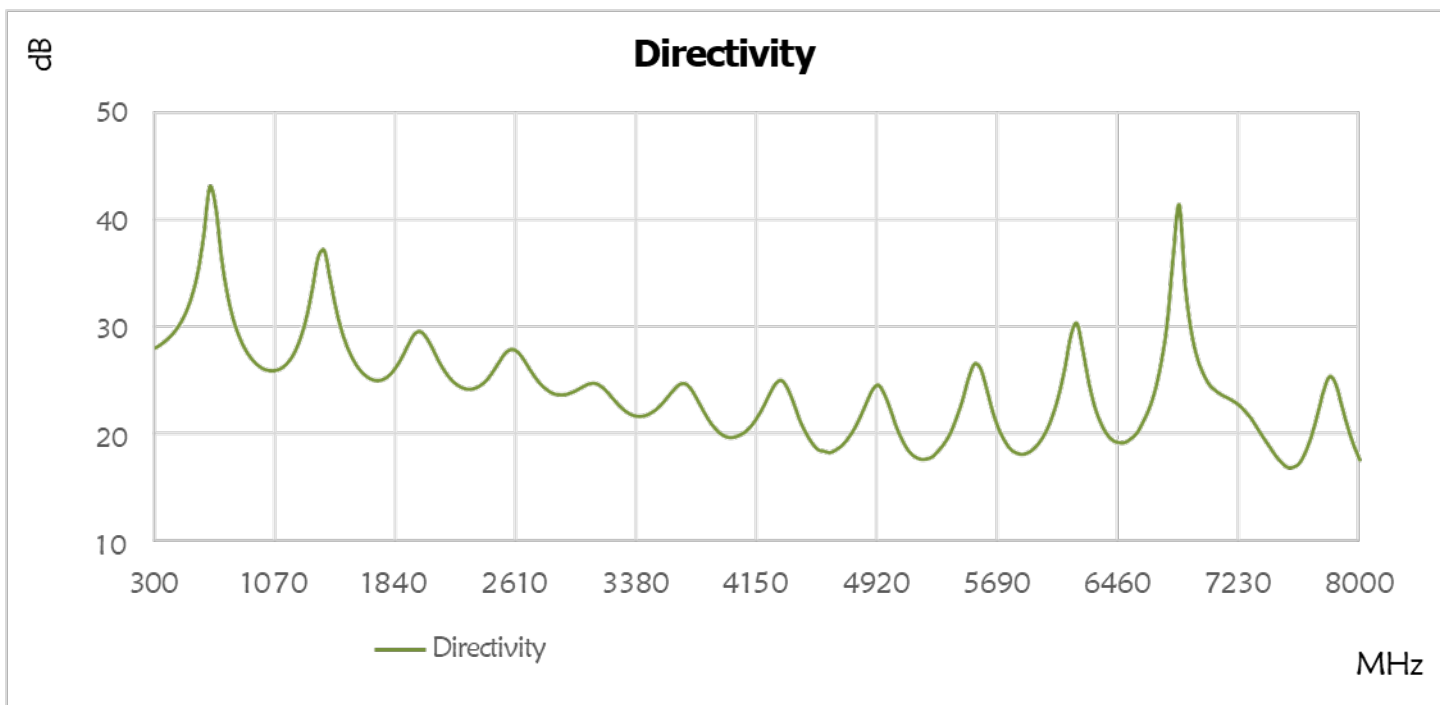
RoHS /REACH Compliant ³	Yes
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Gray Paint

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



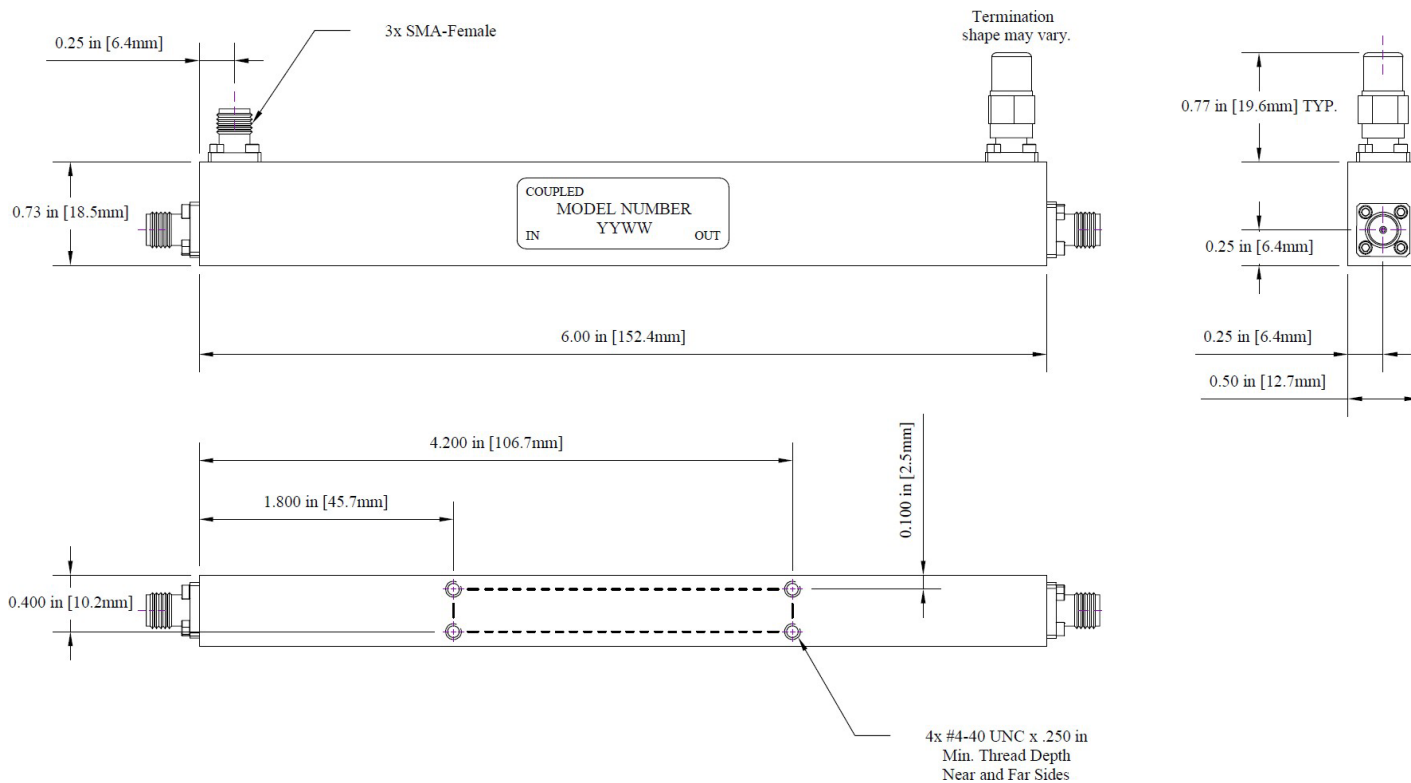
Typical Performance at +25 °C



Typical Performance at +25 °C

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB)		Coupling (dB)	Directivity (dB)
	In	Out	Cpl.	In-Out	In-Cpl.		
300	26.7	26.8	25.2	0.1	29.2	28.1	
608	34.5	31.5	34.2	0.1	29.1	38.6	
916	26.8	27.3	24.9	0.1	28.7	27.0	
1224	34.9	31.4	39.1	0.1	29.3	28.9	
1532	28.2	28.8	26.0	0.2	28.8	27.9	
1840	37.9	33.9	37.9	0.2	29.5	26.3	
2148	30.2	30.6	29.0	0.2	28.8	25.9	
2456	38.8	39.0	32.6	0.2	29.4	25.8	
2764	29.8	30.0	30.5	0.2	28.9	24.7	
3072	38.8	36.0	29.9	0.2	29.5	24.7	
3380	35.3	48.1	42.7	0.2	29.0	21.7	
3688	27.8	28.2	27.0	0.2	29.5	24.7	
3996	29.7	30.5	32.8	0.3	28.9	19.7	
4304	32.5	33.3	25.3	0.3	29.4	25.0	
4612	27.9	31.7	27.4	0.3	28.9	18.3	
4920	34.2	34.9	25.5	0.3	29.4	24.6	
5228	27.9	30.8	23.3	0.3	29.0	17.7	
5536	40.6	41.9	25.4	0.3	29.3	26.6	
5844	23.8	24.9	21.1	0.4	29.0	18.2	
6152	42.9	35.0	26.1	0.4	29.3	29.2	
6460	20.1	21.8	18.5	0.4	29.3	19.3	
6768	25.5	25.5	23.2	0.4	29.5	30.4	
7076	22.6	25.9	18.1	0.4	29.5	24.1	
7384	27.3	27.3	24.3	0.5	29.3	19.7	
7692	21.3	22.9	16.8	0.4	29.8	19.9	
8000	25.3	25.6	27.4	0.4	28.6	17.6	

Outline Dimensions



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