APTDC-10-02001800-SMA

Directional Coupler 10 dB SMA Female 2 to 18 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.

The APTDC-10-02001800-SMA is part of AmpliTech's catalog of single and dual directional couplers that offer a wide range of coupling values and frequency ranges. The device comes with N female connectors.

Specifications	Min	Typ	Max	Min
Frequency	2		18	GHz
Impedance		50		Ohm
Coupling		10 ± 1.0		dB
Frequency Sensitivity (Flatness)		± 0.35	± 1.0	dB
Mainline Loss[1]		0.8	1.6	dB
Directivity	14	17		dB
Return Loss (In and Out)	13	19		dB
Return Loss (Coupling)	13	17		dB
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	1.4 oz (40 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.

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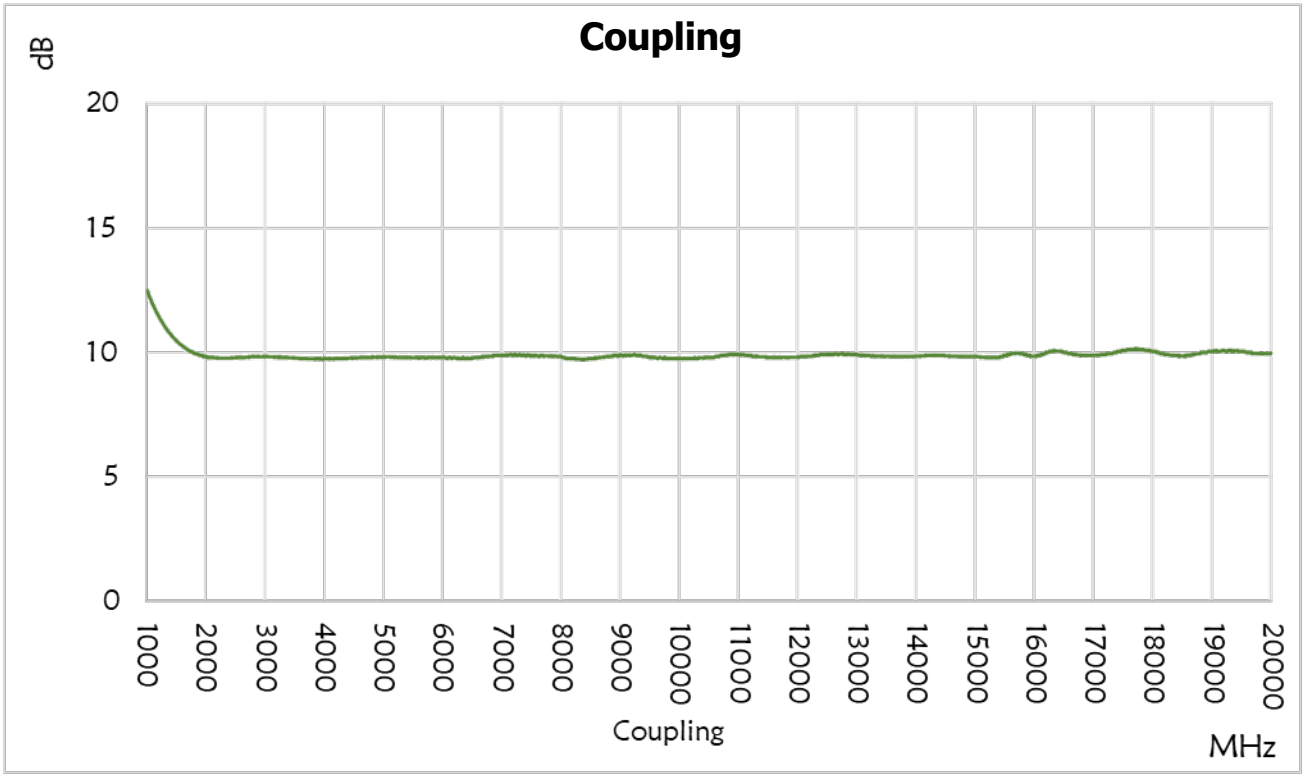
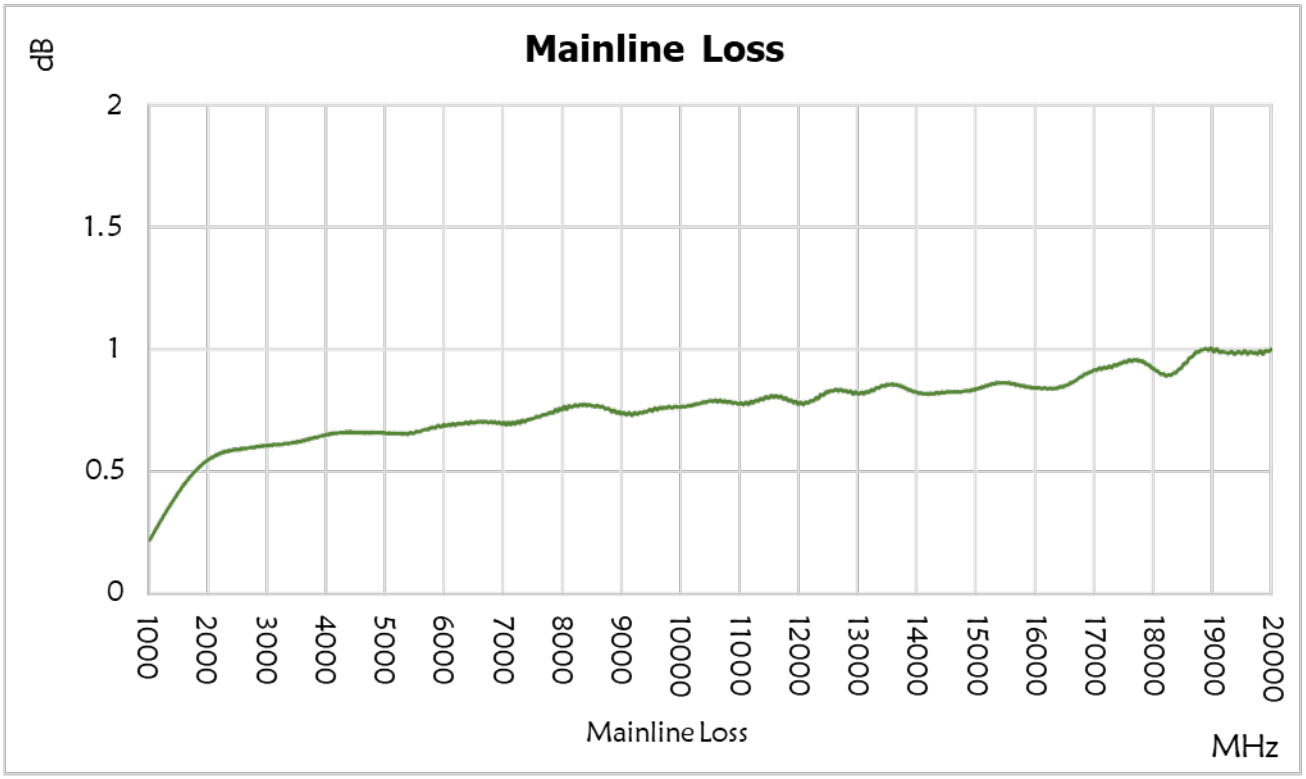
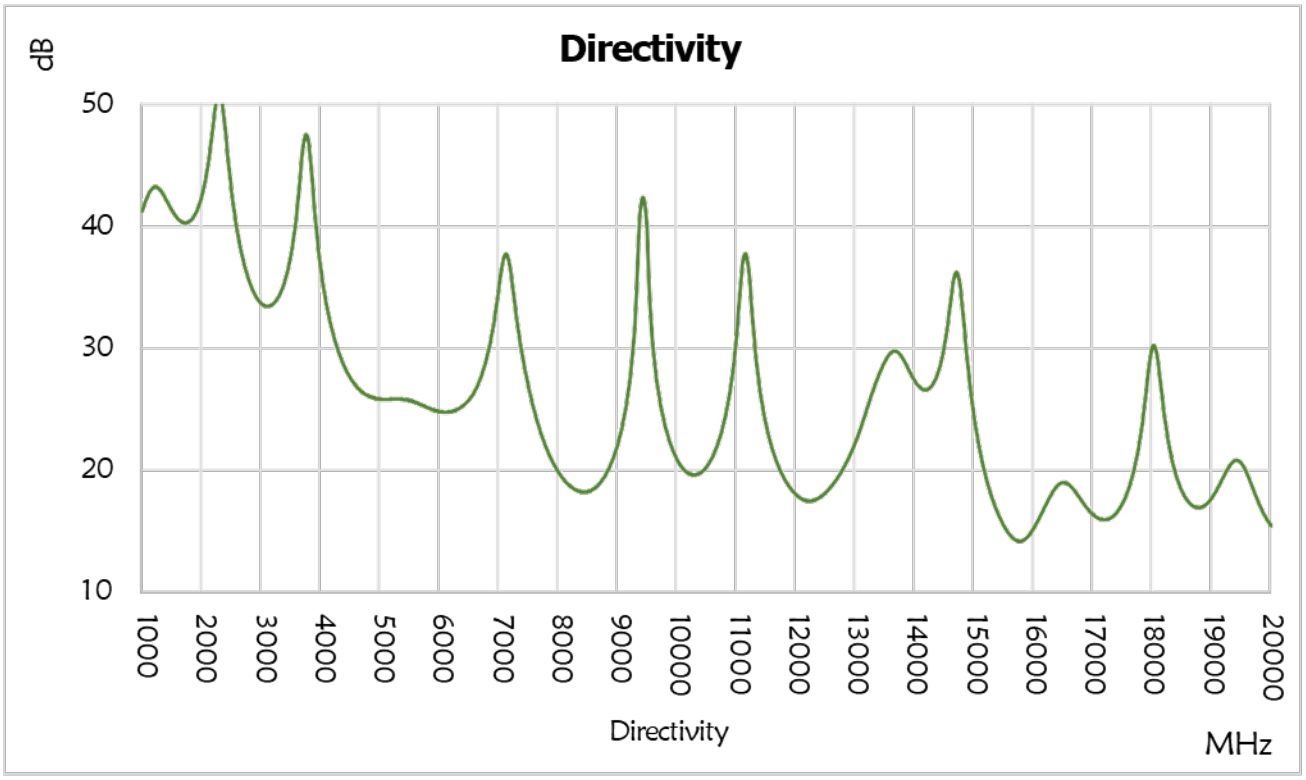
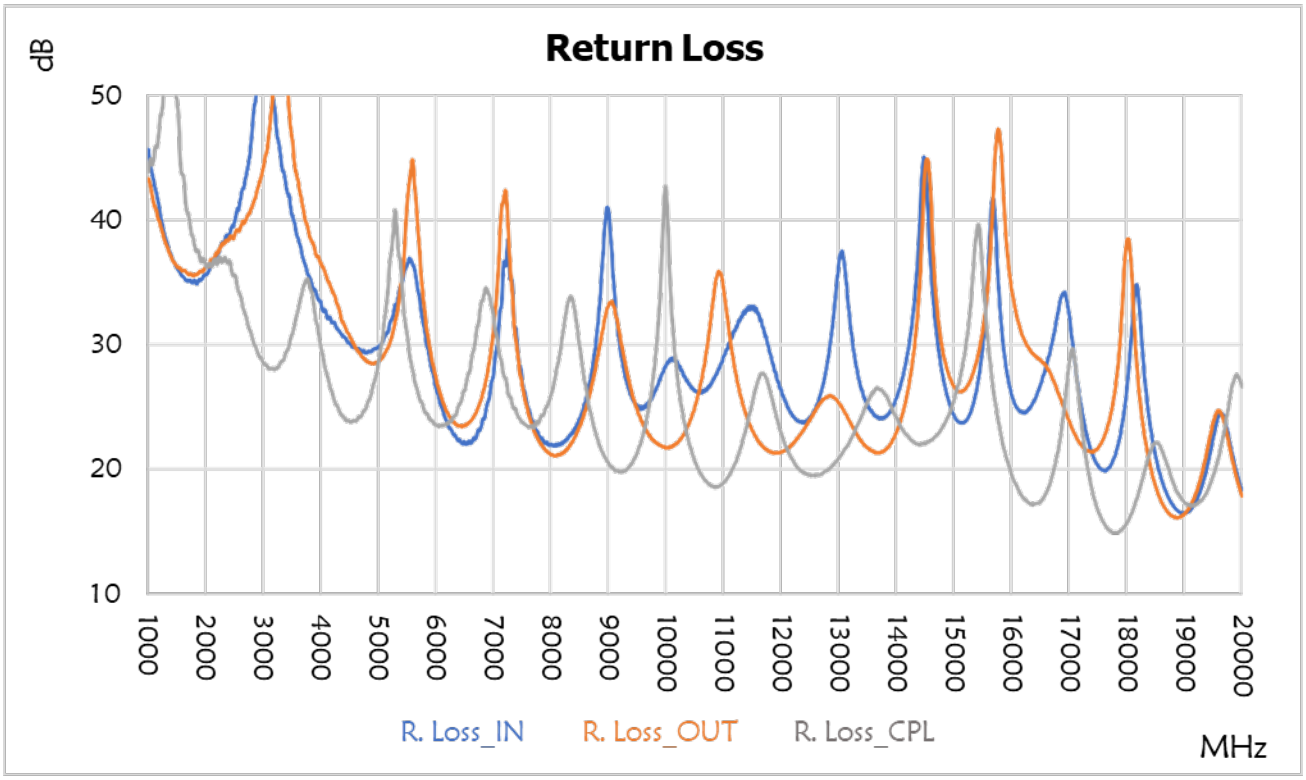
Typical Performance at +25 °C





Typical Performance at +25 °C

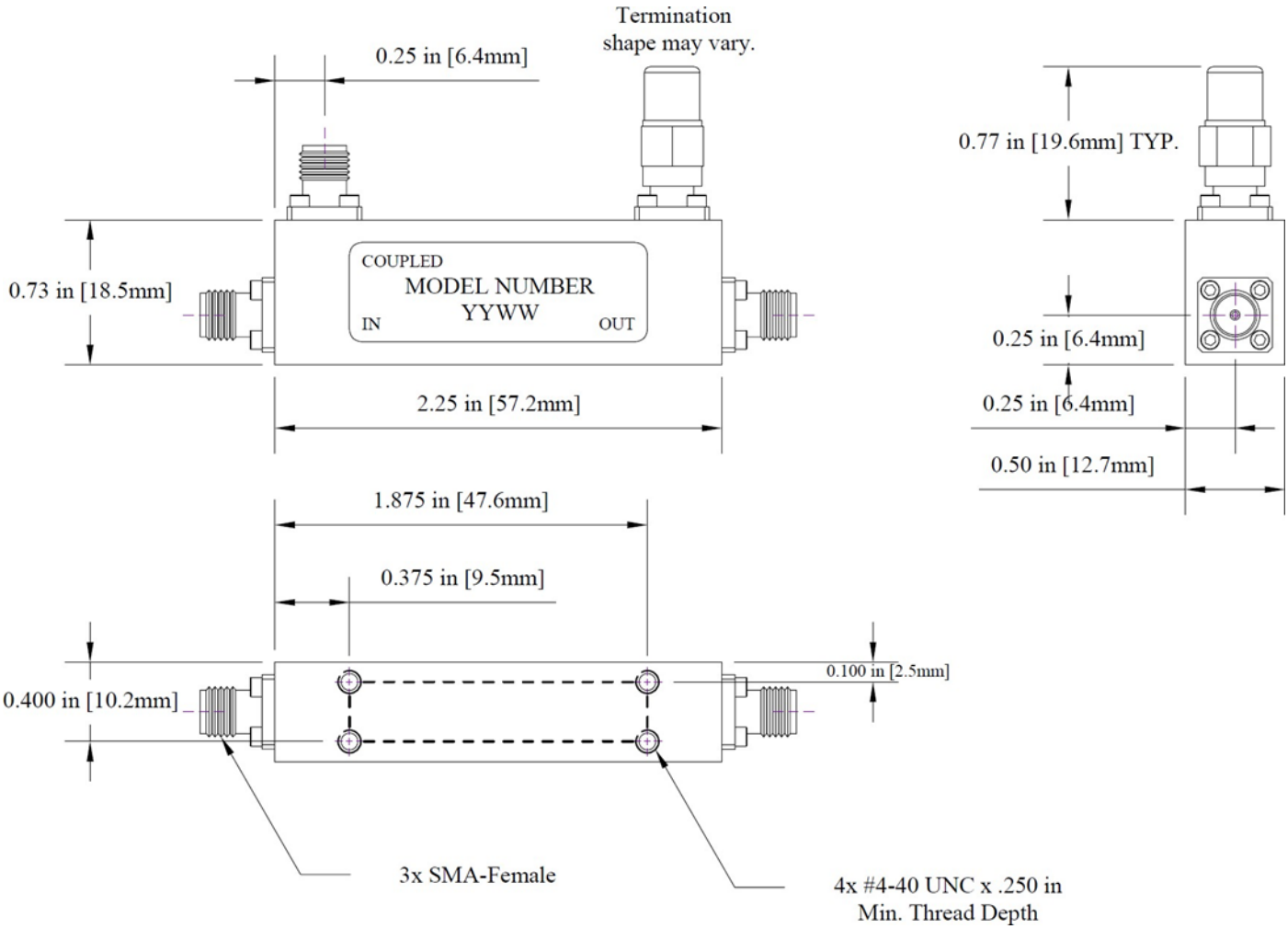




Typical Performance at +25 °C

Frequency (MHz)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl.	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl.	Directivity (dB)
1000	43.8	42.0	46.5	0.3	12.3	42.5
1500	36.0	36.0	48.5	0.5	10.4	40.7
2000	35.8	36.3	36.6	0.6	9.9	44.1
2500	40.4	41.1	35.1	0.6	9.9	40.0
3000	59.7	46.8	28.5	0.6	9.8	33.5
3500	39.2	44.6	31.4	0.7	9.8	40.1
4000	32.0	35.7	29.5	0.6	9.8	34.0
4500	30.0	29.3	23.7	0.6	9.8	27.1
5000	30.3	29.3	29.8	0.6	9.9	25.9
5500	36.6	47.7	29.8	0.7	9.9	25.7
6000	25.4	25.6	23.4	0.6	9.7	24.9
6500	21.3	22.9	27.3	0.9	9.8	26.4
7000	30.5	36.3	30.4	0.7	10.0	38.3
7500	25.3	24.9	23.8	0.8	10.0	25.2
8000	22.2	21.1	26.7	1.0	9.9	19.4
8500	24.8	24.2	28.8	0.7	9.8	18.5
9000	37.8	33.9	20.2	0.8	10.2	23.8
9500	24.0	23.0	21.8	0.6	10.1	30.2
10000	29.0	21.9	39.3	0.8	9.8	20.3
10500	26.4	26.8	20.4	0.9	9.9	21.1
11000	29.3	31.1	19.2	0.8	9.6	36.4
11500	33.5	22.8	26.3	1.0	9.9	22.1
12000	25.0	21.3	22.4	0.8	9.9	17.8
12500	24.7	24.7	19.6	0.7	9.8	18.7
13000	38.8	24.9	21.2	0.8	10.1	23.5
13500	24.4	21.2	25.8	0.8	9.8	29.7
14000	26.5	24.1	24.0	0.9	10.0	26.9
14500	39.4	42.7	22.2	0.8	9.9	33.1
15000	23.9	26.3	26.3	0.9	9.9	21.9
15500	32.9	34.0	33.7	0.9	9.9	14.9
16000	25.4	32.8	19.2	0.8	9.9	16.1
16500	27.6	28.4	17.6	1.0	10.1	19.0
17000	30.7	23.1	29.5	0.9	9.9	16.2
17500	20.2	22.4	16.5	1.0	10.1	18.4
18000	29.1	36.0	16.0	1.0	10.2	29.5
18500	20.1	17.7	22.3	1.1	9.9	17.6
19000	16.6	17.1	17.3	0.8	10.2	18.6
19500	23.9	24.9	20.0	1.1	10.0	19.9
20000	17.9	17.0	26.0	1.0	10.0	15.1

Outline Dimensions



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