APTDC-20-02001800-SMA

Directional Coupler 20 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-20-02001800-SMA is part of AmpliTech's catalog of single and dual directional couplers that offer a wide range of coupling values and frequency ranges.

Specifications	Min	Typ	Max	Min
Frequency	2		18	GHz
Impedance		50		Ohm
Coupling		20 ± 1.0		dB
Frequency Sensitivity (Flatness)		± 0.45	± 1.0	dB
Mainline Loss[1]		0.8	1.3	dB
Directivity	14	17		dB
Return Loss (In and Out)	13	18		dB
Return Loss (Coupling)	13	18		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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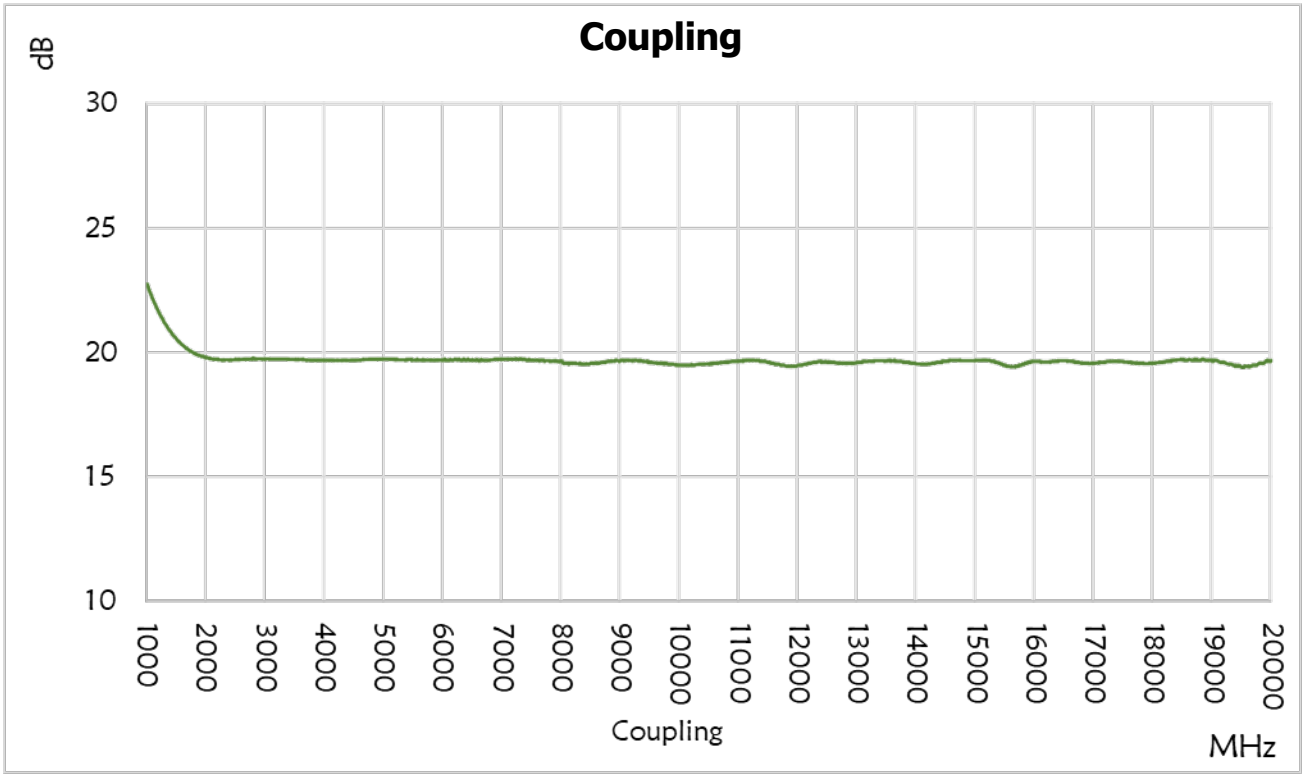
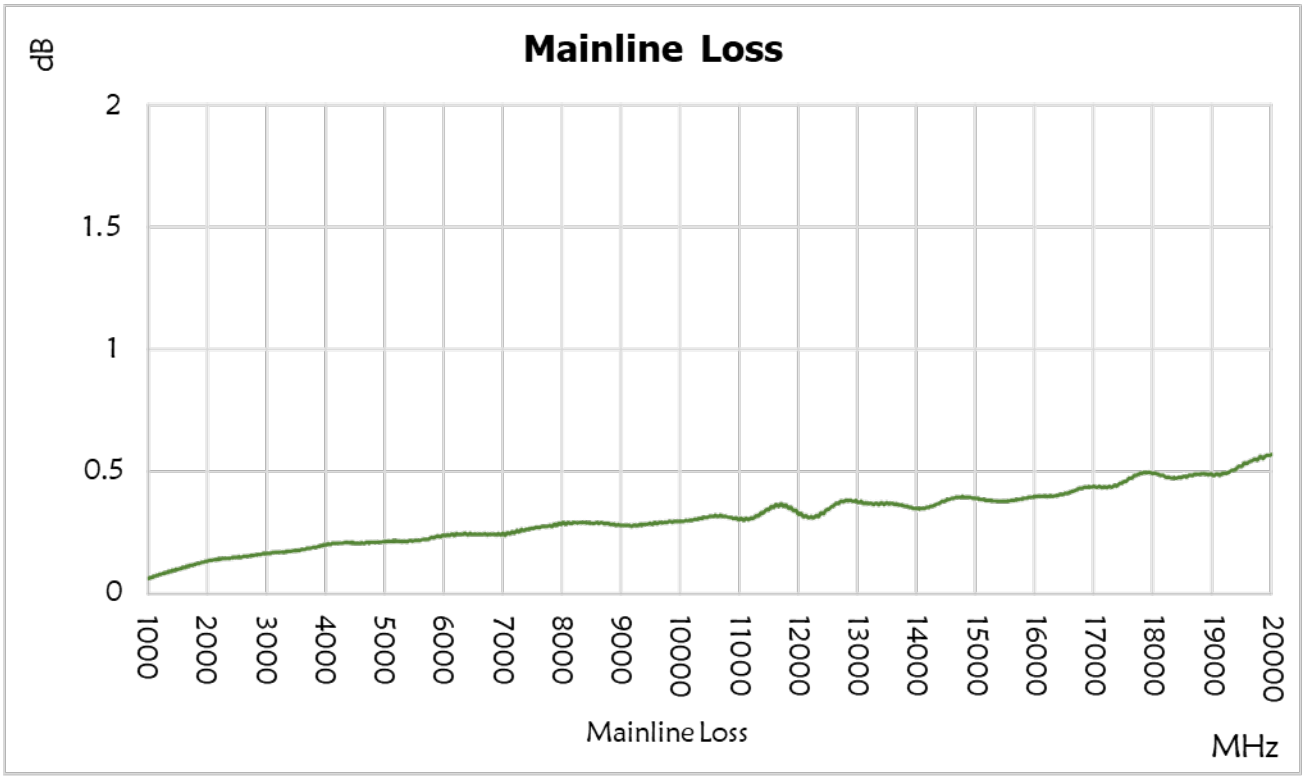
Website: www.amplitechinc.com • Email: info@amplitechinc.com

Typical Performance at +25 °C





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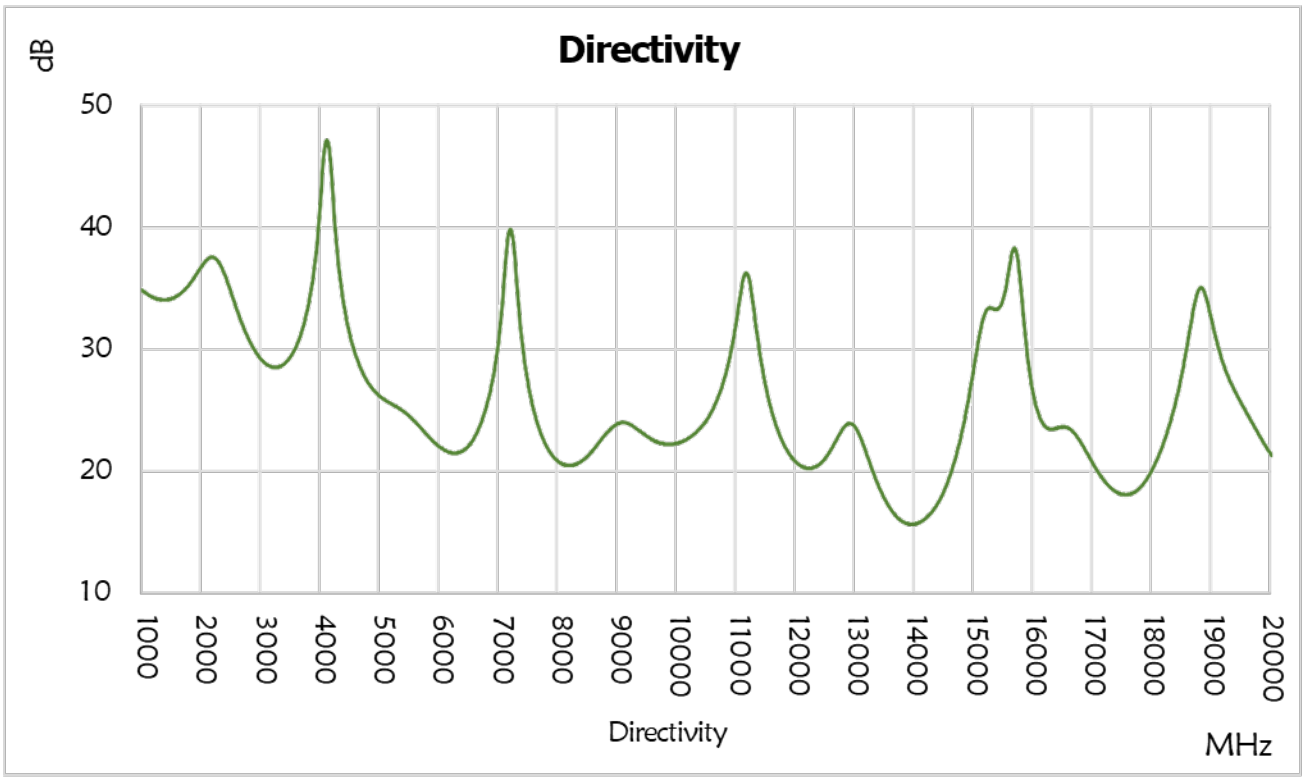

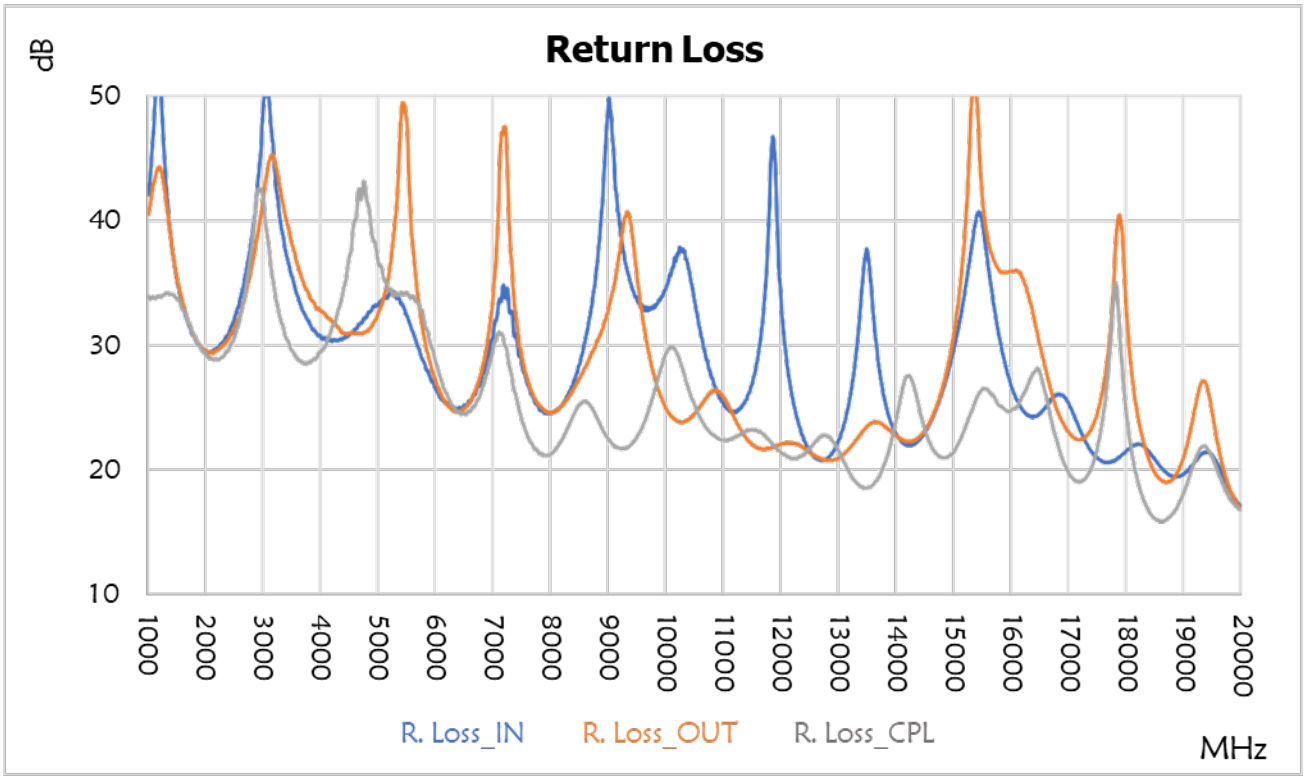

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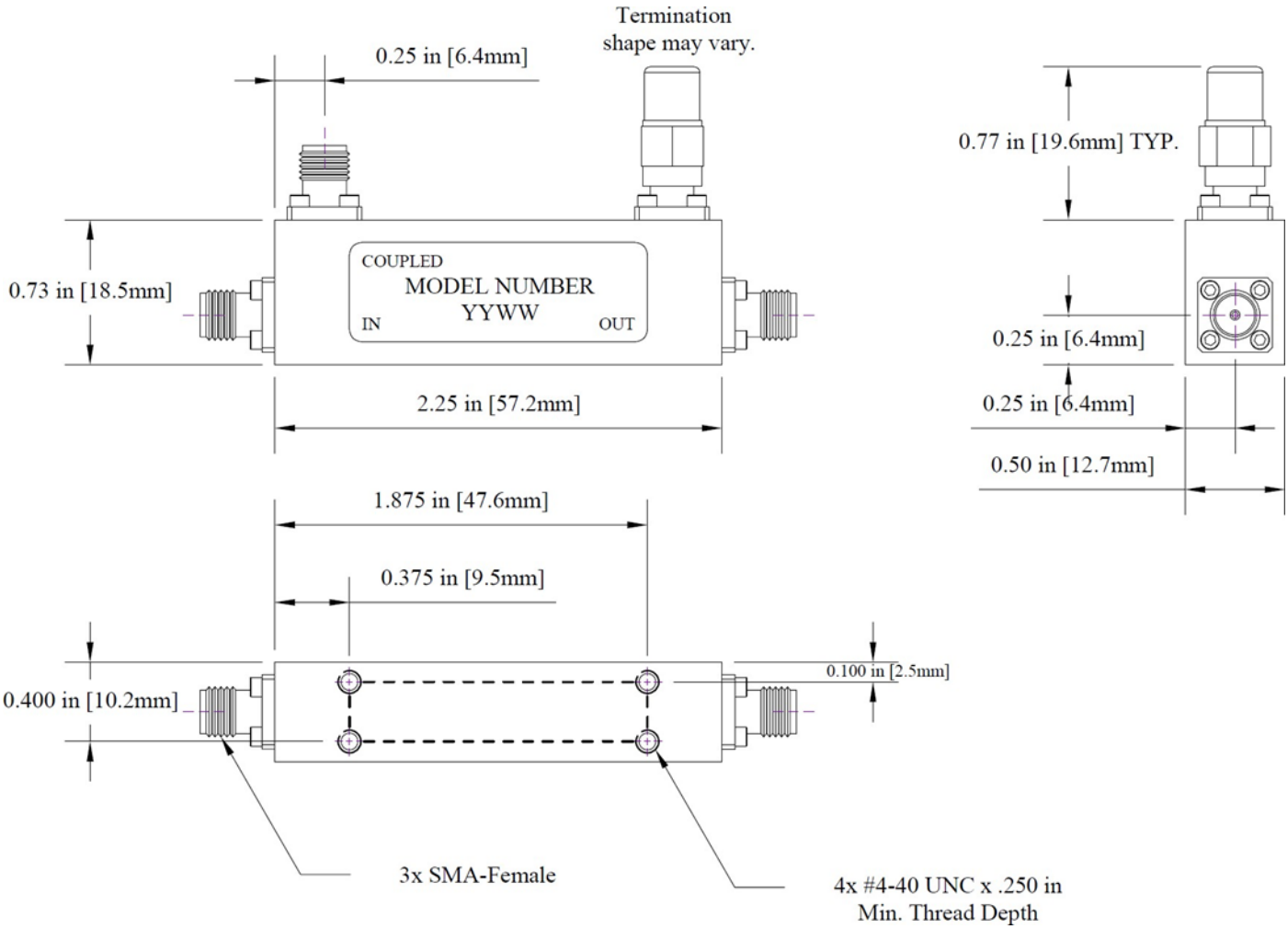
Typical Performance at +25 °C

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	44.8	42.2	33.4	0.1	22.5	34.6
1500	34.2	33.8	33.7	0.1	20.4	34.4
2000	29.3	29.3	28.8	0.2	19.8	37.5
2500	33.2	33.5	31.3	0.2	19.7	33.5
3000	54.3	45.8	40.1	0.2	19.8	28.9
3500	34.8	36.9	29.4	0.2	19.7	30.2
4000	29.6	32.0	29.9	0.2	19.6	49.3
4500	31.4	30.6	37.4	0.2	19.7	29.7
5000	34.0	33.8	36.3	0.2	19.7	25.9
5500	31.8	39.5	33.7	0.3	19.8	24.2
6000	25.7	25.9	28.3	0.1	19.6	21.8
6500	24.4	24.3	24.2	0.4	19.9	22.7
7000	33.4	40.9	30.4	0.2	19.7	34.9
7500	27.1	27.1	23.6	0.3	19.7	25.1
8000	24.9	24.7	21.3	0.4	19.8	20.6
8500	29.5	27.7	25.3	0.2	19.7	21.8
9000	51.8	35.2	22.3	0.3	19.9	24.1
9500	32.2	31.9	22.9	0.2	19.5	22.7
10000	34.6	24.3	29.6	0.4	19.4	22.4
10500	32.4	25.3	24.9	0.4	19.5	25.0
11000	24.5	24.8	22.4	0.3	19.8	35.3
11500	27.8	22.0	23.2	0.3	19.8	25.0
12000	29.9	21.9	21.3	0.3	19.7	20.4
12500	21.2	21.3	21.9	0.2	19.6	21.8
13000	23.1	21.3	21.4	0.4	19.6	23.0
13500	35.1	23.6	18.7	0.4	19.5	17.0
14000	22.5	22.5	24.5	0.4	19.5	15.9
14500	23.4	23.8	22.9	0.4	19.6	19.6
15000	30.5	32.9	21.6	0.4	19.7	31.4
15500	38.4	38.7	26.6	0.4	19.5	36.5
16000	26.1	36.0	25.0	0.4	19.6	24.6
16500	25.0	29.1	27.5	0.5	19.7	23.7
17000	25.1	22.7	19.6	0.5	19.5	20.0
17500	21.0	26.0	22.3	0.5	19.6	18.2
18000	21.8	28.8	24.0	0.5	19.6	21.1
18500	20.5	19.3	16.0	0.5	19.7	30.4
19000	19.8	22.3	18.4	0.4	19.6	30.5
19500	20.9	22.6	20.8	0.6	19.6	24.8
20000	17.0	16.7	16.8	0.6	19.8	20.7

Outline Dimensions



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