APTDC-10-00502000-SMA

Directional Coupler 10 dB SMA Female 500 MHz to 20 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-10-00502000-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	0.5		20	GHz
Impedance		50		Ohm
Coupling		10 ± 1.2		dB
Frequency Sensitivity (Flatness)		± 0.54	± 1.8	dB
Mainline Loss[1]		1.7	2.1	dB
Directivity	12	15		dB
Return Loss (In and Out)	12	16		dB
Return Loss (Coupling)	11	14		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	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.

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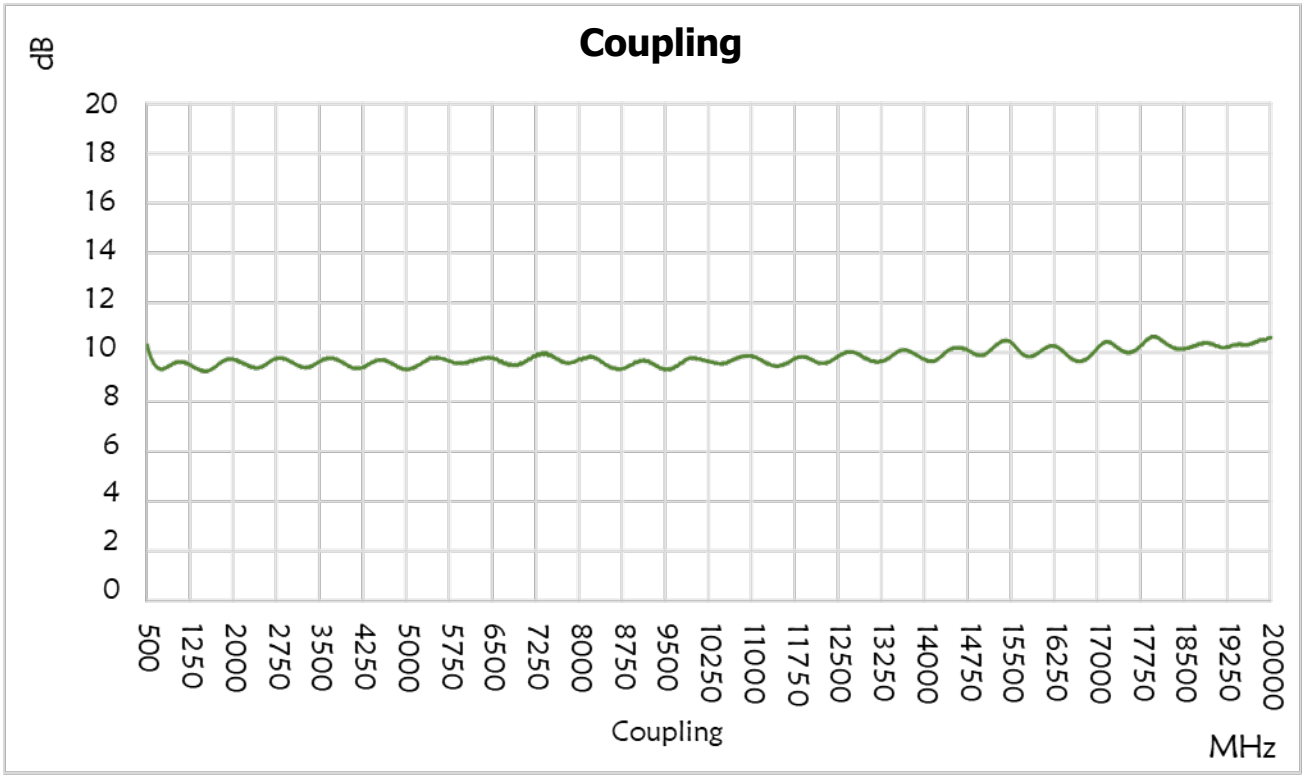
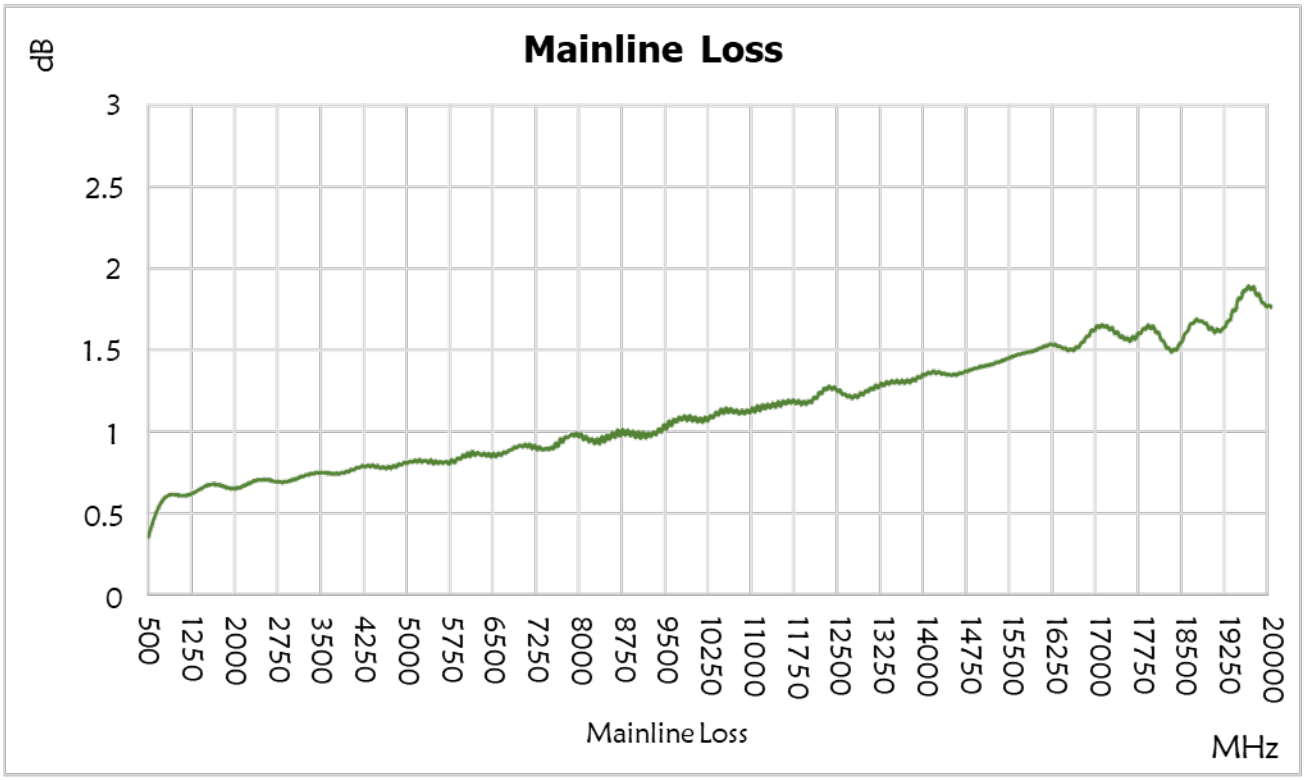
Website: www.amplitechinc.com • Email: info@amplitechinc.com

Typical Performance at +25 °C





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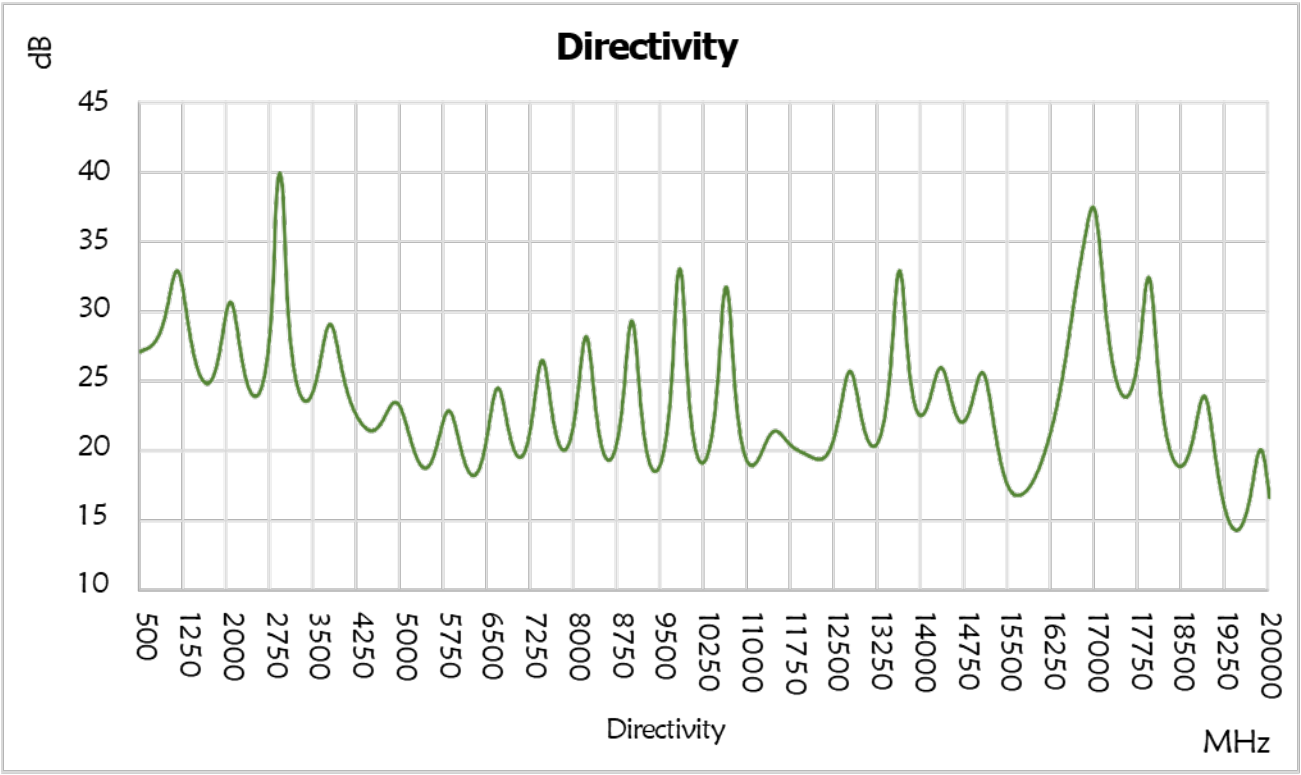

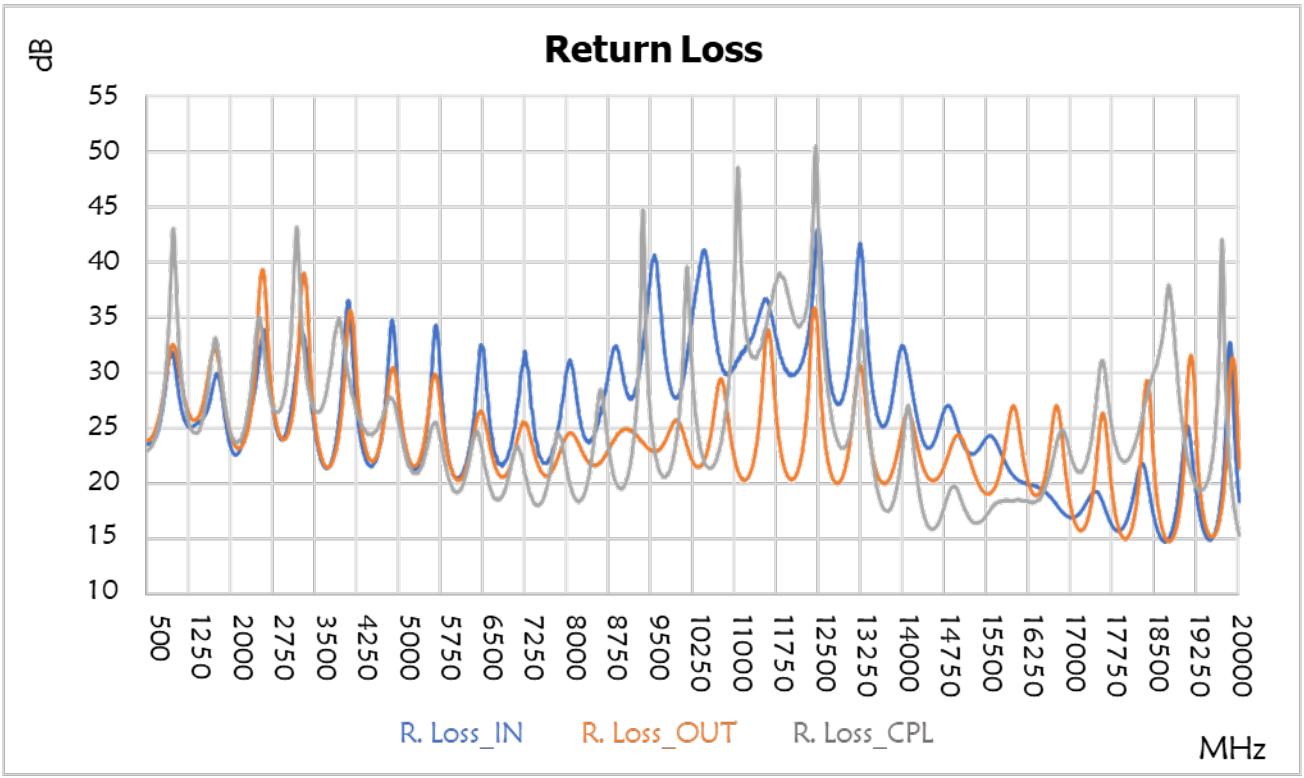

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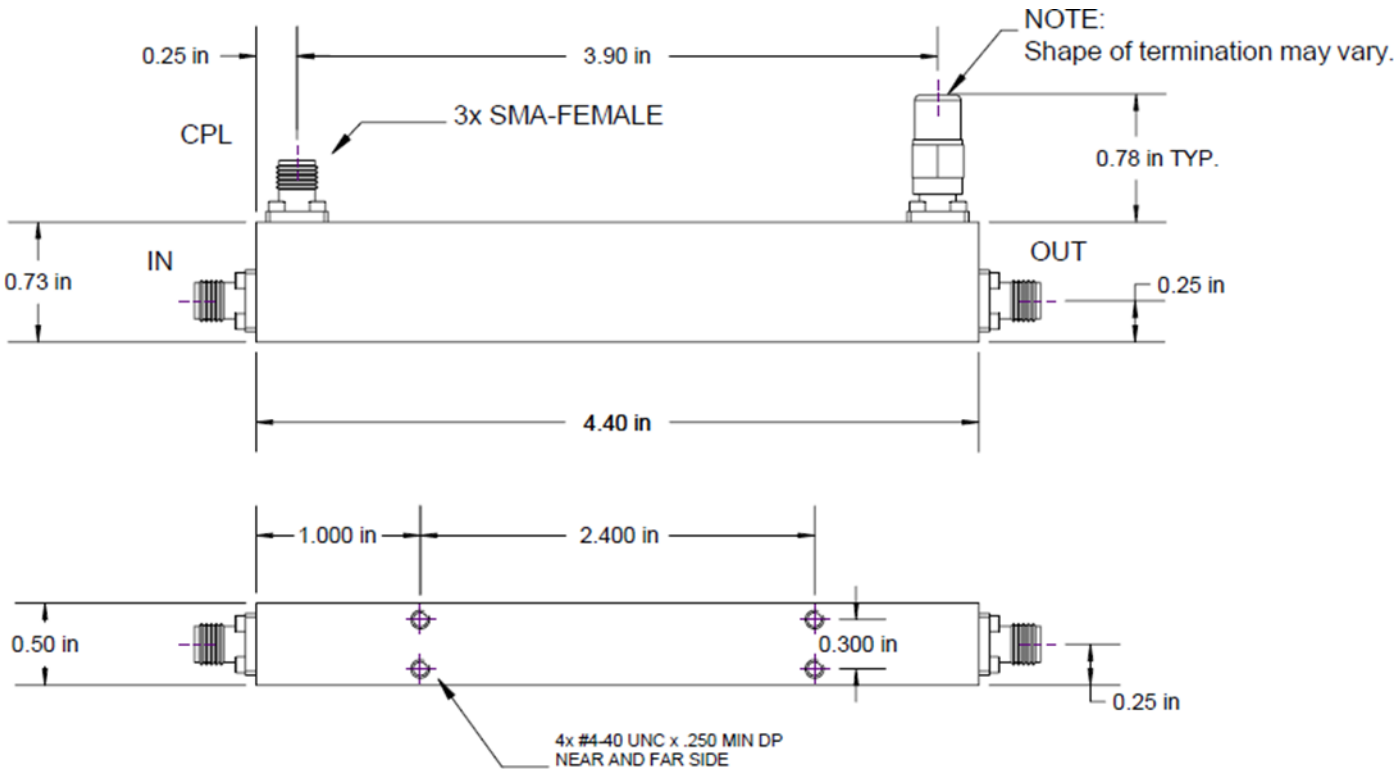
Typical Performance at +25 °C

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)
500	23.5	24.3	23.2	0.6	10.0	27.3
1000	28.4	30.0	36.4	0.6	9.7	32.8
1500	26.7	29.5	27.1	0.7	9.2	25.0
2000	22.7	23.3	24.2	0.7	9.7	31.2
2500	33.8	40.0	34.4	0.7	9.6	24.3
3000	26.6	25.9	31.4	0.7	9.6	28.0
3500	23.0	22.9	26.6	0.8	9.8	25.8
4000	36.1	34.4	32.0	0.8	9.5	24.1
4500	21.6	22.2	24.4	0.7	9.7	21.6
5000	24.3	24.0	24.7	0.8	9.3	22.1
5500	28.0	29.0	24.1	0.8	9.8	19.8
6000	20.9	20.5	19.2	0.8	9.6	19.4
6500	28.5	23.6	21.3	1.0	9.9	23.6
7000	25.2	23.6	22.8	0.8	9.5	19.5
7500	22.4	20.9	18.4	1.0	9.9	23.4
8000	32.3	25.2	20.2	1.1	9.9	24.9
8500	25.8	21.8	26.8	0.9	9.5	19.2
9000	27.6	24.3	20.0	1.0	9.3	26.2
9500	43.3	23.7	24.0	1.2	9.6	20.8
10000	28.9	24.3	28.6	1.0	9.8	20.0
10500	37.5	24.9	21.5	1.2	9.7	33.1
11000	32.8	21.1	49.1	1.0	9.8	18.9
11500	37.6	37.0	34.0	1.3	9.5	21.2
12000	29.5	20.4	35.4	1.2	9.7	19.6
12500	36.9	24.1	36.0	1.3	10.0	22.8
13000	32.0	25.4	24.3	1.3	9.8	20.6
13500	25.4	20.1	19.7	1.3	10.1	34.8
14000	31.7	27.2	25.9	1.4	9.7	23.0
14500	23.9	20.4	15.9	1.3	10.2	22.6
15000	23.7	23.9	18.6	1.4	10.0	25.8
15500	24.4	19.3	17.6	1.5	10.3	16.9
16000	20.4	24.3	18.7	1.5	10.1	19.5
16500	19.3	22.1	19.7	1.6	9.8	29.6
17000	17.1	16.2	21.9	1.6	10.3	34.0
17500	18.3	27.7	31.3	1.5	10.0	24.0
18000	17.8	15.9	22.4	1.6	10.7	25.1
18500	15.5	16.7	30.9	1.7	10.2	19.5
19000	26.0	28.3	23.7	1.6	10.3	19.0
19500	15.5	15.5	22.9	2.1	10.4	15.3
20000	16.7	17.2	15.0	1.9	10.7	14.0

Outline Dimensions



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