APTDC-30-02001800-SMA

Directional Coupler 30 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-30-02001800-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		30 ± 2.5		dB
Frequency Sensitivity (Flatness)		± 0.55	± 1.5	dB
Mainline Loss[1]		0.6	0.9	dB
Directivity	11	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

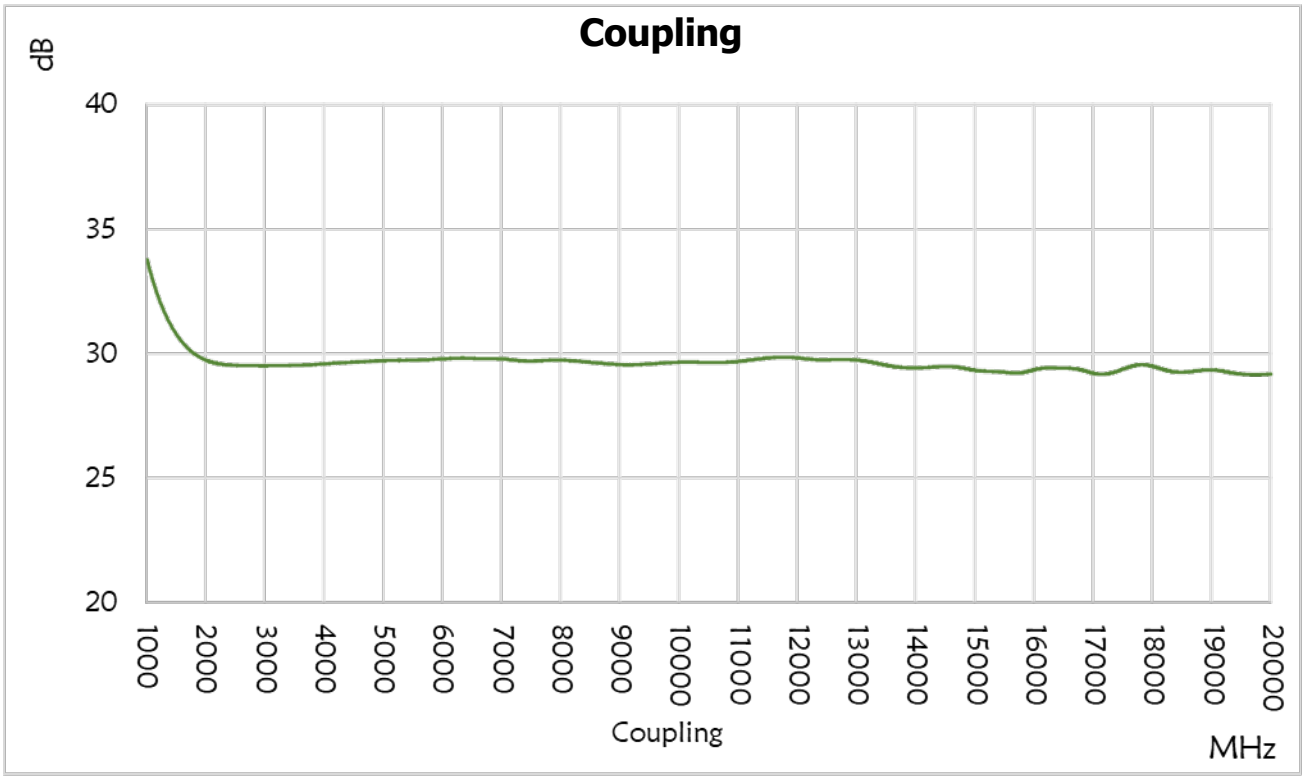
Materials

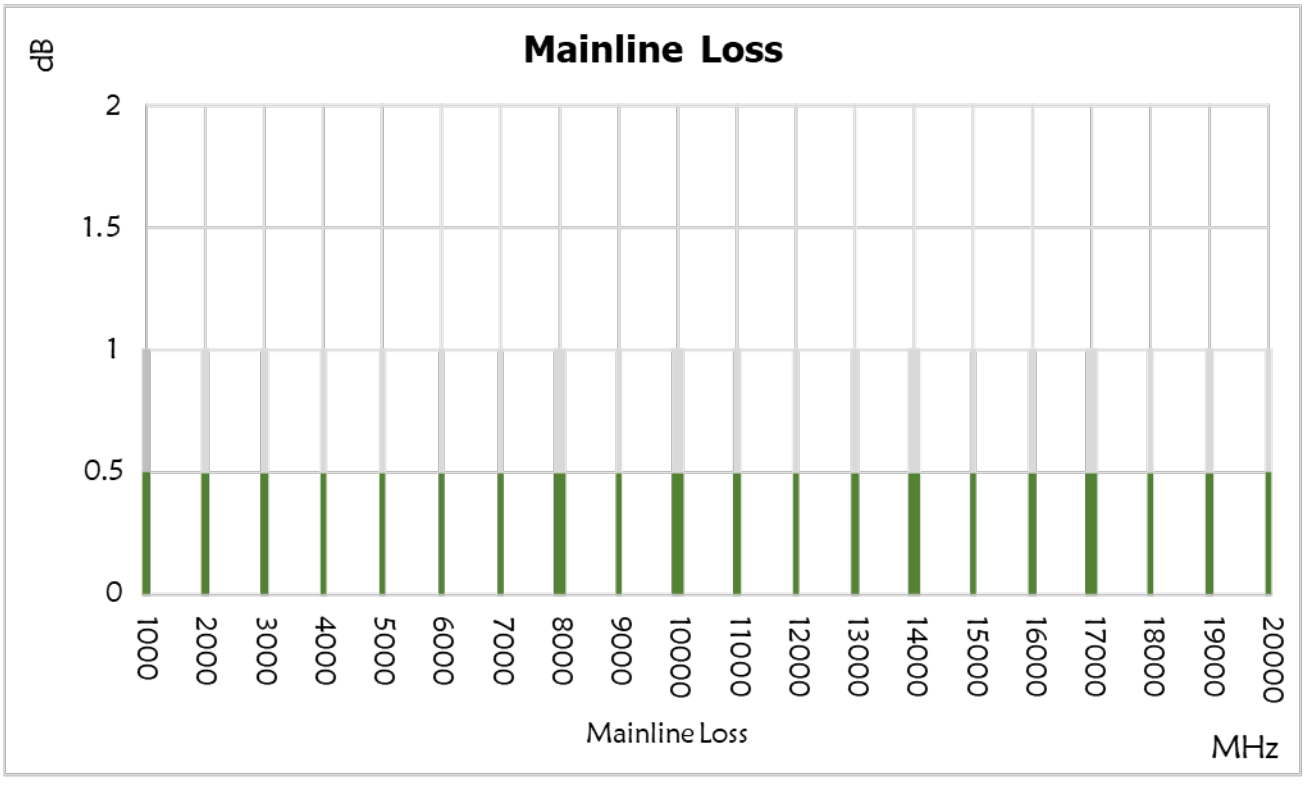
RoHS /REACH Compliant[3]	Yes
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Gray Paint

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.

155 Plant Ave Hauppauge, New York 11716 • Tel: 631-521-7831 • Fax: 631-521-7871
Website: www.amplitechinc.com • Email: info@amplitechinc.com

Typical Performance at +25 °C





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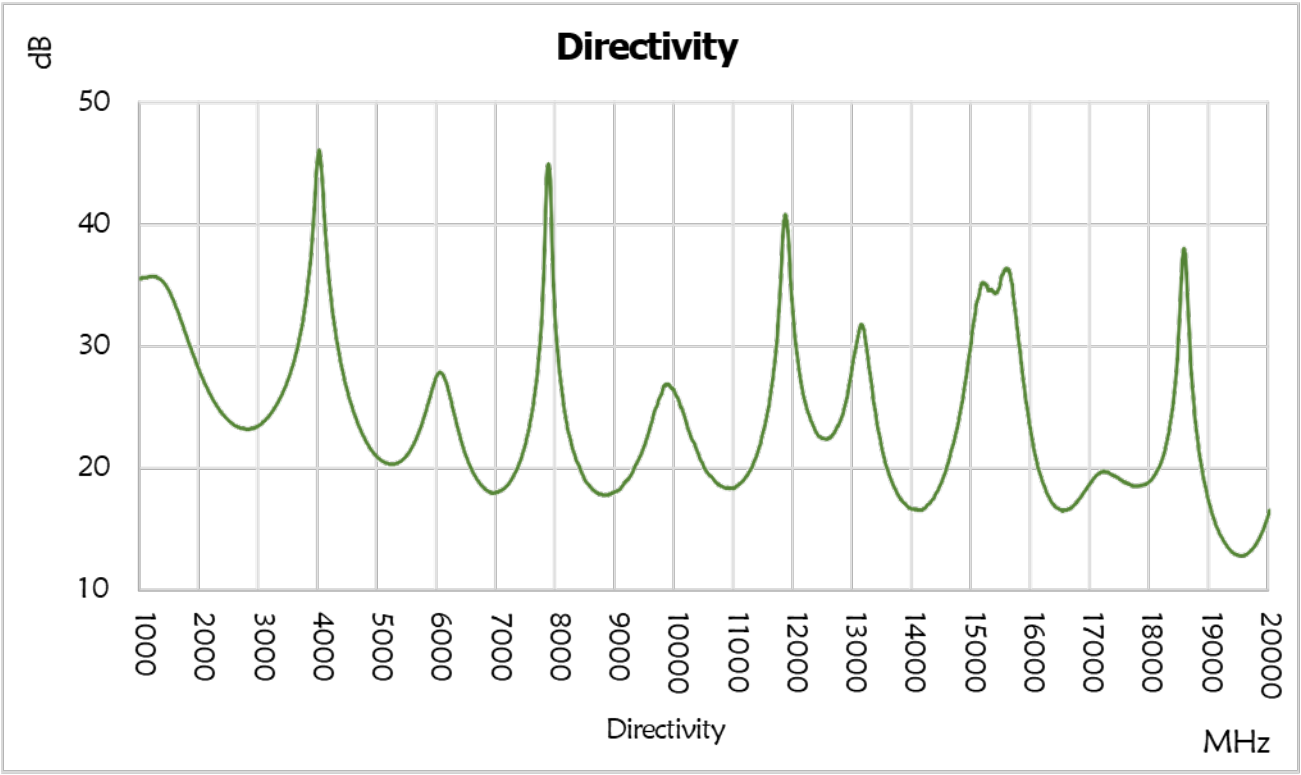
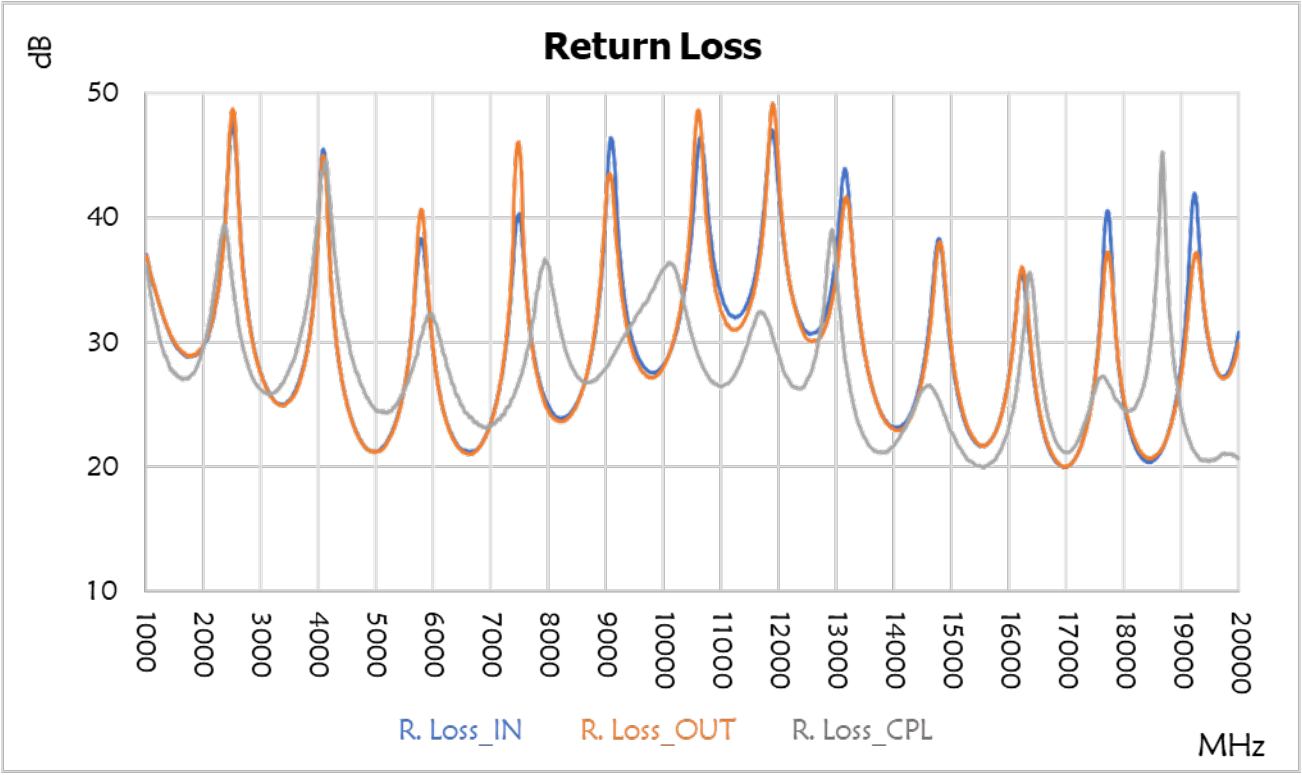
Typical Performance at +25 °C





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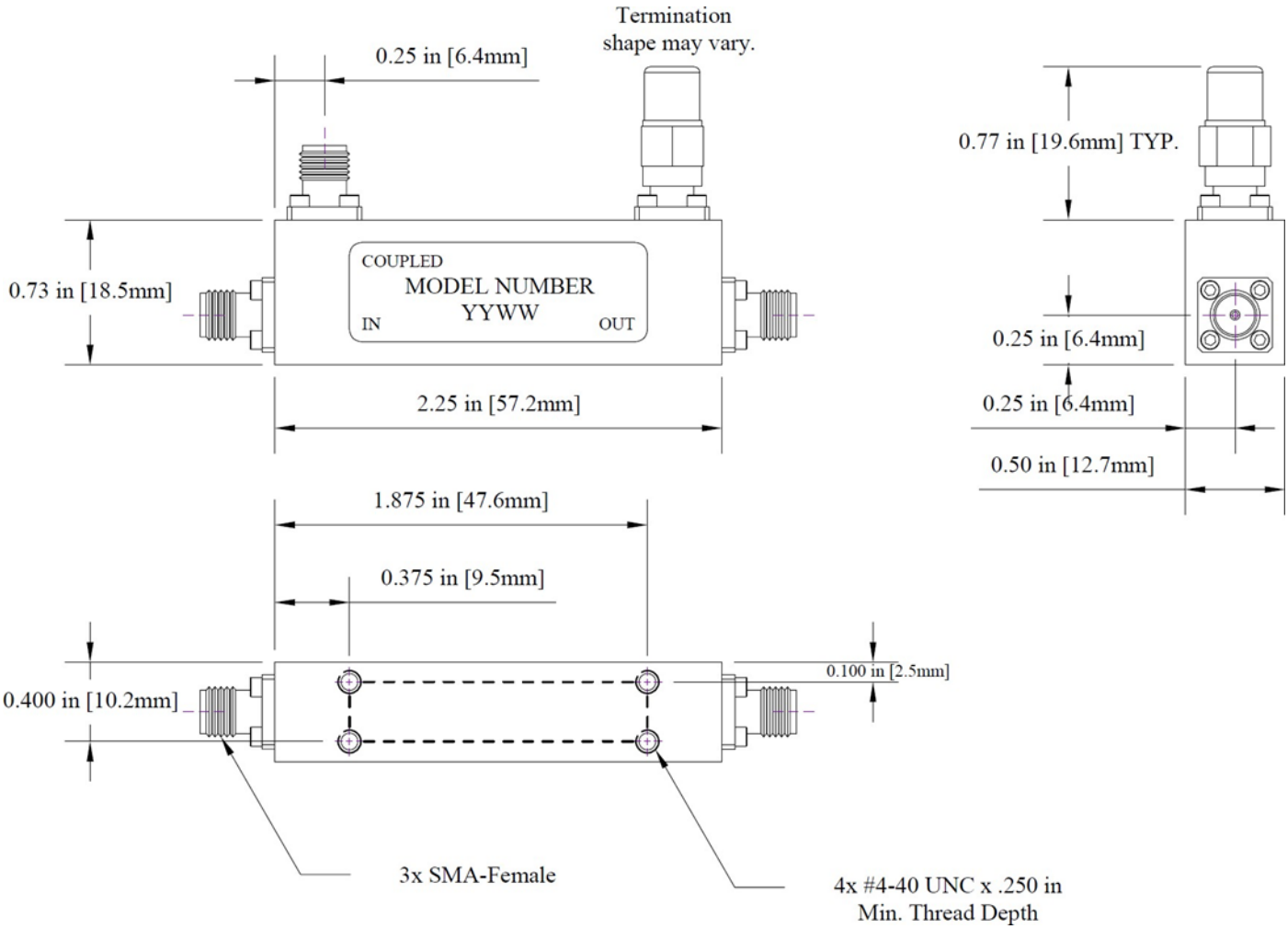
Typical Performance at +25 °C

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	35.4	35.6	35.5	0.1	31.9	35.6
1500	29.4	29.4	27.3	0.1	30.1	34.0
2000	30.8	30.4	30.3	0.1	29.6	27.4
2500	43.8	44.2	33.8	0.1	29.5	23.8
3000	26.8	26.5	26.0	0.2	29.6	23.8
3500	26.0	25.7	28.5	0.2	29.6	28.3
4000	48.4	51.3	43.5	0.2	29.7	45.2
4500	23.8	23.6	29.9	0.2	29.7	25.3
5000	21.8	21.1	24.5	0.2	29.8	20.7
5500	28.6	29.2	26.6	0.2	29.8	21.6
6000	26.1	26.6	31.4	0.2	29.8	28.1
6500	21.5	21.3	24.4	0.3	29.8	20.3
7000	24.9	24.9	23.6	0.3	29.8	18.2
7500	36.6	36.0	27.5	0.3	29.8	23.4
8000	24.0	23.6	34.7	0.3	29.8	28.3
8500	26.1	26.0	27.2	0.3	29.6	18.6
9000	49.5	45.4	28.2	0.3	29.6	18.4
9500	28.6	28.2	32.4	0.3	29.6	23.0
10000	28.9	28.8	36.2	0.3	29.7	25.2
10500	45.6	50.6	30.0	0.3	29.7	19.8
11000	32.9	32.1	26.5	0.3	29.8	18.7
11500	35.1	34.1	31.0	0.3	29.9	24.5
12000	38.6	39.2	28.6	0.4	29.8	29.5
12500	30.8	30.4	27.3	0.4	29.8	22.7
13000	40.9	38.2	34.0	0.4	29.7	30.5
13500	27.3	27.3	22.1	0.4	29.5	20.4
14000	23.1	22.9	22.0	0.4	29.5	16.8
14500	29.7	29.0	26.3	0.4	29.5	19.8
15000	26.8	27.1	22.7	0.4	29.3	33.4
15500	21.6	21.6	20.0	0.5	29.2	36.1
16000	29.7	29.5	23.9	0.4	29.5	21.4
16500	23.4	23.7	28.7	0.5	29.5	16.6
17000	20.1	20.1	21.1	0.5	29.2	19.4
17500	30.5	30.0	26.6	0.5	29.6	19.1
18000	23.4	23.8	24.6	0.5	29.3	19.3
18500	20.7	21.0	32.5	0.6	29.3	41.6
19000	31.2	29.9	23.9	0.5	29.3	16.2
19500	28.1	28.4	20.5	0.5	29.2	12.9
20000	33.2	32.1	20.7	0.6	29.3	17.6

Outline Dimensions



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