

Directional Coupler 10 dB SMA Female 2 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.

The APTDC-10-02000800-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		8	GHz
Impedance		50		Ohm
Coupling		10 ± 1.0		dB
Frequency Sensitivity (Flatness)		± 0.50	± 1.25	dB
Mainline Loss ¹			1.0	dB
Directivity	18			dB
Return Loss (In and Out)	19	23		dB
Return Loss (Coupling)	19	22		dB
Input Power (CW) ²			50	Watts (CW)

Mechanical

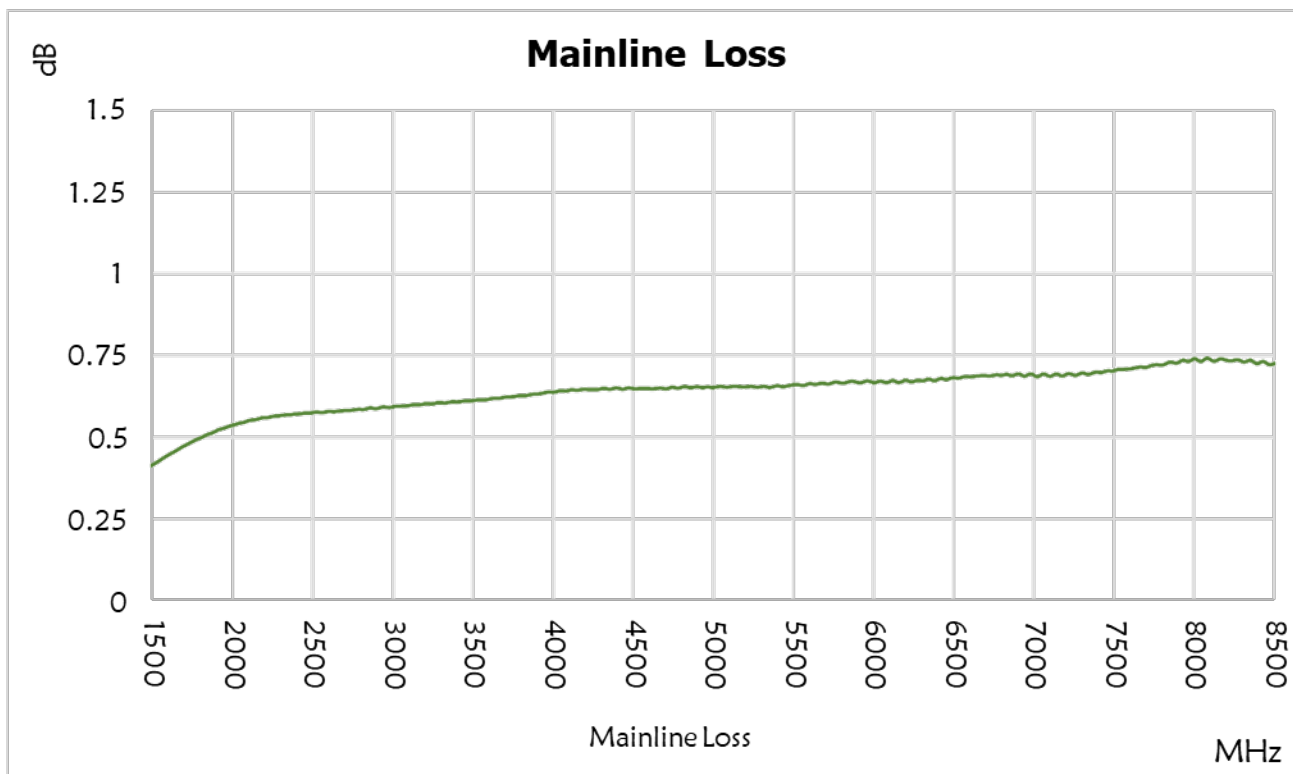
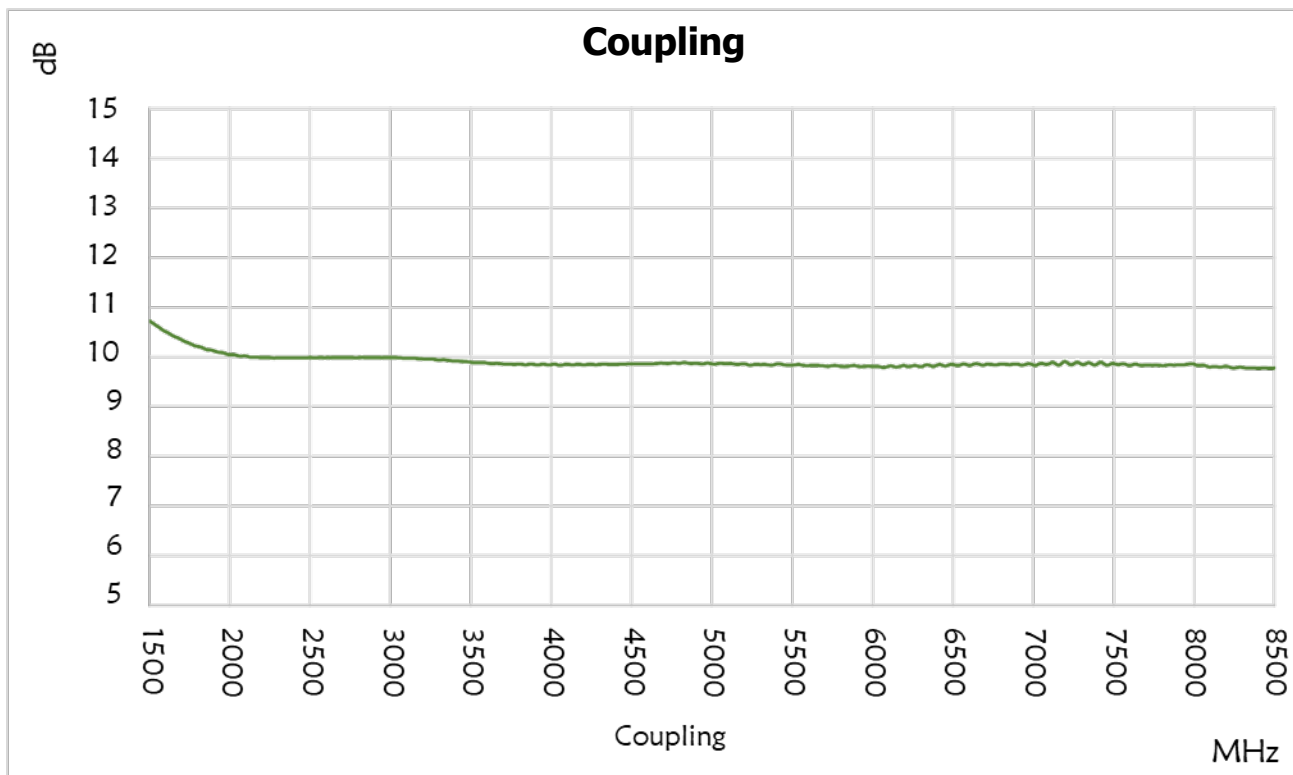
Connector Interface	SMA-Female
Operating Temperature ²	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight Estimate	1 oz (28 g)
Humidity	10-90% non-condensing
Environment	Indoors Use Only

Materials

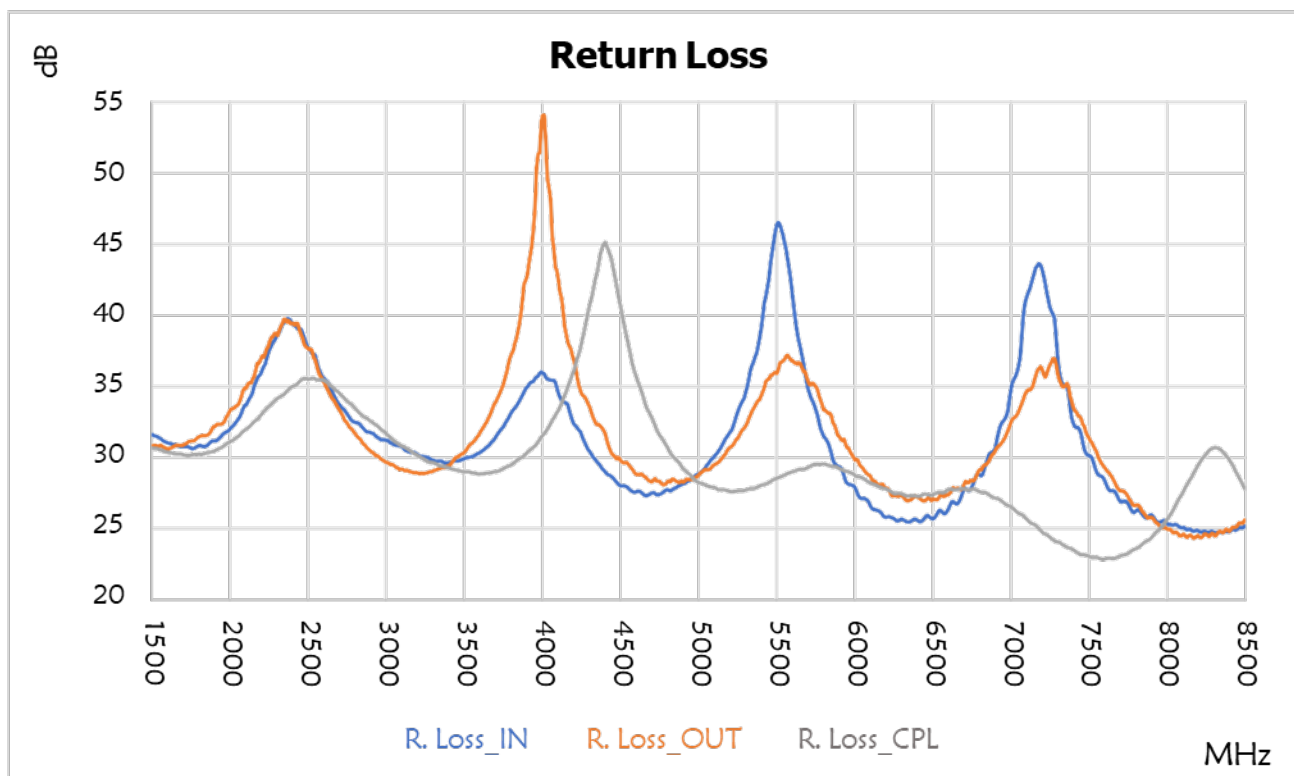
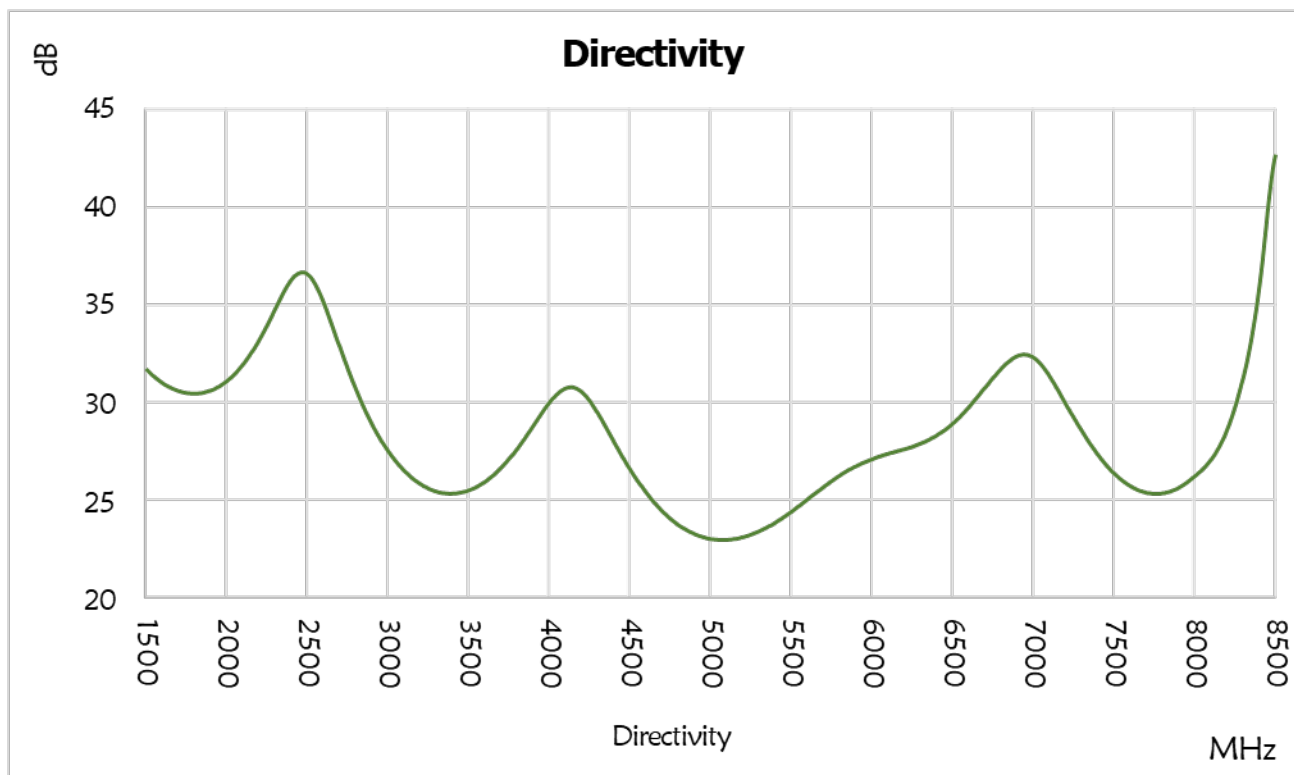
RoHS /REACH Compliant ³	Yes
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Gray Paint

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



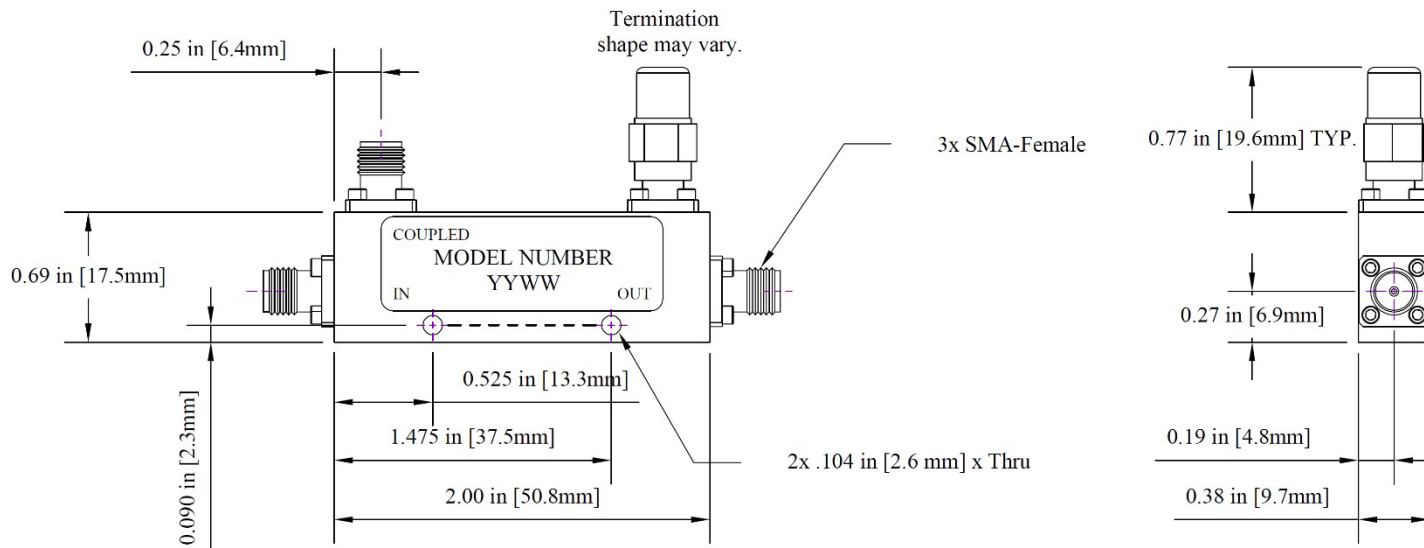
Typical Performance at +25 °C



Typical Performance at +25 °C

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl.	Directivity (dB)
	In	Out	Cpl.			
2000	32.8	33.7	31.2	0.6	10.1	31.8
2250	39.5	38.8	33.8	0.6	10.0	35.5
2500	35.8	37.5	34.9	0.6	10.0	35.7
2750	32.7	31.8	33.4	0.6	10.0	30.0
3000	31.7	29.7	31.0	0.6	10.0	26.7
3250	30.2	29.1	29.5	0.6	10.0	25.4
3500	30.0	31.1	29.0	0.6	9.9	25.9
3750	33.1	36.7	29.6	0.6	9.9	28.1
4000	35.8	51.7	32.4	0.6	9.9	30.9
4250	30.8	34.3	40.6	0.6	9.9	29.0
4500	27.5	29.3	37.0	0.6	9.9	25.6
4750	27.4	28.5	30.5	0.7	10.0	23.6
5000	29.5	29.3	28.4	0.7	9.9	23.0
5250	35.1	31.8	28.2	0.7	9.8	23.6
5500	47.5	36.2	28.5	0.7	9.8	25.0
5750	32.0	34.5	29.3	0.7	9.9	26.6
6000	27.5	29.7	28.5	0.6	9.8	27.4
6250	25.5	27.9	27.3	0.7	9.9	28.1
6500	25.5	27.7	27.1	0.7	9.9	29.7
6750	28.5	28.5	27.6	0.6	9.9	32.2
7000	39.1	33.5	26.8	0.7	9.8	31.7
7250	35.1	37.9	24.5	0.7	10.0	28.1
7500	30.1	31.0	23.1	0.7	9.9	25.8
7750	26.4	26.1	23.3	0.7	9.8	25.4
8000	24.9	24.5	26.4	0.8	9.9	27.0

Outline Dimensions



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