

Directional Coupler 6 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-06-02000800-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		6.5 ± 1.0		dB
Frequency Sensitivity (Flatness)		± 0.50	± 1.25	dB
Mainline Loss ¹		1.4	2.2	dB
Directivity	18	22		dB
Return Loss (In and Out)	19	24		dB
Return Loss (Coupling)	19	22		dB
Input Power (CW) ²			50	Watts (CW)

Mechanical

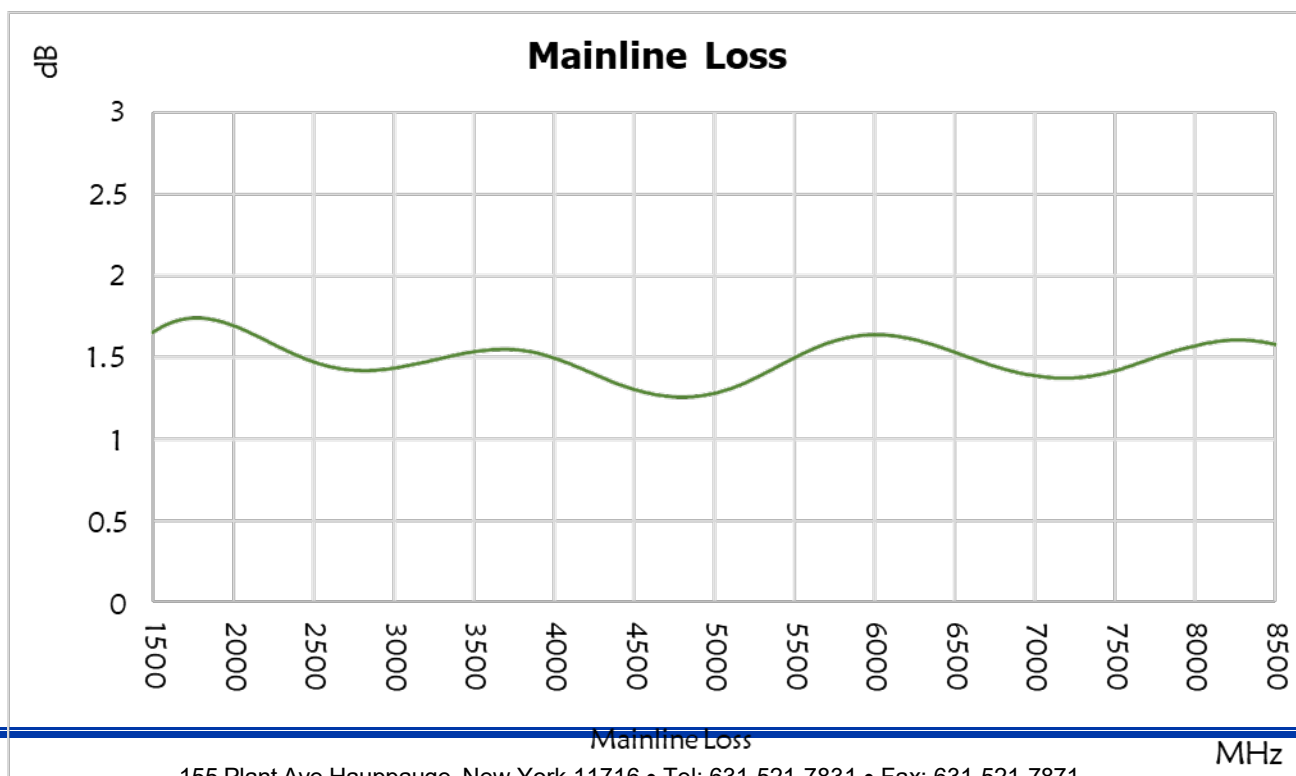
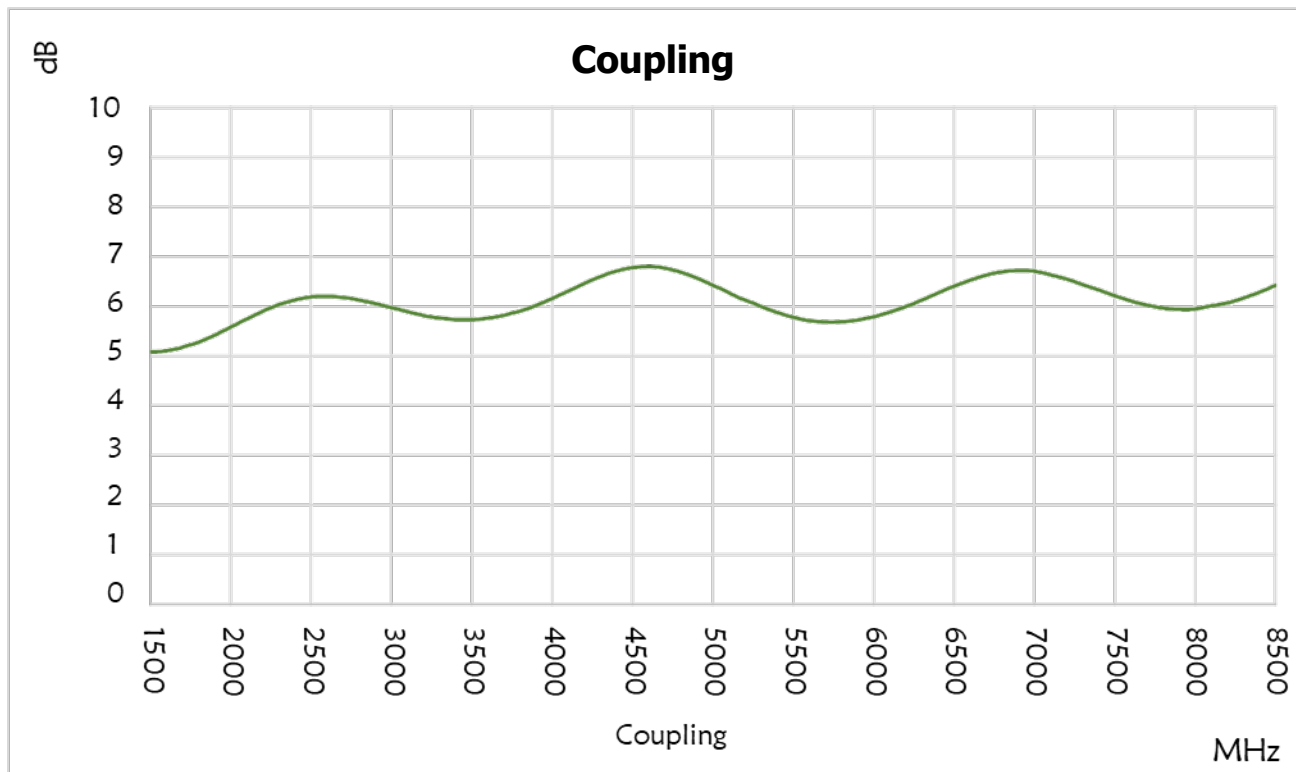
Connector Interface	SMA-Female
Operating Temperature ²	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight Estimate	1 oz (28 g)
Humidity	10-90% non-condensing
Environment	Indoors Use Only

Materials

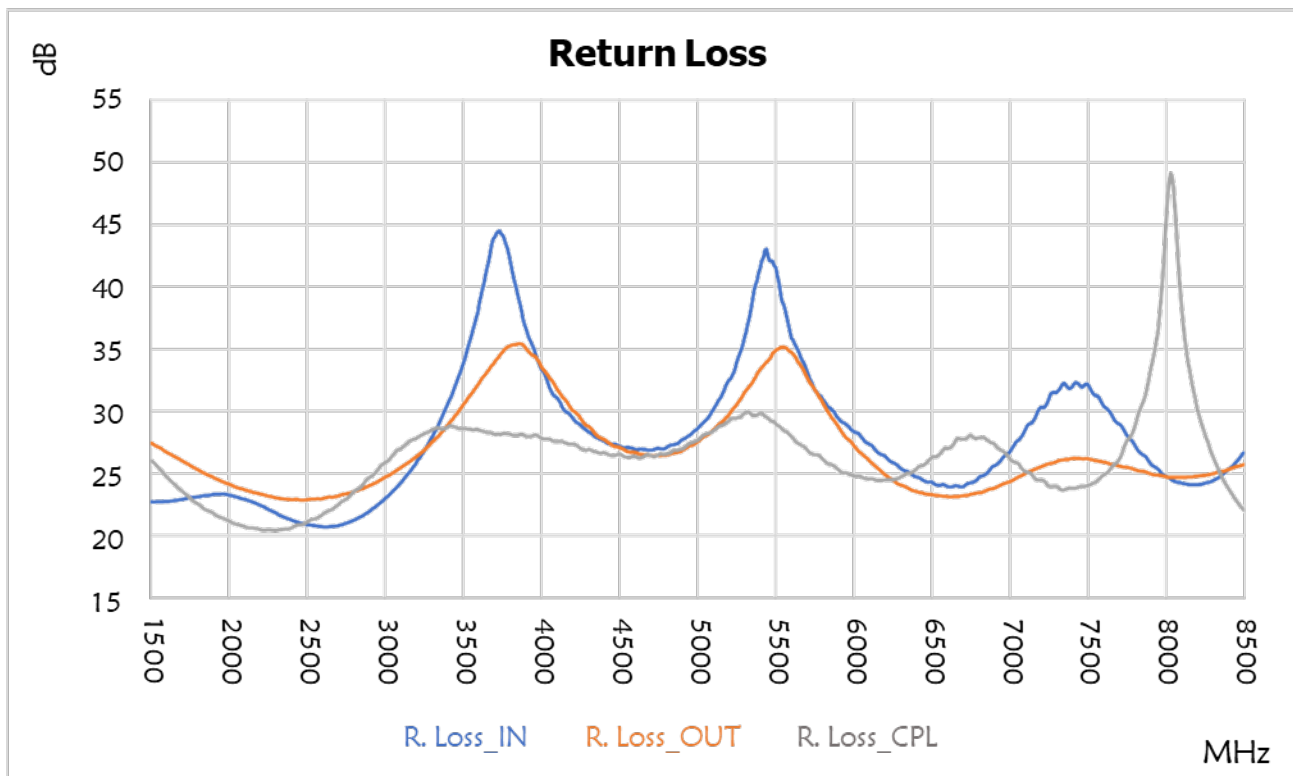
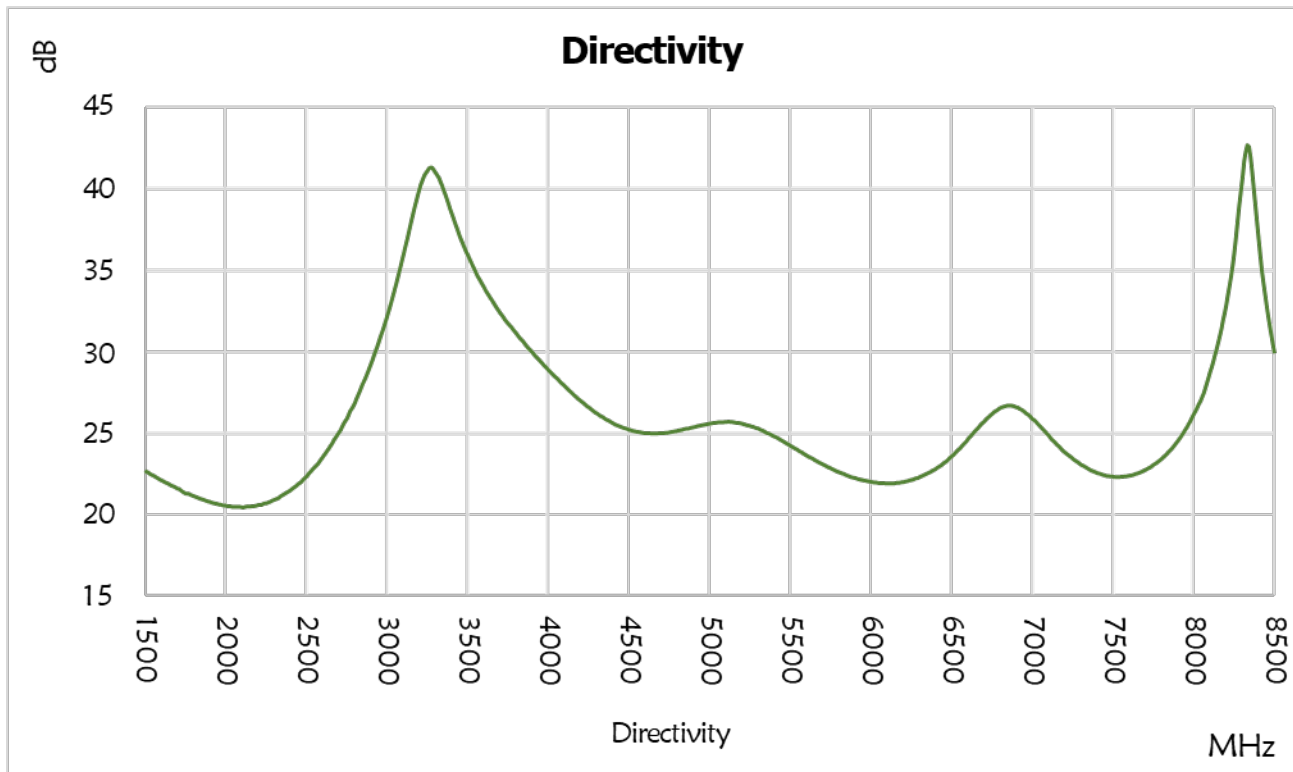
RoHS /REACH Compliant ³	Yes
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Gray Paint

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



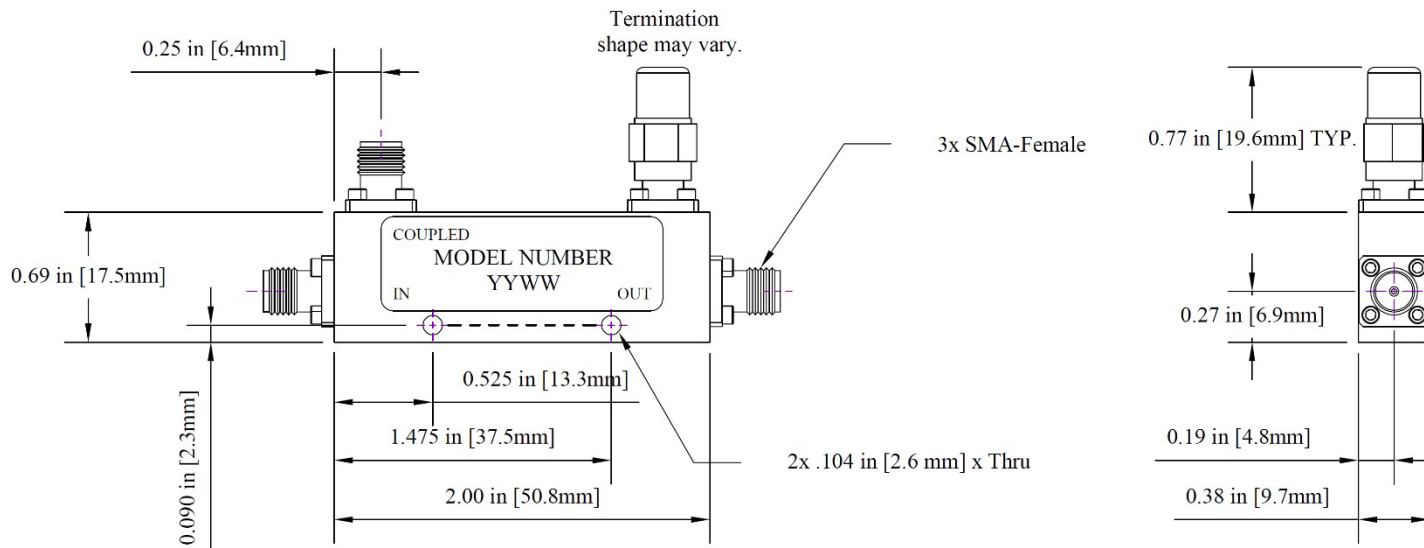
Typical Performance at +25 °C



Typical Performance at +25 °C

Frequency (MHz)	Return Loss (dB)		Cpl.	Mainline Loss (dB)		Coupling (dB) In-Cpl.	Directivity (dB)
	In	Out		In-Out			
2000	23.2	23.9	21.2	1.6	5.7	20.6	
2250	22.0	23.1	20.6	1.5	6.1	20.8	
2500	20.9	23.3	21.4	1.4	6.2	22.4	
2750	21.5	23.8	23.3	1.4	6.1	26.0	
3000	23.8	25.3	26.3	1.5	6.0	32.4	
3250	27.8	27.8	28.6	1.5	5.8	41.2	
3500	35.8	32.3	28.8	1.6	5.8	35.8	
3750	43.0	35.8	28.6	1.5	5.9	31.7	
4000	31.8	32.0	28.1	1.4	6.3	28.9	
4250	28.2	28.2	27.1	1.3	6.6	26.6	
4500	27.2	26.6	26.6	1.2	6.8	25.2	
4750	27.4	26.6	26.7	1.3	6.7	25.1	
5000	29.6	28.4	28.1	1.4	6.4	25.6	
5250	36.8	31.9	29.6	1.5	6.0	25.5	
5500	40.5	35.3	28.9	1.6	5.8	24.2	
5750	30.6	30.4	26.6	1.7	5.7	22.9	
6000	27.7	26.0	25.0	1.6	5.8	22.1	
6250	25.6	24.1	24.7	1.5	6.1	22.2	
6500	24.5	23.4	26.6	1.4	6.5	23.7	
6750	24.5	23.5	28.1	1.4	6.7	26.3	
7000	27.3	24.8	26.0	1.4	6.7	25.9	
7250	32.8	25.9	24.0	1.4	6.5	23.4	
7500	31.7	26.1	24.3	1.5	6.2	22.4	
7750	26.9	25.6	28.0	1.6	6.0	23.1	
8000	24.6	24.8	52.1	1.6	6.0	26.3	

Outline Dimensions



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