

Directional Coupler, 6-18GHz, 30dB, SMA Female

WMC-6-18-30dB-S

Description

Model WMC-6-18-30dB-S from Werbel Microwave is a directional coupler that covers 6 to 18 GHz with broadband flat coupling response, high directivity, and excellent return loss performance. The high coupling value and short mainline minimizes lost power during the monitoring. Covers the upper half of C band, X band and Ku band in a single package measuring only 1.00 x 0.6 x 0.5 inches. Our unique design approach to couplers provides a maximally flat coupling response across the passband with minimal ripple, typically ± 0.5 dB or less. Directivity 14dB typical. Return loss 21dB typical. Insertion loss 0.4dB typical. Assembled and tested in USA using RoHS compliant materials, although lead solder may be used on special order to support military applications.



Photo is representative.

Specifications	Min.	Typ.	Max.	Units
Frequency	6	--	18	GHz
Impedance	--	50	--	Ohm
Coupling	--	30	± 2.0	dB
Frequency Sensitivity (Flatness)	--	± 0.5	± 1.5	dB
Mainline Loss ¹	--	0.4	0.8	dB
Directivity	10	14	--	dB
Return Loss (In and Out)	15	21	--	dB
Return Loss (Coupling)	14	19	--	dB
Isolation	--	44	--	dB
Input Power (CW) ²	--	--	50	Watts

Mechanical

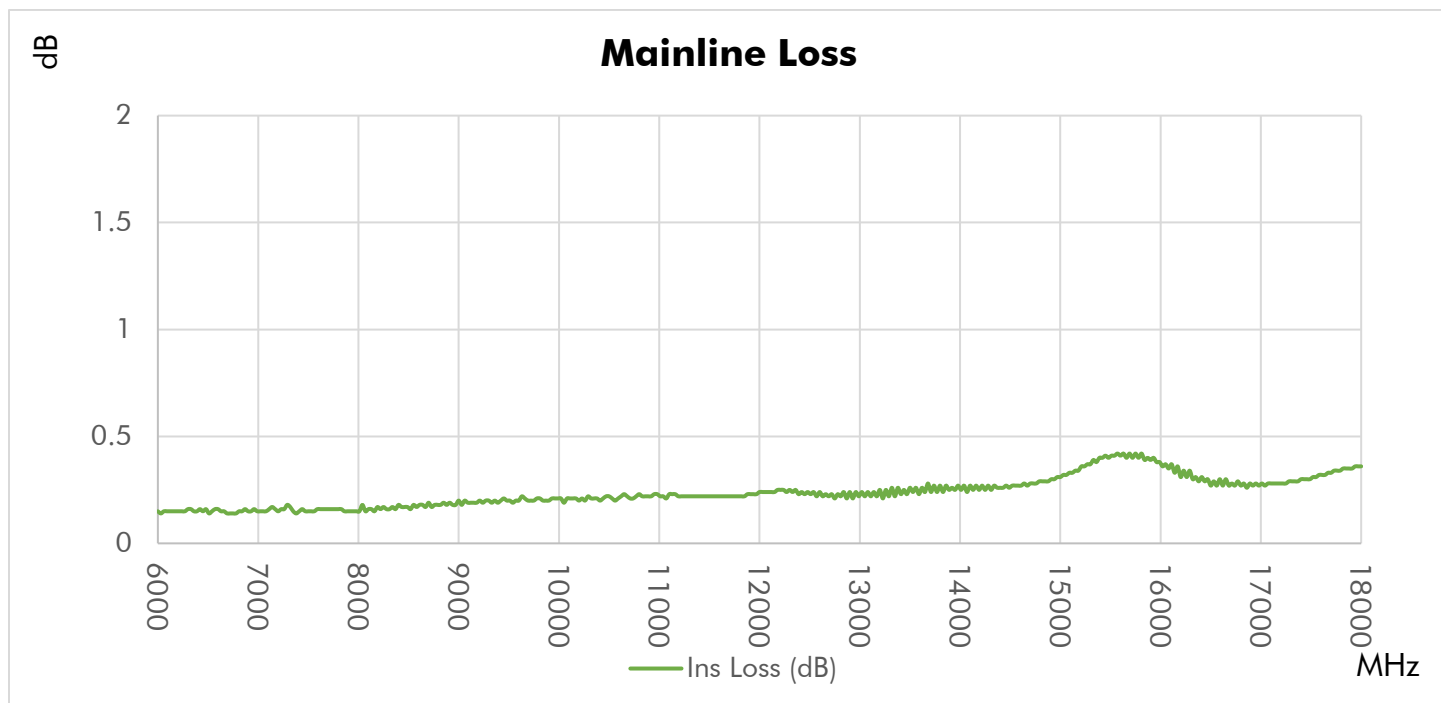
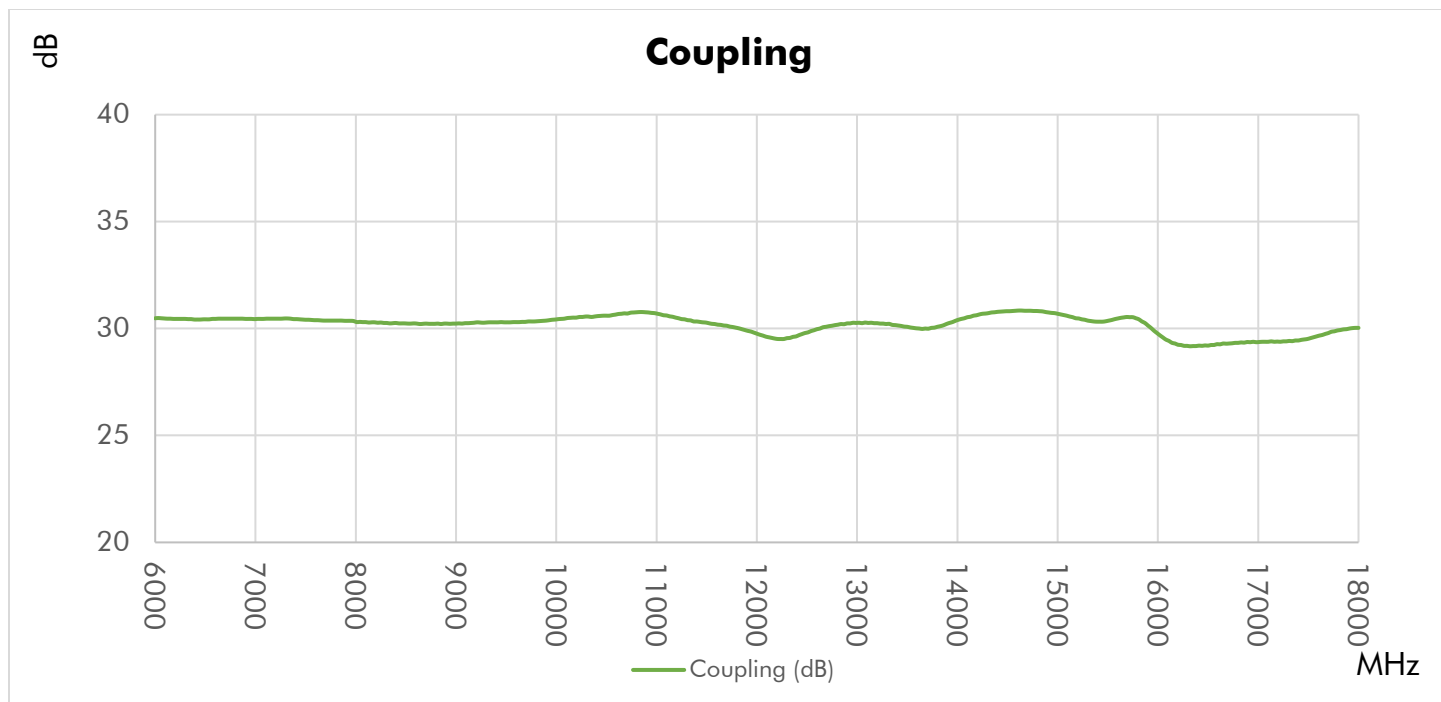
Connector Interface	SMA-Female
Operating Temperature ³	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight	0.8 oz (22.7 g)
Humidity	10-90% non-condensing
Environment	Indoors Use Only

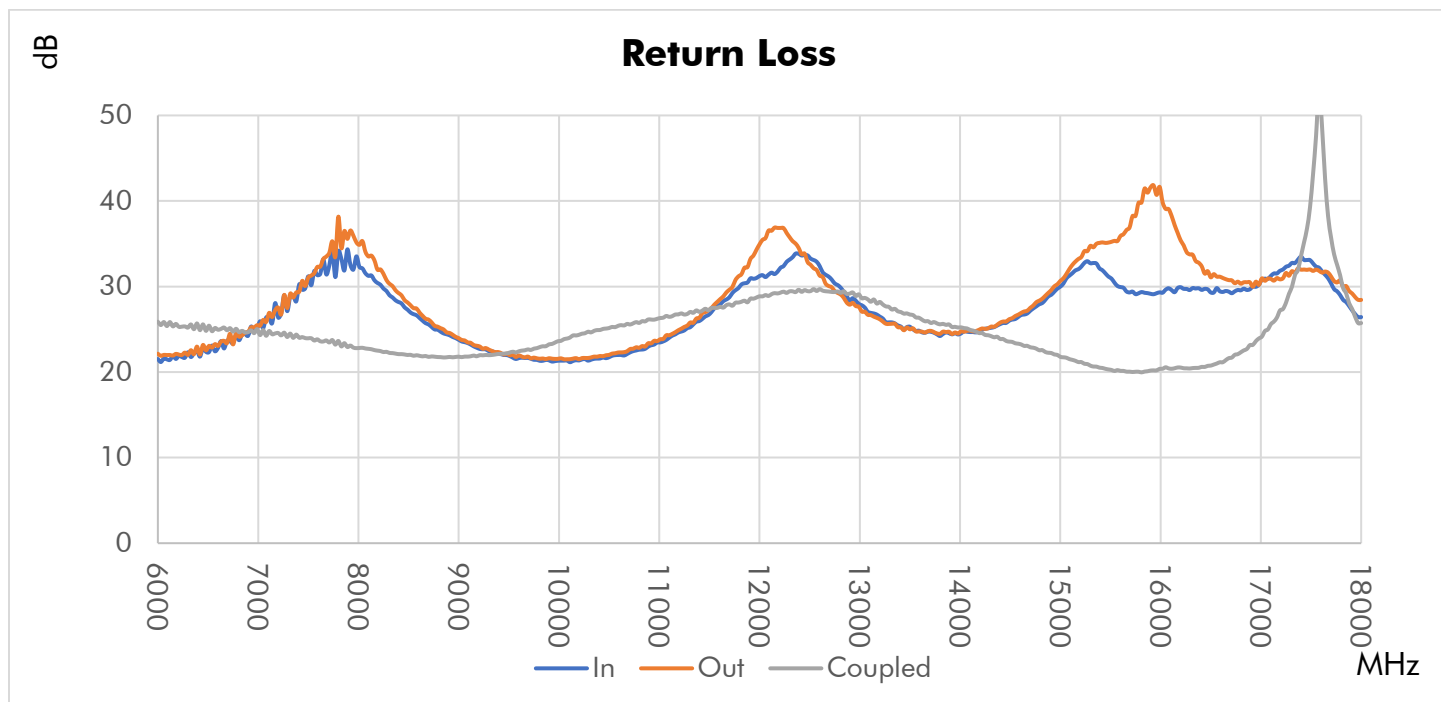
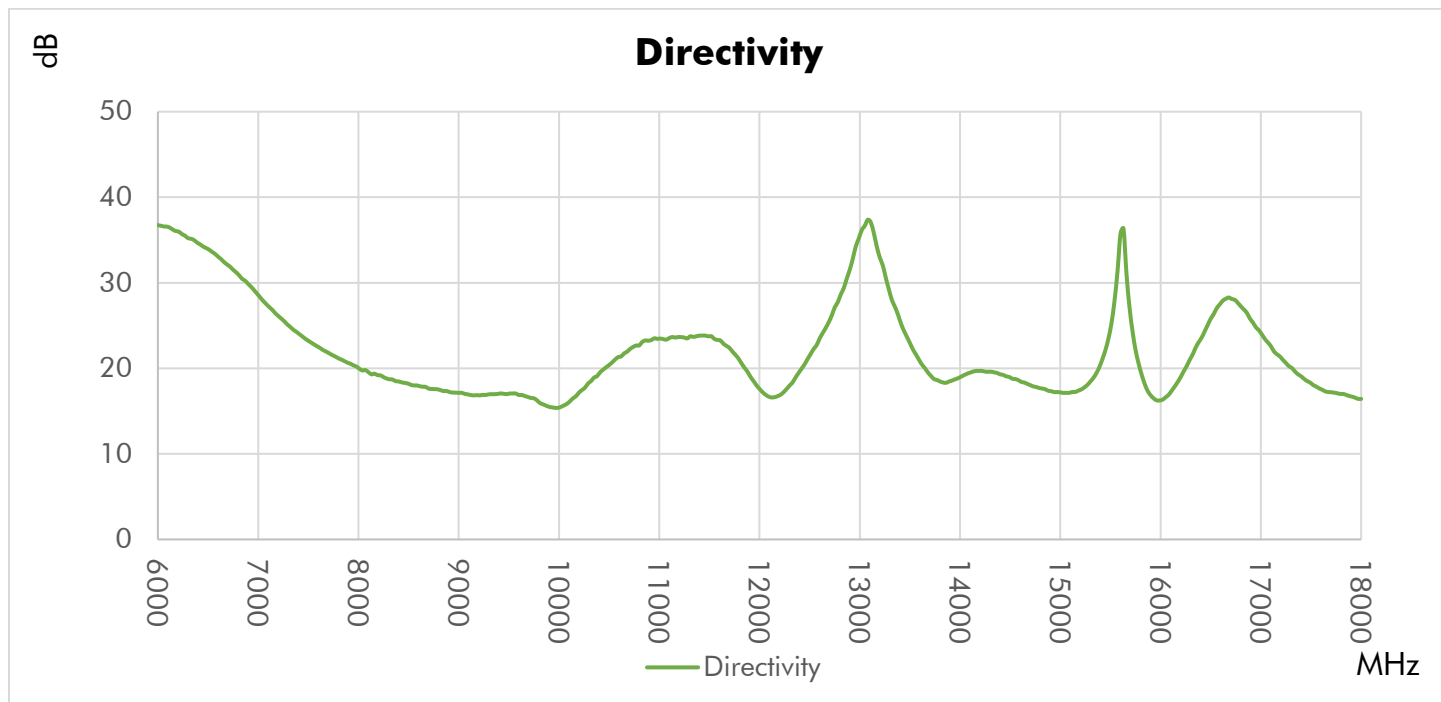
1. Mainline loss includes coupling loss.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Electrical specifications at +25 °C only.
4. To the best of our knowledge at time of publication.

Materials

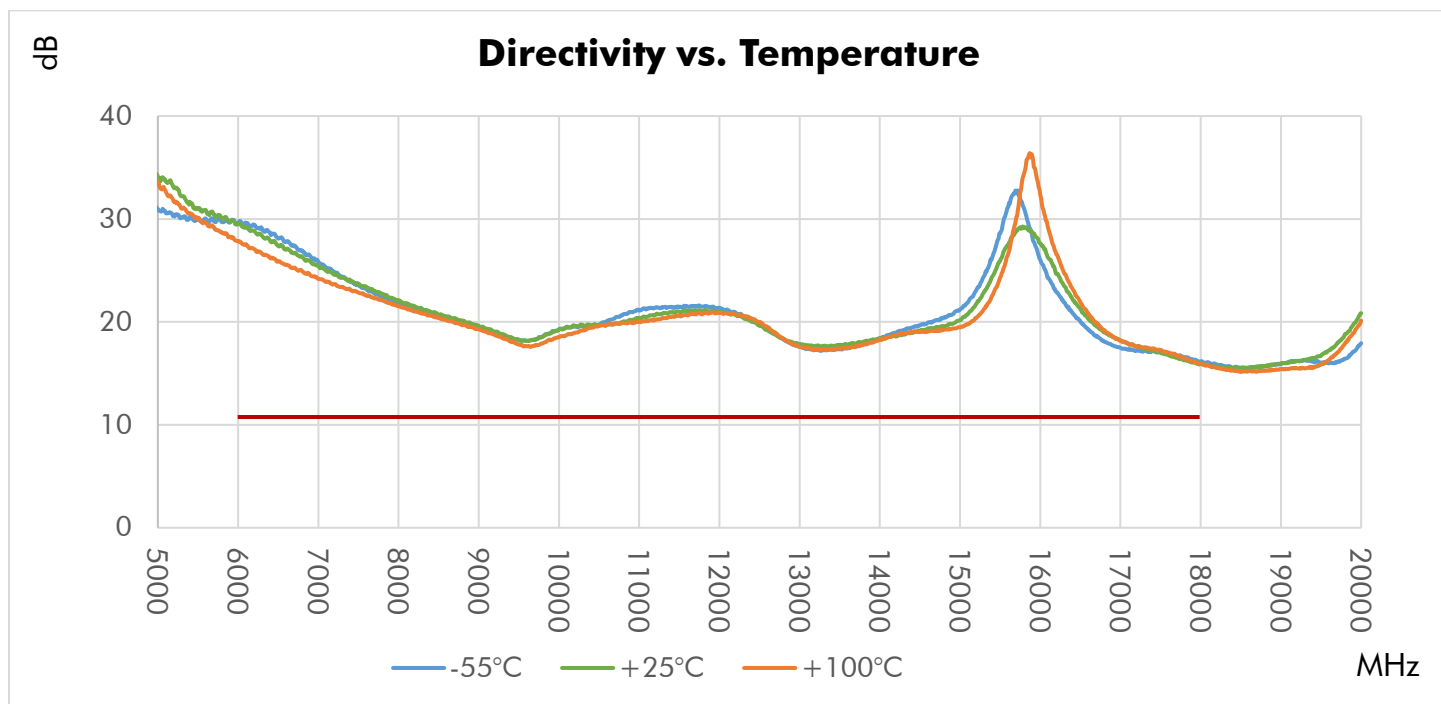
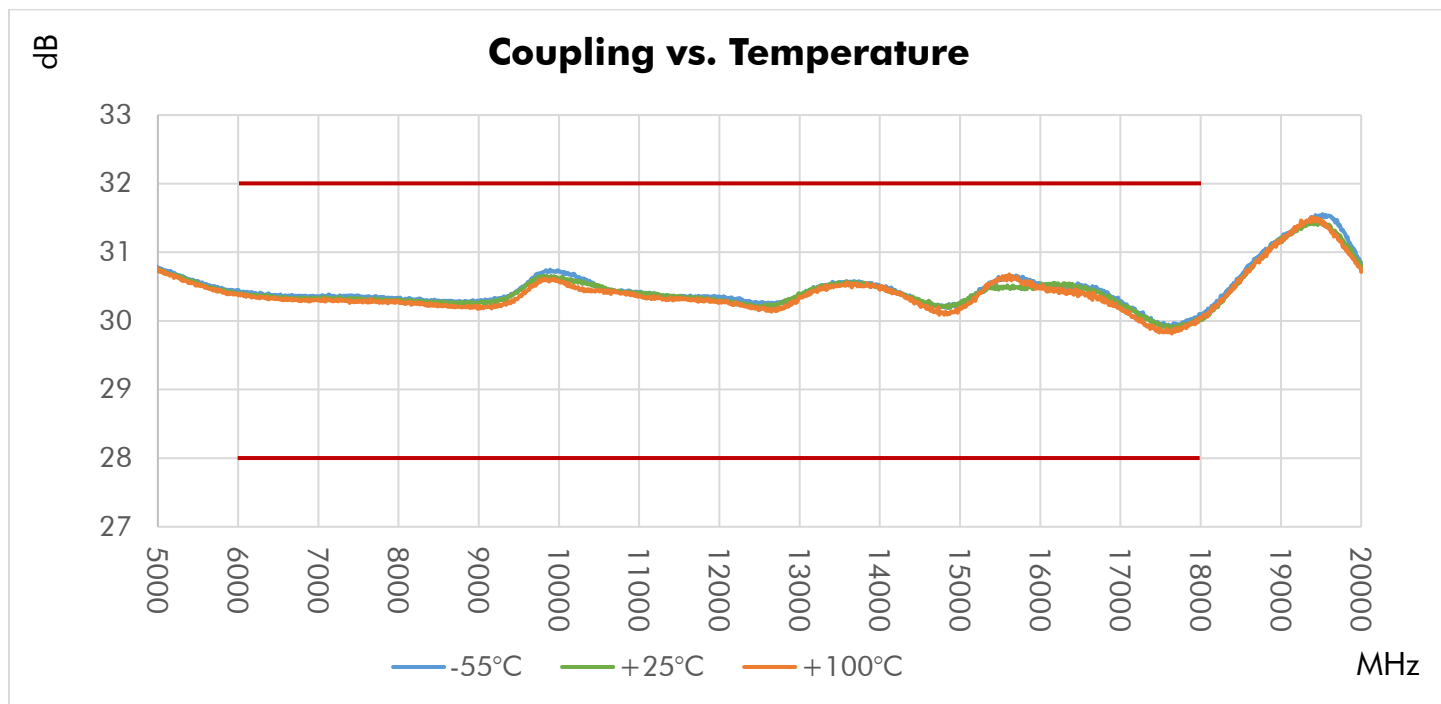
RoHS and REACH Compliant ⁴	
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Green Paint

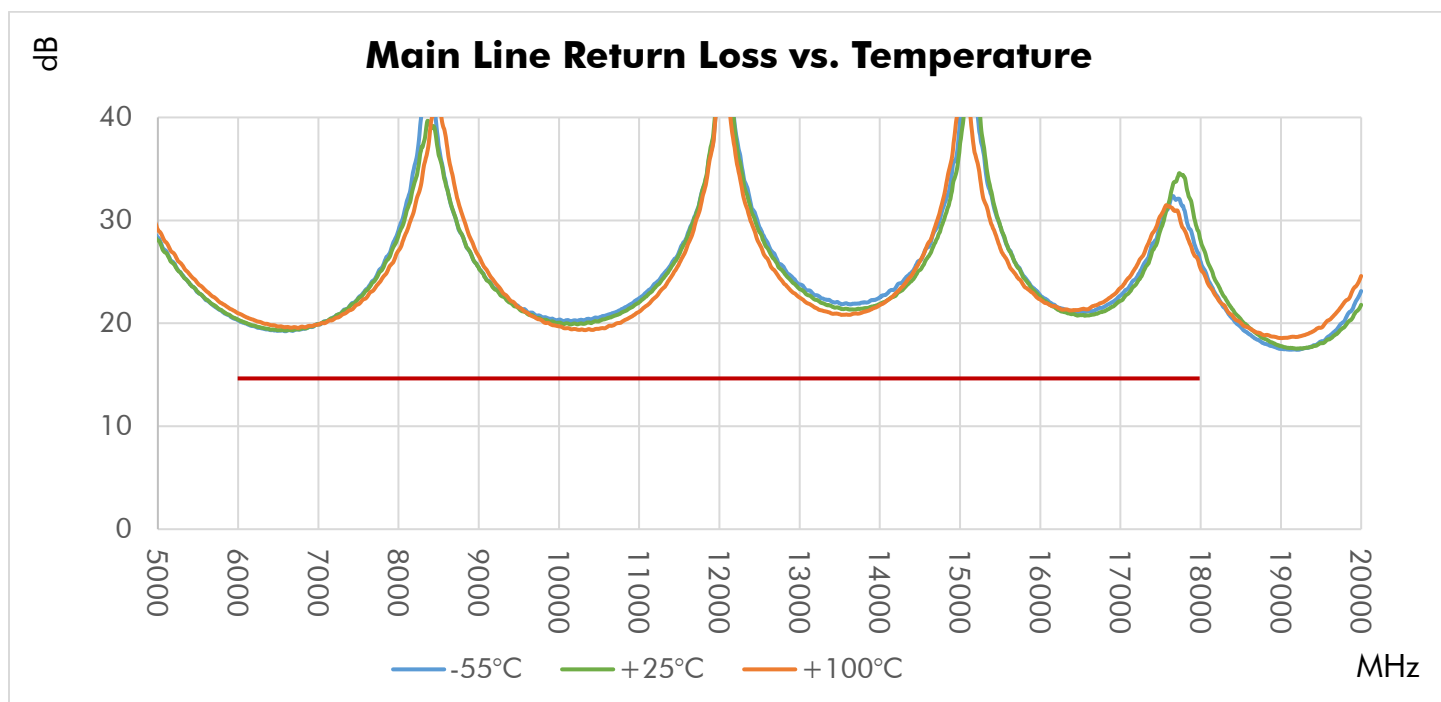
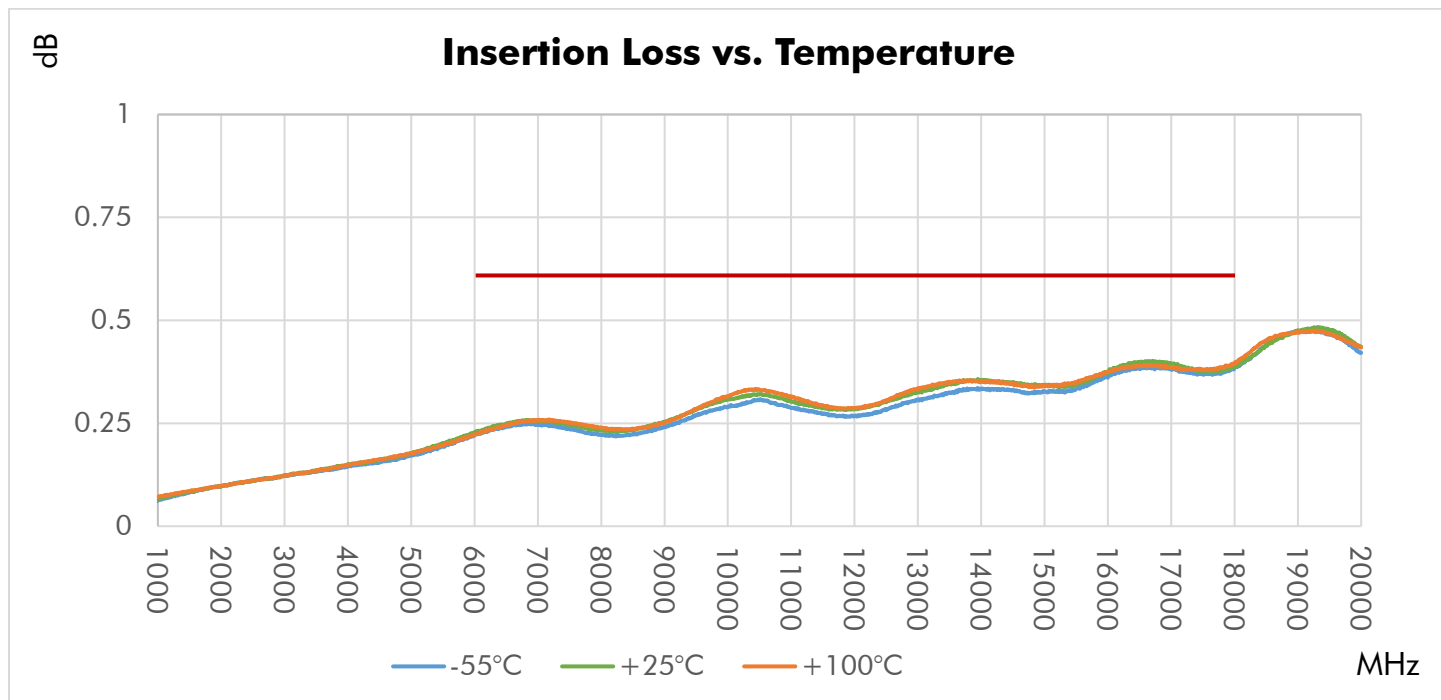
Typical Performance at +25 °C



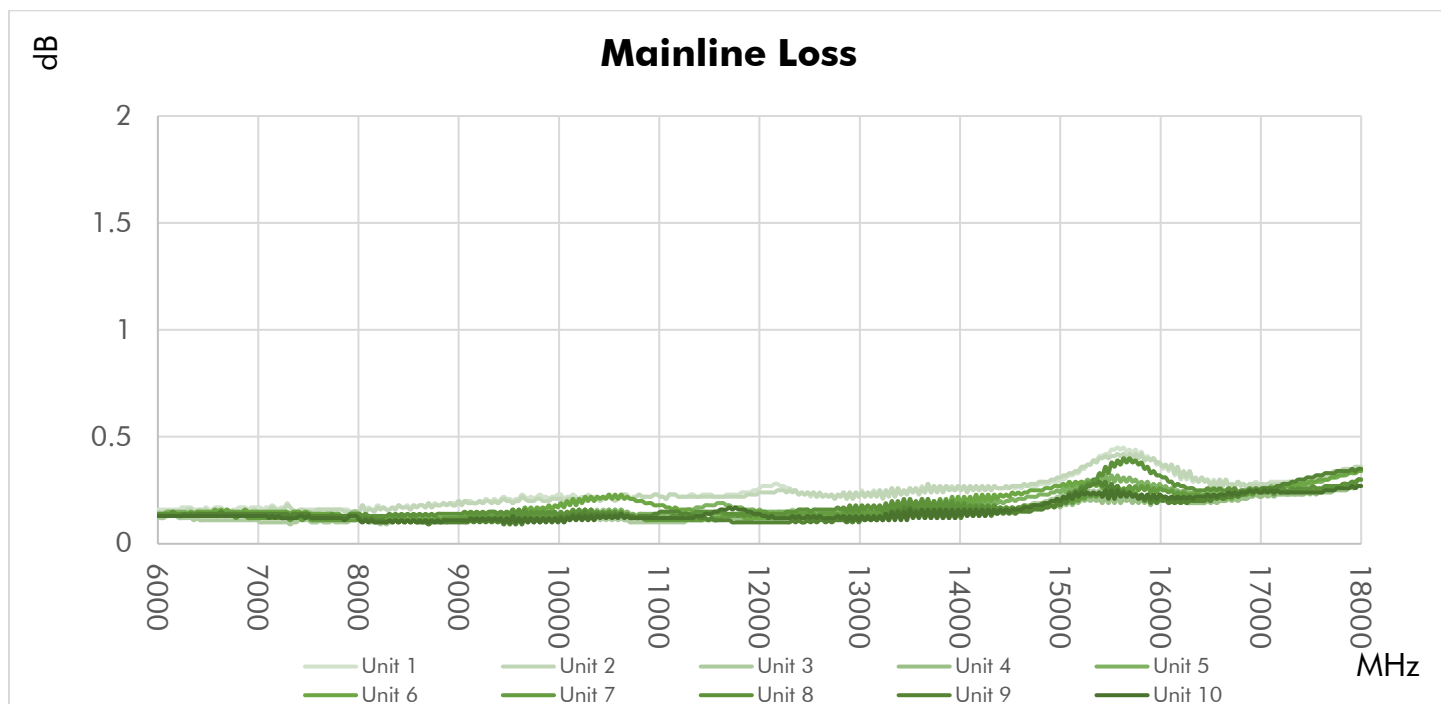
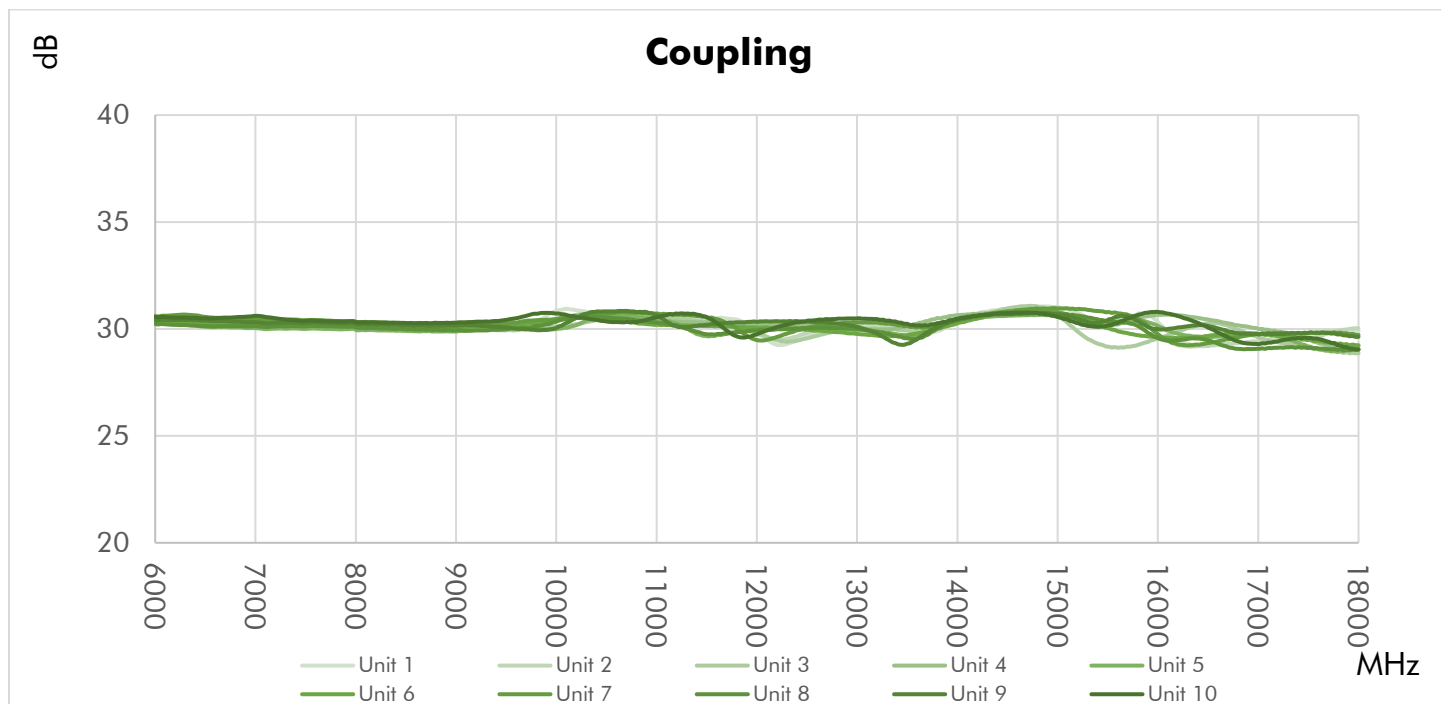


Typical Performance Over Temperature





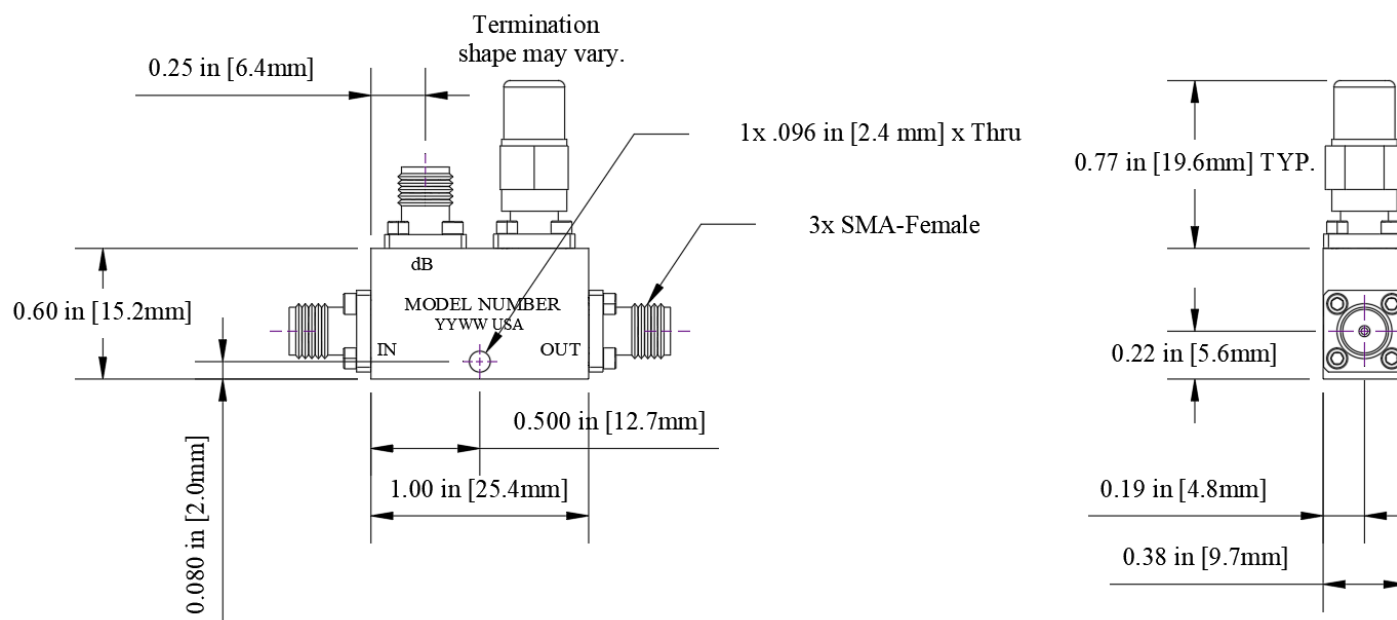
Repeatability in Production



Typical Performance Data

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB)	Coupling (dB)	Directivity (dB)
	In	Out	Cpl.	In-Out	In-Cpl.	
5000	29.4	28.0	24.9	0.2	30.9	42.5
5500	24.5	23.8	21.7	0.1	30.6	30.9
6000	22.4	21.9	19.7	0.4	30.6	25.8
6500	20.6	20.9	19.4	0.0	30.2	22.9
7000	21.8	21.0	20.7	0.4	30.4	21.3
7500	23.4	22.3	25.1	0.2	30.4	20.6
8000	26.7	26.0	42.0	0.2	30.4	20.2
8500	43.8	36.3	26.8	0.3	30.2	19.9
9000	28.7	29.6	21.3	0.1	30.2	19.5
9500	23.0	22.4	19.1	0.6	30.7	19.7
10000	19.1	18.6	18.4	0.1	30.3	19.8
10500	17.3	16.9	18.6	0.5	30.9	19.8
11000	16.8	16.8	19.4	0.4	30.3	18.8
11500	18.8	19.4	20.7	0.2	30.5	18.4
12000	22.5	25.5	22.2	0.4	30.5	18.4
12500	24.9	30.5	24.4	0.3	30.1	18.4
13000	21.1	22.4	26.8	0.5	30.3	17.3
13500	18.4	19.5	23.5	0.2	30.3	18.3
14000	18.1	19.5	19.8	0.4	30.6	20.8
14500	20.1	22.1	18.6	0.4	30.6	24.0
15000	25.5	28.0	20.7	0.4	30.6	20.9
15500	31.1	26.6	29.8	0.3	30.5	15.2
16000	24.5	21.7	28.3	0.3	30.2	15.0
16500	22.4	19.8	20.7	0.4	30.5	19.3
17000	25.0	21.2	20.4	0.4	30.1	17.7
17500	37.2	25.7	24.8	0.3	29.9	16.6
18000	25.6	26.6	20.4	0.3	30.1	16.7
18500	20.4	21.2	15.3	0.3	30.5	17.8
19000	19.5	19.4	14.0	0.3	30.9	18.0
19500	21.0	19.8	15.5	0.4	31.4	17.1
20000	24.8	22.4	20.4	0.4	31.1	17.3

Outline Dimensions



Outline # OL-1006

Dimensions are in inches, [mm] shown for convenience.

Tolerances on 2-pl decimals: $\pm .03$. 3-pl decimals: $\pm .015$.

The information contained in this document is accurate to the best of our knowledge and representative of the product described herein at the date of publication. It may be necessary to make modifications to the product and/or documentation of the product. Werbel Microwave LLC reserves the right to make such changes as required without notice. Unless otherwise stated, all specifications and dimensions are nominal. Werbel Microwave LLC does not make any representation or warranty regarding the suitability of the product described herein for any particular purpose or application, and Werbel Microwave LLC does not assume any liability arising out of the use of any part of documentation. This document gives only a description of the product(s) and shall not form part of any contract. Please contact a Werbel Microwave LLC Applications Engineer for the most current specification drawing.

Reliability testing was performed as an internal requalification of the product to substantiate the published specifications, which were previously arrived at by calculation and/or similarity to existing products. The results of these tests are provided as a courtesy and shall not form part of a contract or warranty. While reliability tests may depict the product being tested beyond the published specification ratings for the purpose of stress testing the product, this does not imply that the product should be operating above the rated limits for any length of time. Specifications related to reliability (e.g., performance over temperature, power handling, DC current, HI-POT) are "designed to meet" and are not individually tested in production of commercially available products. Please contact a Werbel Microwave LLC Applications Engineer if specific reliability testing is needed on a particular product.