

Directional Coupler, 0.3-8GHz, 30dB, SMA Female

WMC-0.3-8-30dB-S

Description

Model WMC-0.3-8-30dB-S from Werbel Microwave is a directional coupler that covers 300 MHz to 8 GHz with broadband flat coupling response, high directivity, and excellent return loss performance. The very wideband response covers the upper portion of UHF, L, S and C bands making it very useful in test and measurement applications. The enclosure measures 6.00 x 0.73 x 0.50 inches with threaded mounting holes on both sides for support. Typical coupling flatness ± 0.6 dB. Directivity 23dB typical. Return loss 25dB typical. Insertion loss 0.5dB typical. Rugged stainless-steel connectors and aluminum enclosure. Designed, tested, and assembled in the USA.

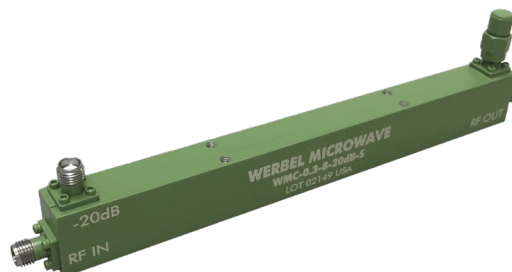


Photo is representative.

Specifications		Min.	Typ.	Max.	Units
Frequency		300	--	8000	MHz
Impedance		--	50	--	Ohm
Coupling		--	30 ± 2.0	--	dB
Frequency Sensitivity (Flatness)		--	± 0.6	± 1.2	dB
Mainline Loss ¹		--	0.5	1.0	dB
Directivity	300-6000MHz	16	23		dB
	6000-8000MHz	14	19	--	dB
Return Loss (In and Out)	300-6000MHz	16	27		dB
	6000-8000MHz	15	25	--	dB
Return Loss (Coupling)	300-6000MHz	16	23		dB
	6000-8000MHz	15	21	--	dB
Isolation		--	55	--	dB
Input Power (CW) ²		--	--	50	Watts

Mechanical

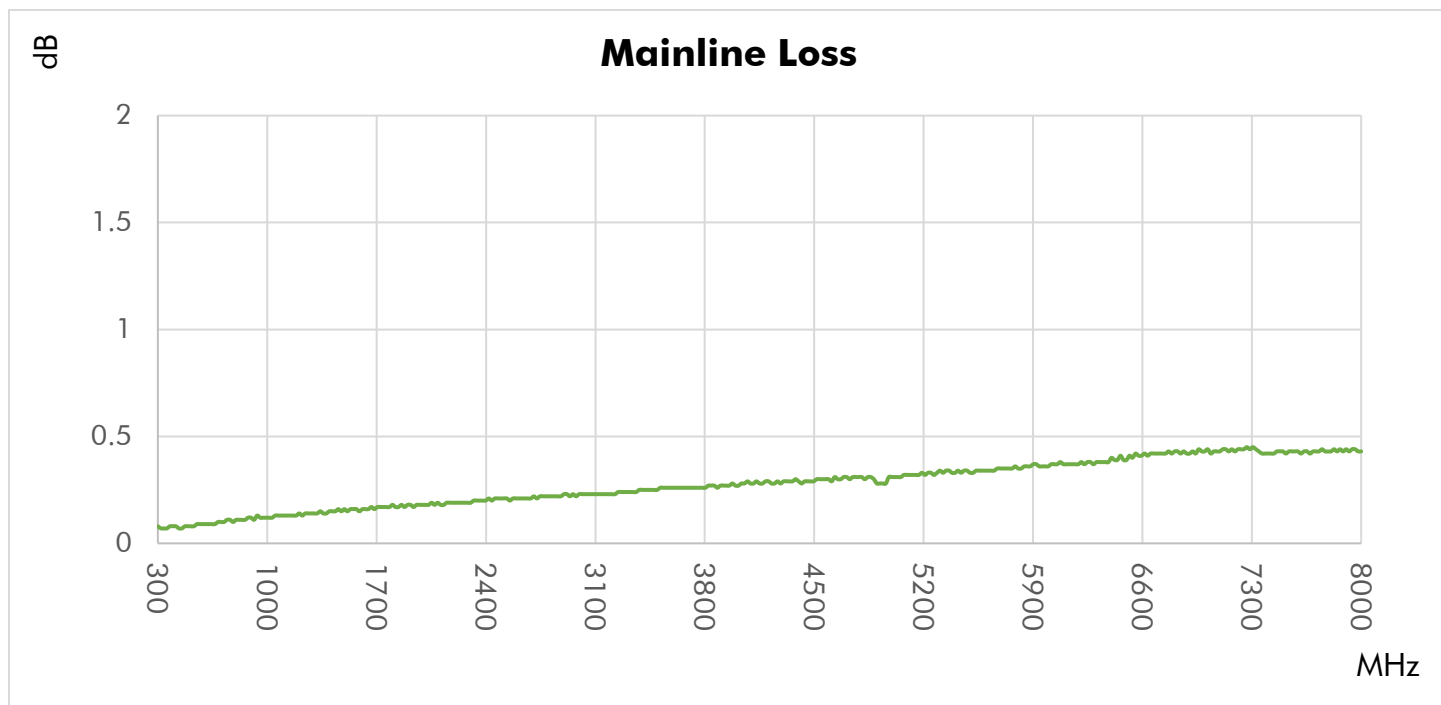
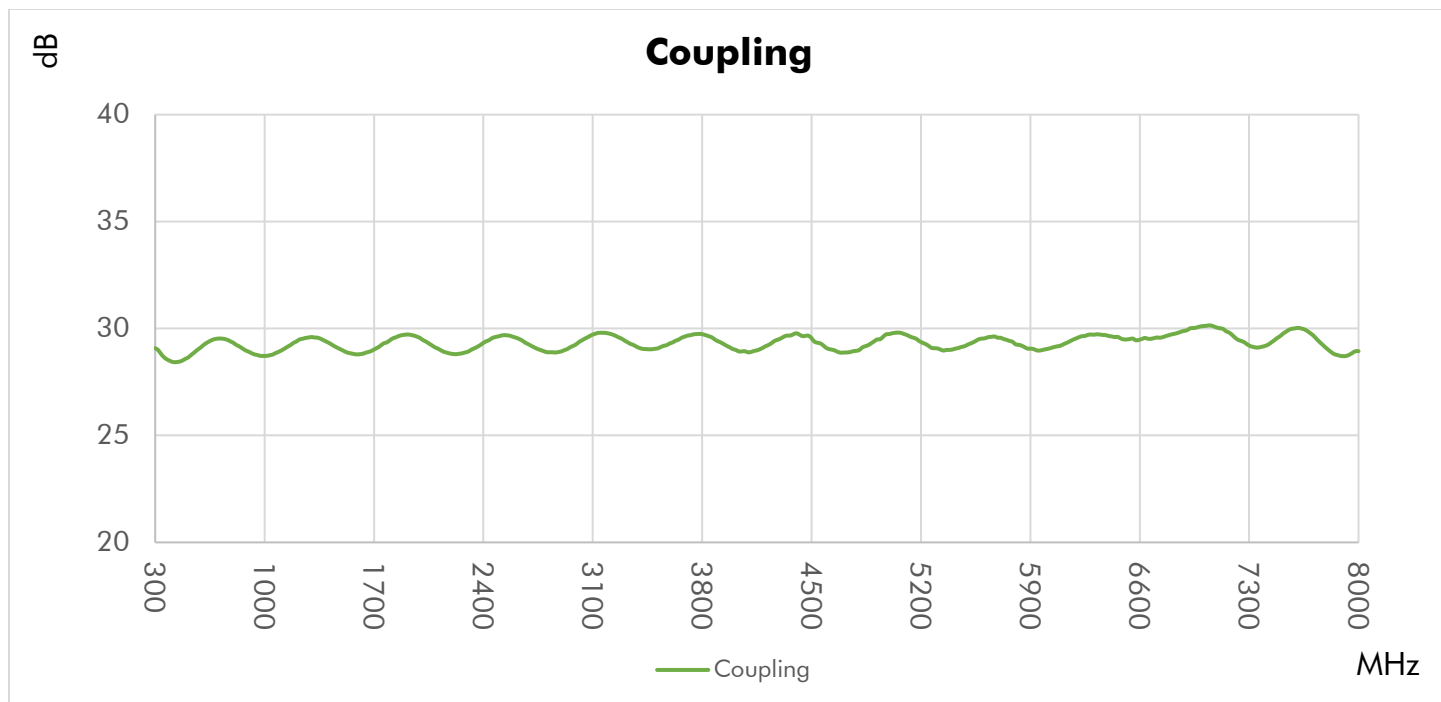
Connector Interface	SMA-Female
Operating Temperature ³	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight	3.5 oz (86 g)
Humidity	10-90% non-condensing
Environment	Indoors Use Only
CAGE Code	78YZ0

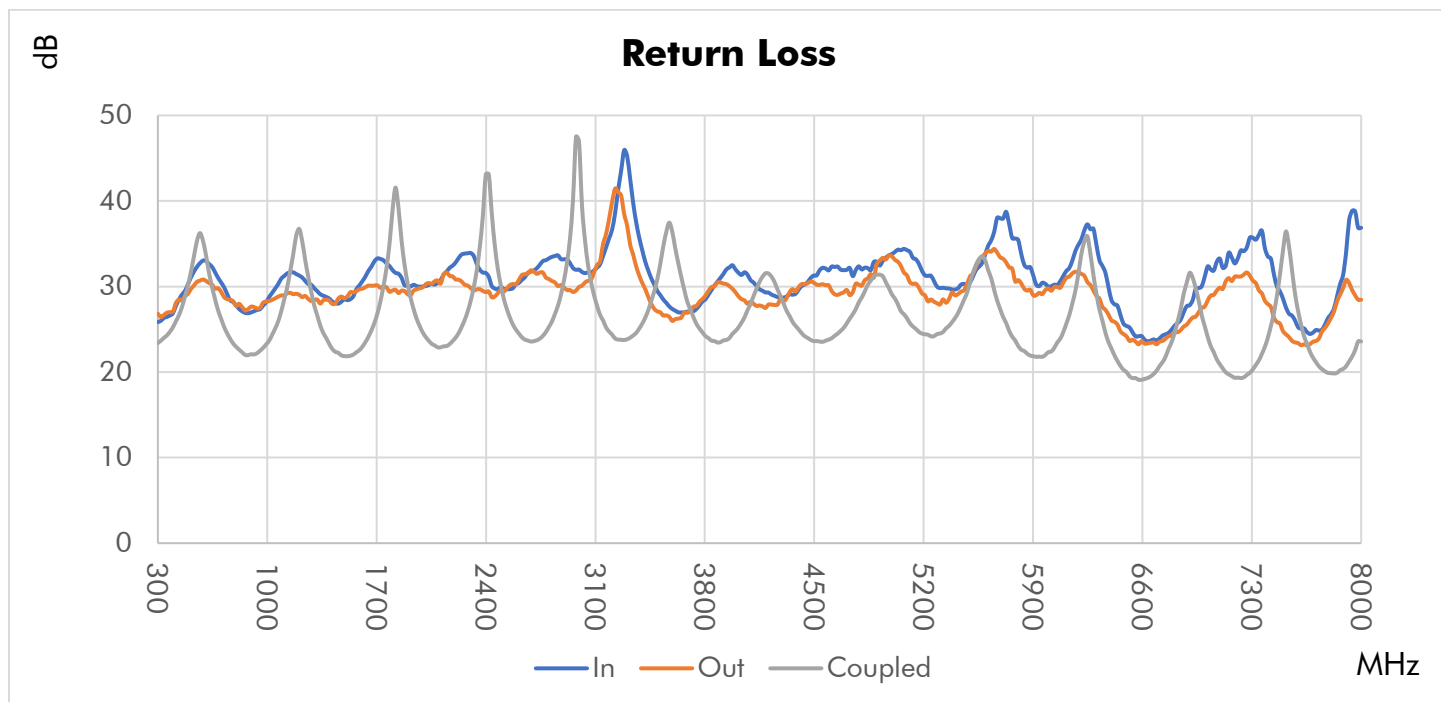
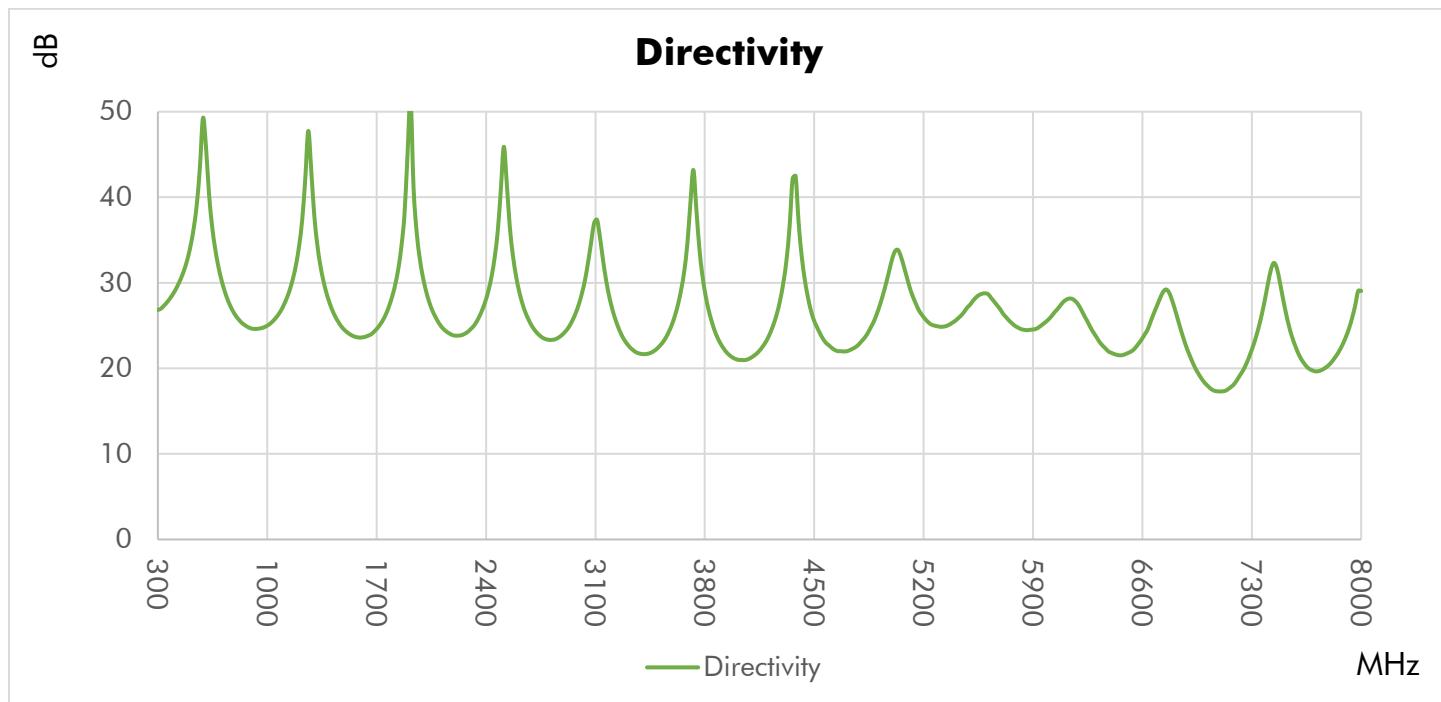
Materials

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

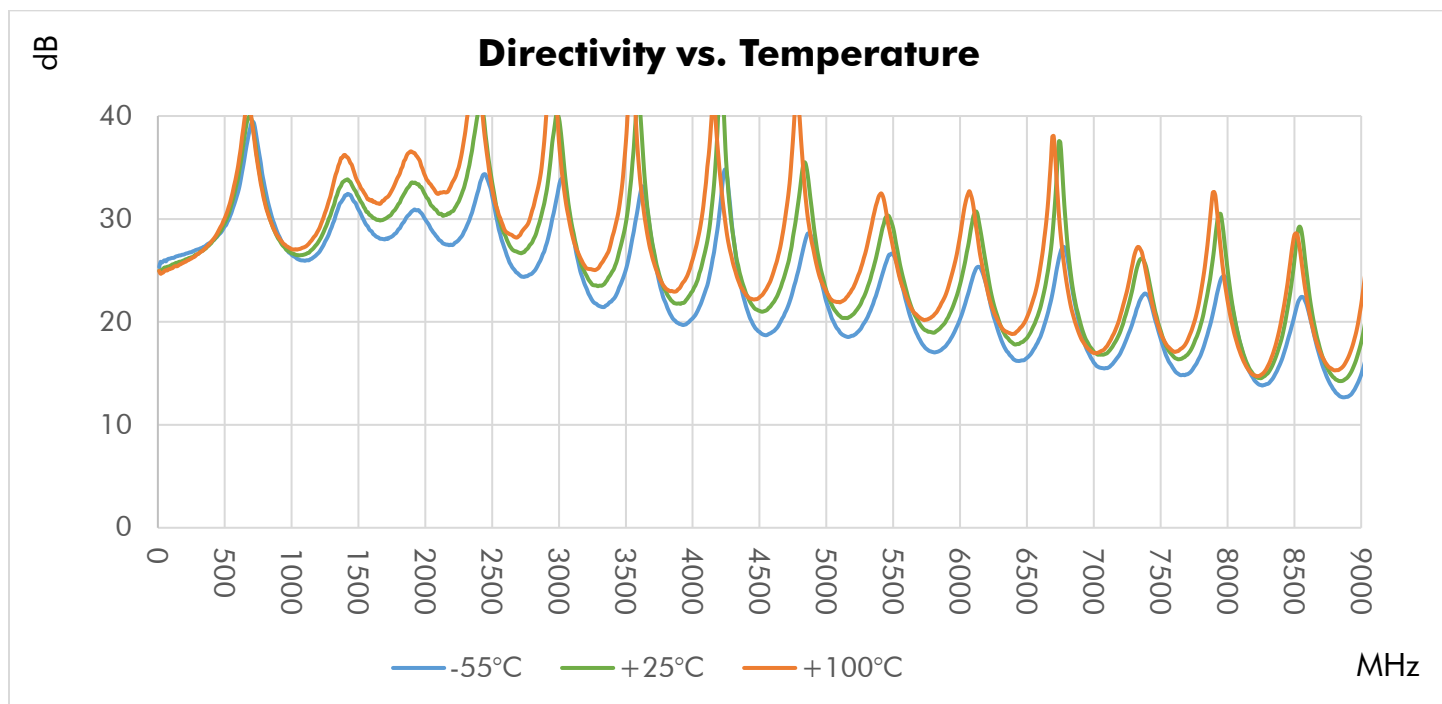
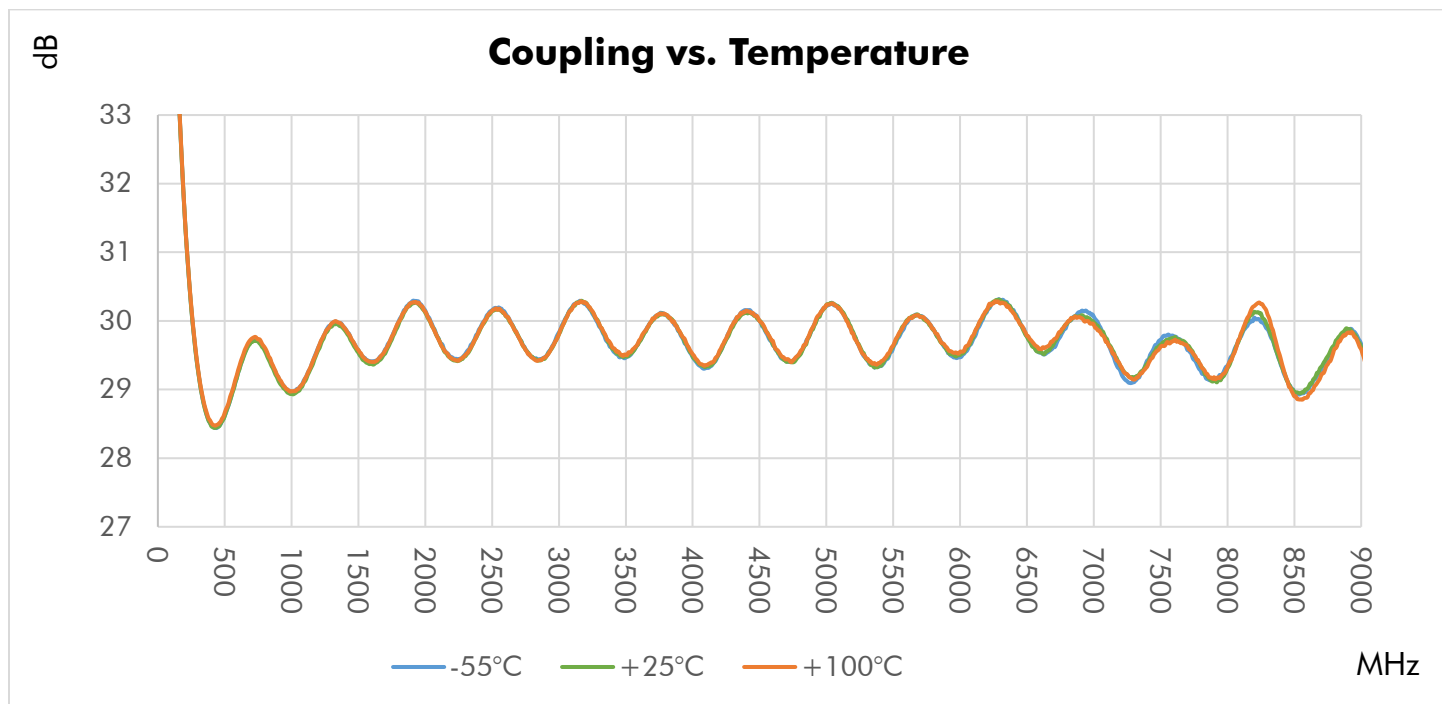
1. Mainline loss includes coupling loss.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Electrical specifications at +25 °C only.
4. To the best of our knowledge at time of publication.

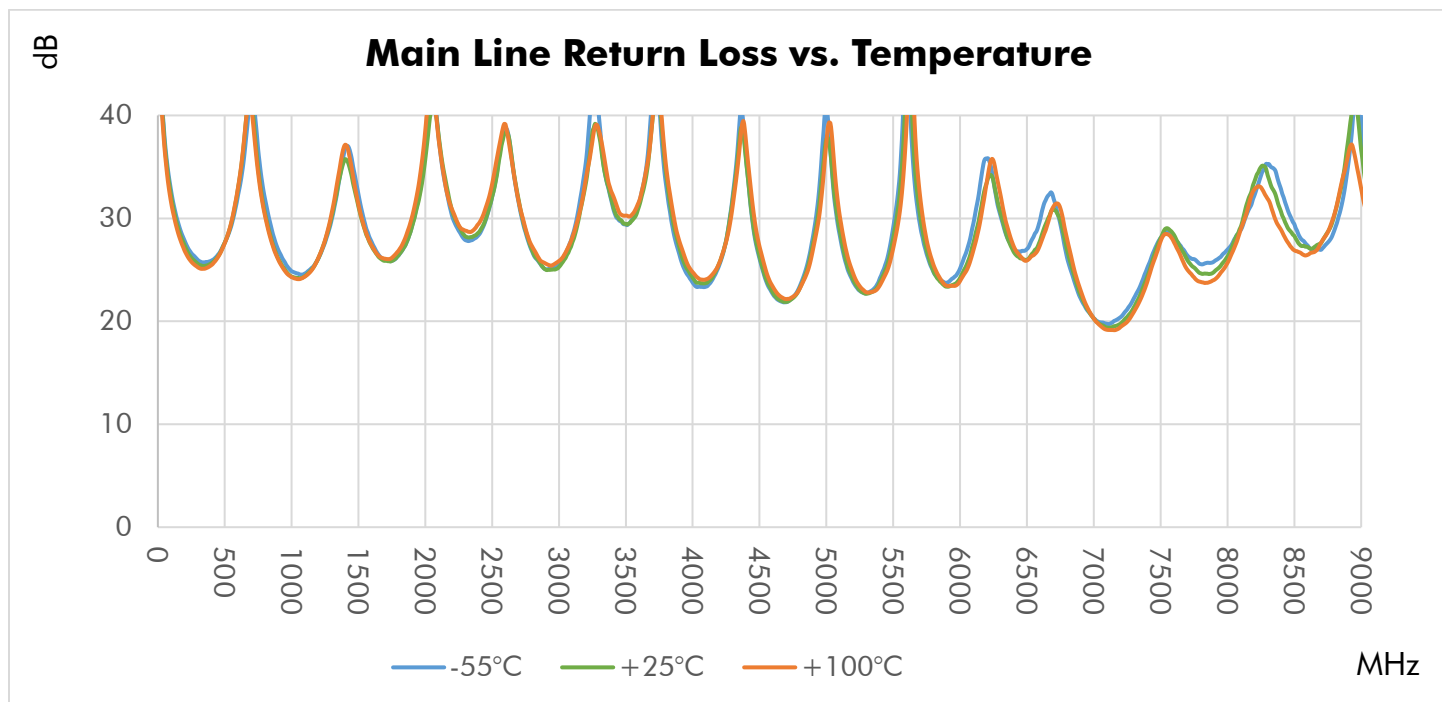
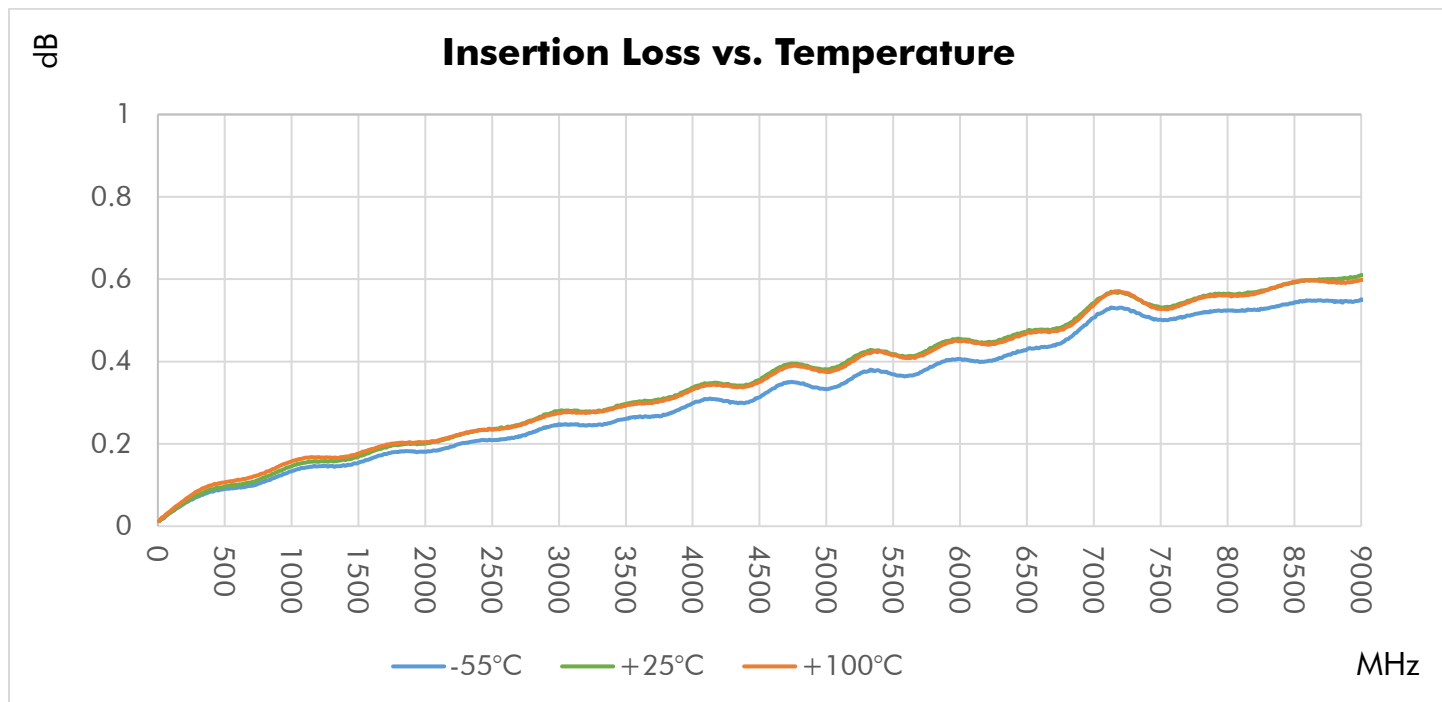
Typical Performance at +25 °C





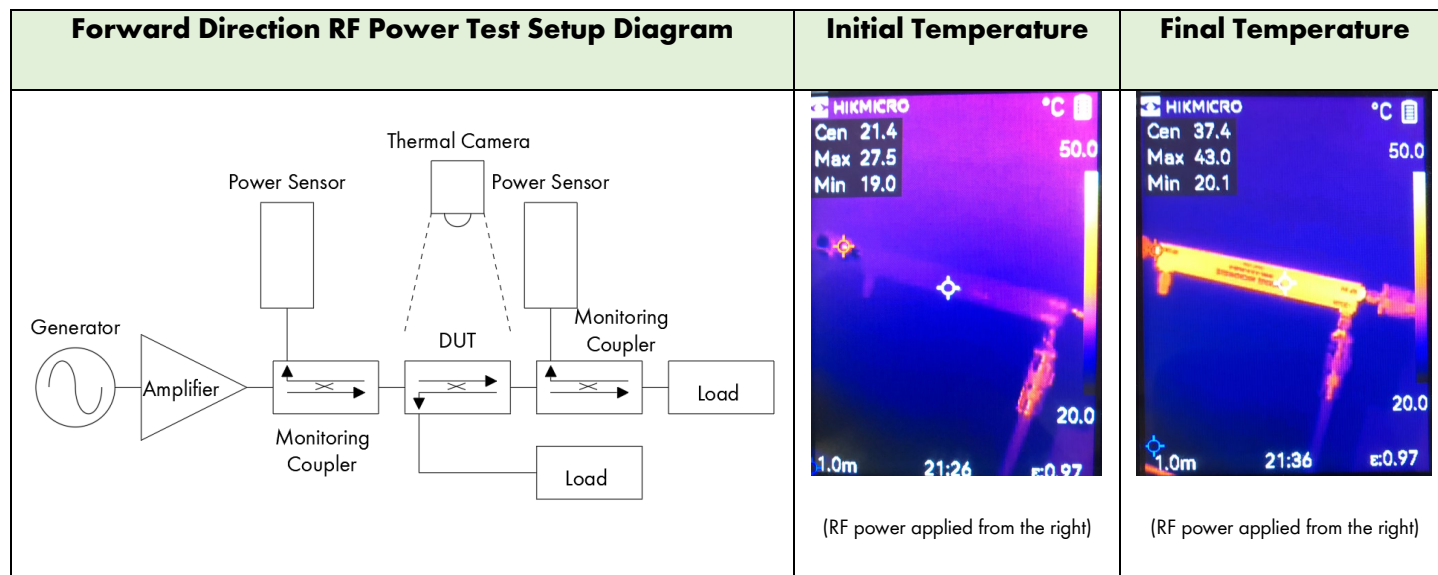
Typical Performance over Temperature



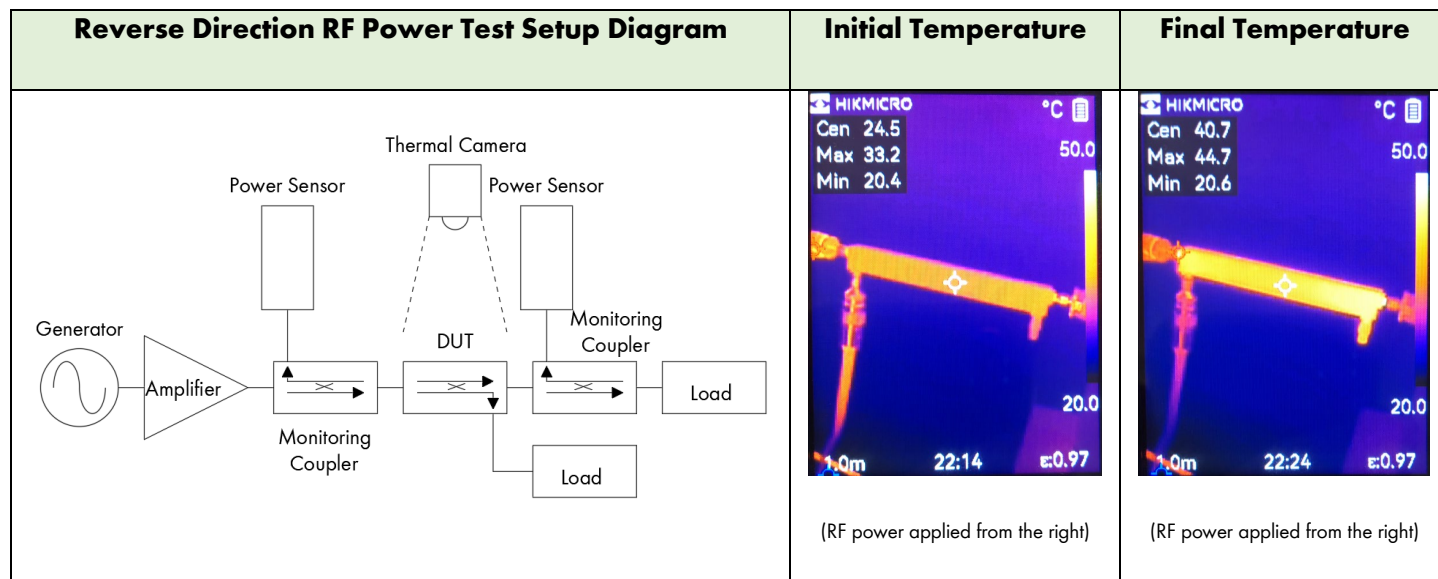


Reliability Testing

RF power test was performed to determine the input power required to produce a nominal temperature rise of 20°C at the hottest point. The test was performed at room temperature without forced air. A heatsink was not used unless it came standard with the product.

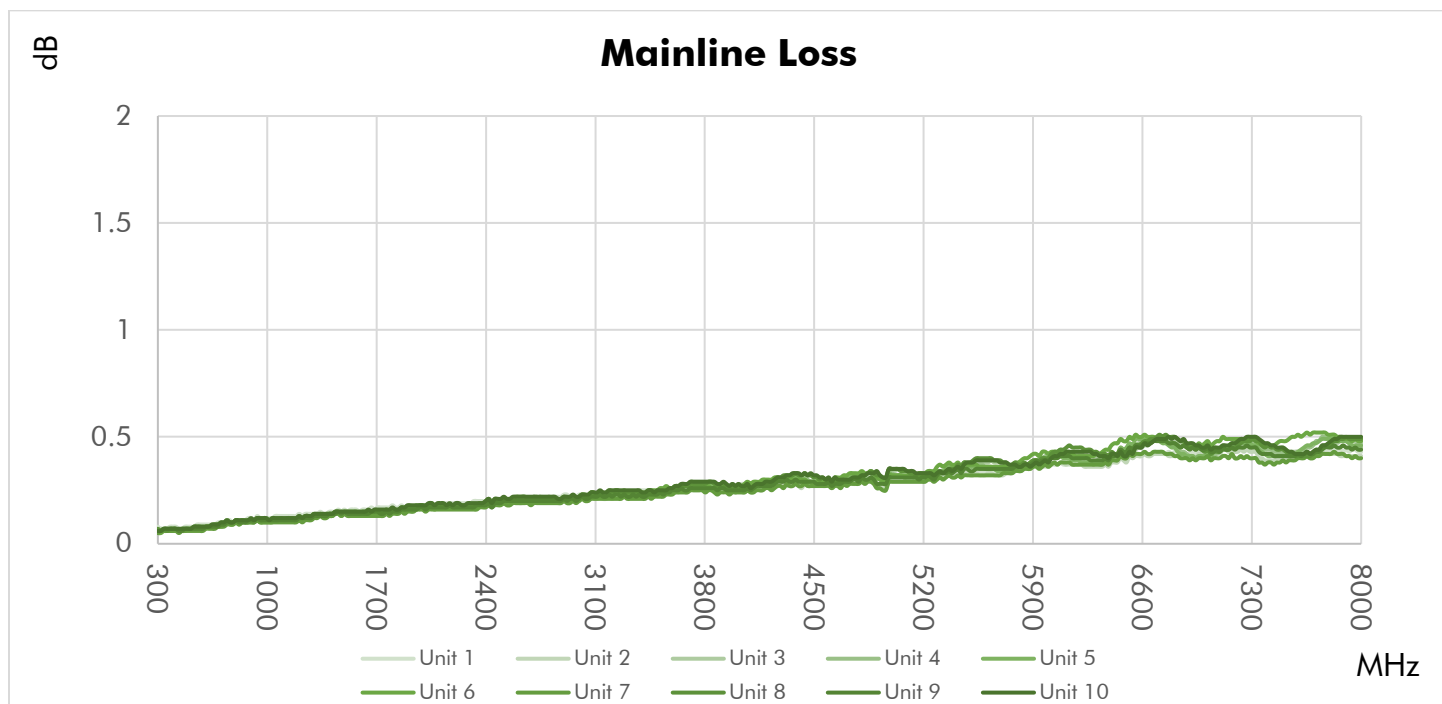
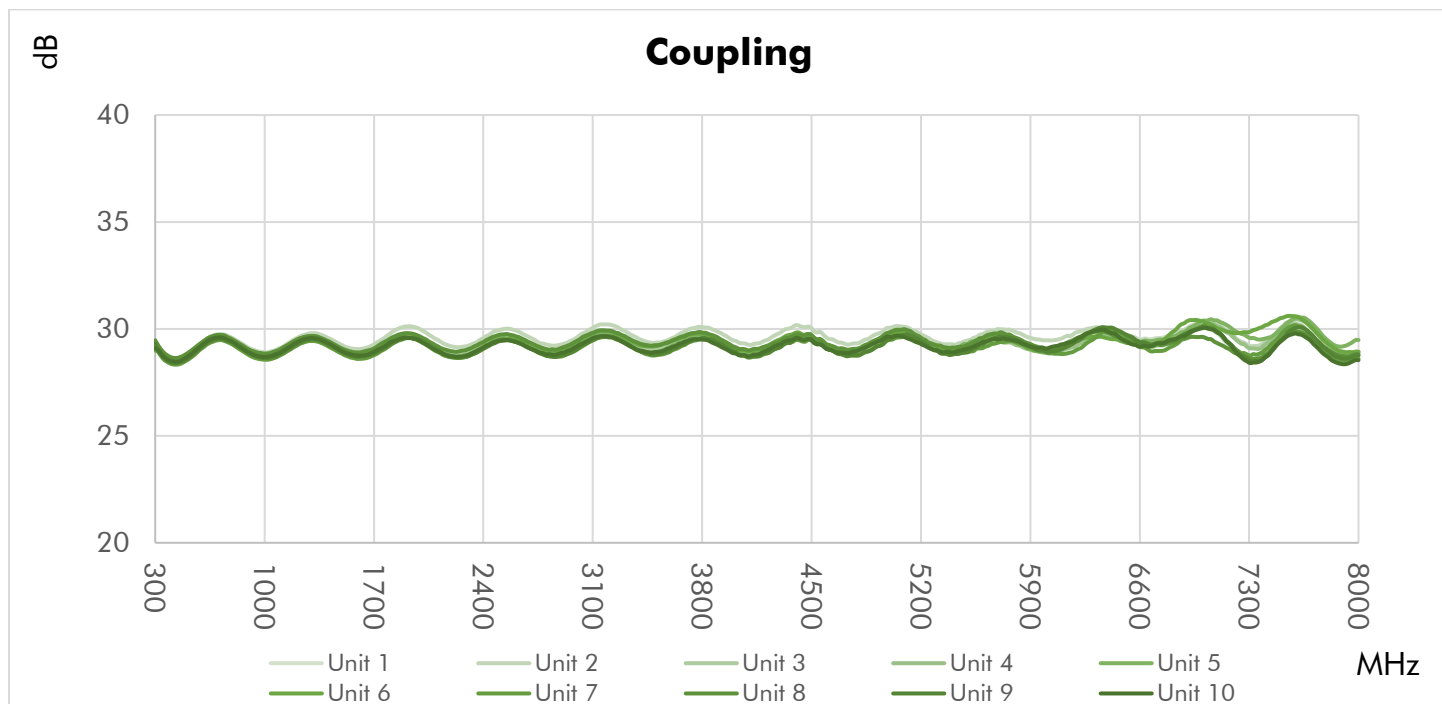


- 200 watts CW at 500MHz was applied to the DUT input for a duration of 10 minutes.
- The DUT temperature increased from 21.4°C (initial, center marker) to 43.0°C (final, max marker), resulting in a 21.6°C rise.



- 200 watts CW at 500MHz was applied to the DUT output for a duration of 10 minutes.
- The DUT temperature increased from 24.5°C (initial, center marker) to 44.7°C (final, max marker), resulting in a 20.2°C rise.
- The DUT termination was receiving an estimated power of 0.2W, based on a 30dB coupling factor.

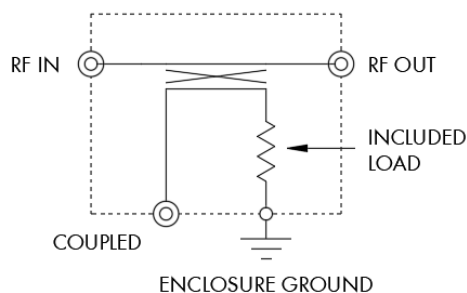
Repeatability in Production



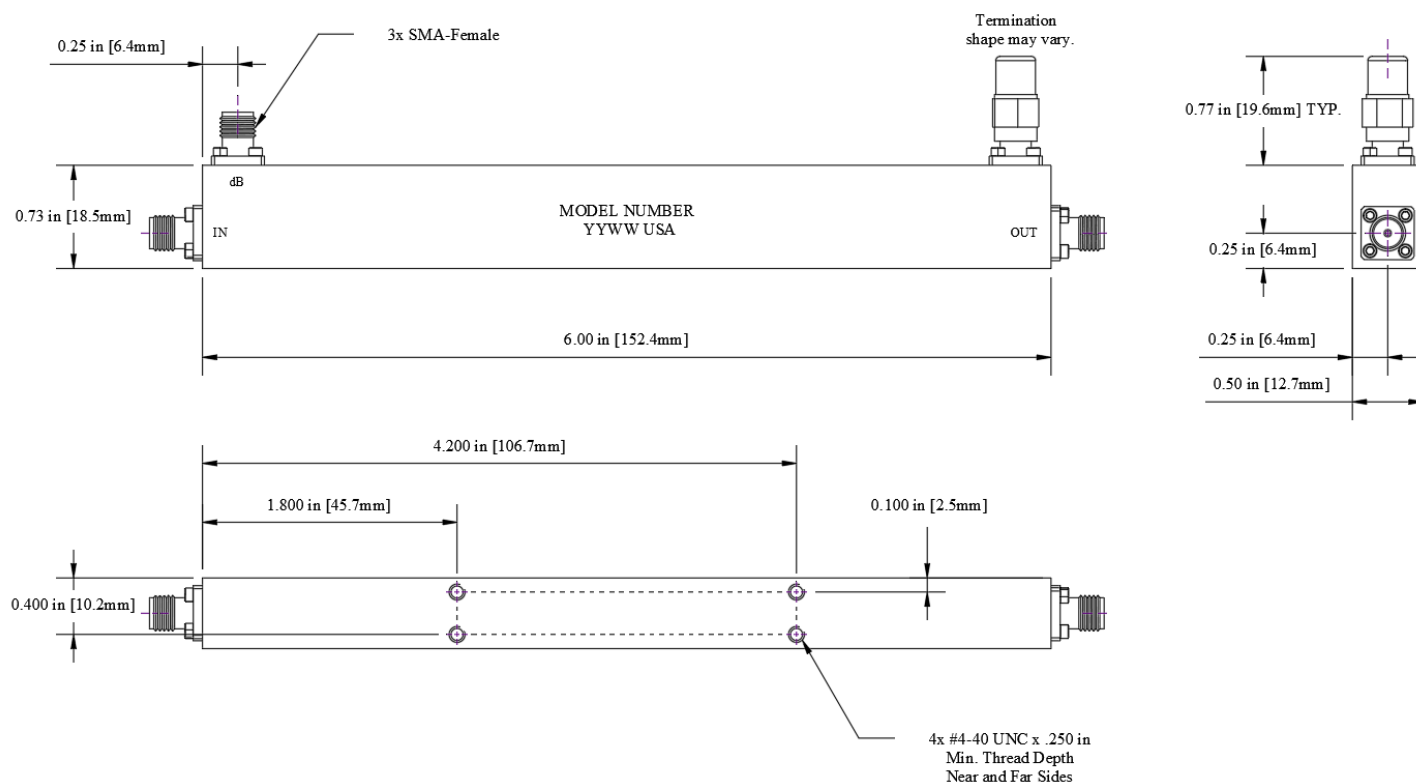
Typical Performance Data

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB)	Coupling (dB)	Directivity (dB)
	In	Out	Cpl.	In-Out	In-Cpl.	
300	26.7	26.8	25.2	0.1	29.2	28.1
608	34.5	31.5	34.2	0.1	29.1	38.6
916	26.8	27.3	24.9	0.1	28.7	27.0
1224	34.9	31.4	39.1	0.1	29.3	28.9
1532	28.2	28.8	26.0	0.2	28.8	27.9
1840	37.9	33.9	37.9	0.2	29.5	26.3
2148	30.2	30.6	29.0	0.2	28.8	25.9
2456	38.8	39.0	32.6	0.2	29.4	25.8
2764	29.8	30.0	30.5	0.2	28.9	24.7
3072	38.8	36.0	29.9	0.2	29.5	24.7
3380	35.3	48.1	42.7	0.2	29.0	21.7
3688	27.8	28.2	27.0	0.2	29.5	24.7
3996	29.7	30.5	32.8	0.3	28.9	19.7
4304	32.5	33.3	25.3	0.3	29.4	25.0
4612	27.9	31.7	27.4	0.3	28.9	18.3
4920	34.2	34.9	25.5	0.3	29.4	24.6
5228	27.9	30.8	23.3	0.3	29.0	17.7
5536	40.6	41.9	25.4	0.3	29.3	26.6
5844	23.8	24.9	21.1	0.4	29.0	18.2
6152	42.9	35.0	26.1	0.4	29.3	29.2
6460	20.1	21.8	18.5	0.4	29.3	19.3
6768	25.5	25.5	23.2	0.4	29.5	30.4
7076	22.6	25.9	18.1	0.4	29.5	24.1
7384	27.3	27.3	24.3	0.5	29.3	19.7
7692	21.3	22.9	16.8	0.4	29.8	19.9
8000	25.3	25.6	27.4	0.4	28.6	17.6

Simplified Electrical Schematic



Outline Dimensions



Outline # OL-1830

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.