

90° Hybrid, 5-10GHz, SMA Female

WMQH-5-10-S

Key Features

- Octave band.
- High isolation.
- Excellent return loss.
- Low unbalance.

WMQH-5-10-S is a 90-degree hybrid that covers the 5-10GHz octave band. High isolation and excellent return loss. Isolation 39dB typical. Return loss 36dB typical. Amplitude balance 0.3dB typical. Phase balance 1.4 degrees typical. Total loss 3.3dB typical. The aluminum enclosure measures 1.00 x 0.50 x 0.38 inches. Designed, assembled, and tested in USA.



Photo is representative.

Specifications	Min.	Typ.	Max.	Units
Frequency	5	--	10	GHz
Impedance	--	50	--	Ohm
Phase Difference	--	90	--	Degrees
Total Loss ¹ (J1-J3 and J1-J4)	--	3.2±0.3	±0.9	dB
Isolation	18	39	--	dB
Return Loss (all ports)	17	36	--	dB
Amplitude Balance (±)	--	0.3	0.9	dB
Phase Balance (±)	--	1.4	6.0	Degrees
Input Power (CW) ²	--	--	30	Watts

Mechanical

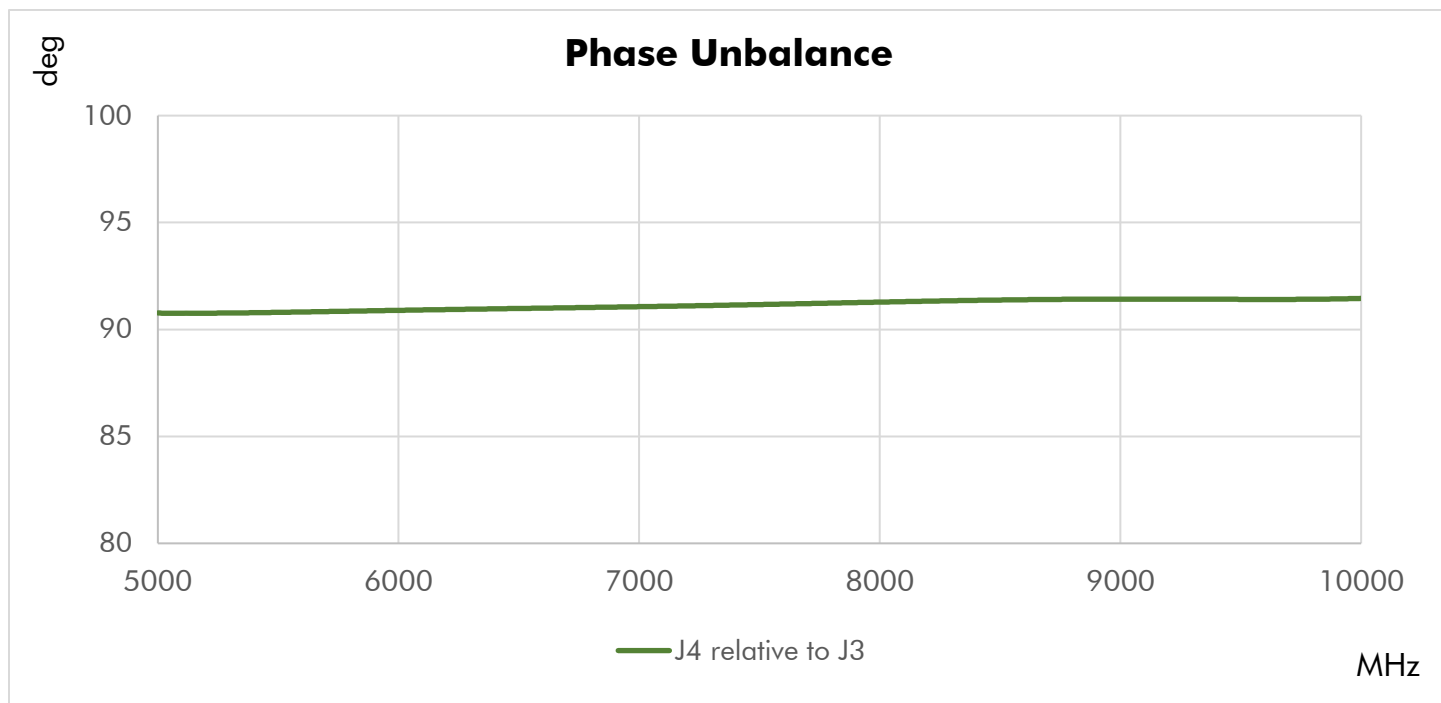
Connector Interface	SMA-Female
Operating Temperature ³	-40 to +85 °C
Storage Temperature	-55 to +100 °C
Weight	0.6 oz (16.7 g)
Humidity	10-90% non-condensing
Environment	Indoor Use Only

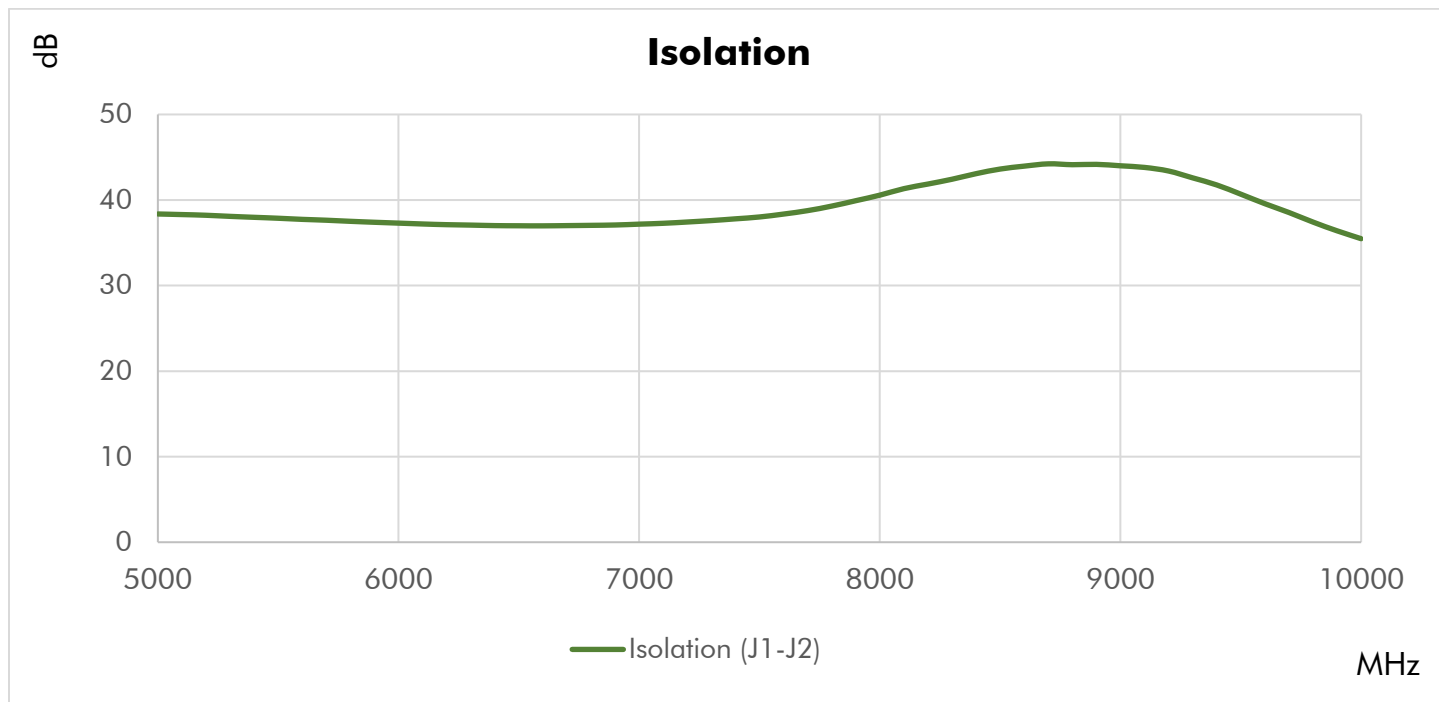
1. Total Loss includes insertion loss and frequency sensitivity.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Specifications are at +25°C.
4. To the best of our knowledge at the time of publication.

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

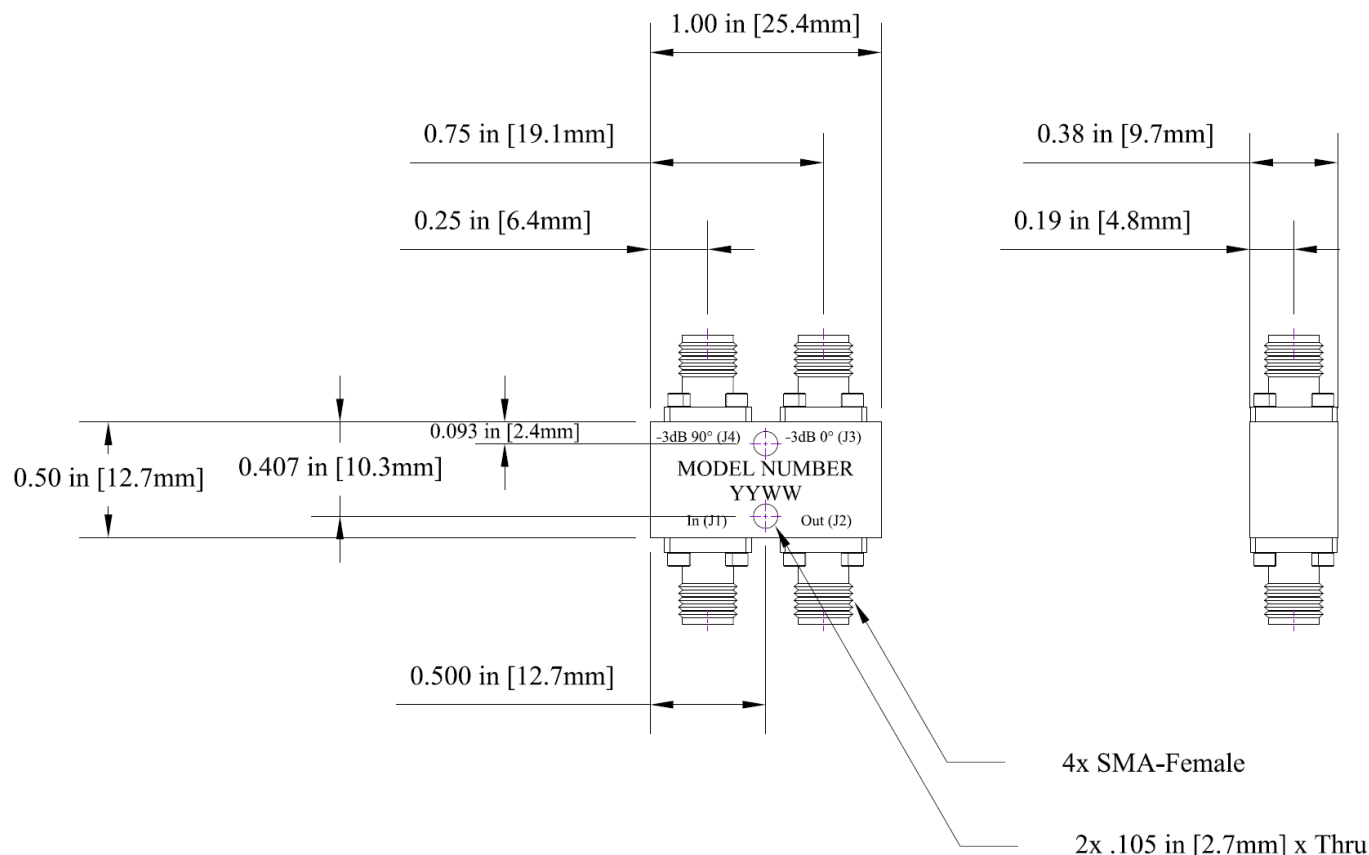




Typical Performance at +25 °C

Frequency (MHz)	Insertion Loss (dB)	Coupling (dB)	Amplitude Unbalance	Phase Unbalance	Isolation (dB)	Return Loss (dB)
	J1-J3	J1-J4	(dB)	(deg)	J1-J2	J1
5000	2.87	3.33	0.47	90.71	32.81	42.62
5500	3.09	3.09	0.00	90.85	31.39	38.25
6000	3.29	2.93	0.36	90.90	30.40	35.49
6500	3.43	2.83	0.60	90.96	30.97	35.79
7000	3.50	2.74	0.76	91.11	34.27	37.49
7500	3.54	2.72	0.81	91.19	41.92	37.57
8000	3.52	2.75	0.77	91.20	41.92	33.64
8500	3.51	2.85	0.67	91.43	38.90	32.21
9000	3.43	2.93	0.50	91.44	36.83	30.67
9500	3.23	3.06	0.16	91.29	39.98	31.47
10000	3.03	3.27	0.24	91.44	36.41	32.28

Outline Dimensions



Outline # OL-Q0408

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

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

Port Configuration

		OUTPUT			
		J1	J2	J3	J4
INPUT	J1	--	ISO	0°	+90°
	J2	ISO	--	+90°	0°
	J3	0°	+90°	--	ISO
	J4	+90°	0°	ISO	--

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.