

## 90 Degree Hybrid, 500 MHz to 1 GHz

### Hybrids Technical Data Sheet

**Q-R501**

#### Key Features

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

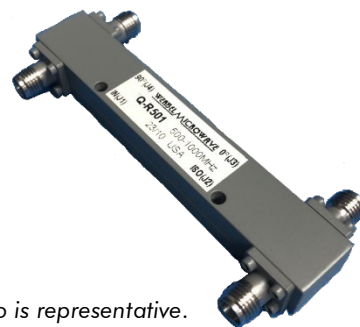


Photo is representative.

Specifications	Min.	Typ.	Max.	Units
Frequency	500		1,000	MHz
Impedance		50		Ohm
Phase Difference		90		Degrees
Total Loss <sup>1</sup> (J1-J3 and J1-J4)		3.2	±0.8	dB
Isolation	22	26		dB
Return Loss (all ports)	19	24		dB
Amplitude Balance (±)		0.4	0.8	dB
Phase Balance (±)		1.5	3.0	Degrees
Input Power (CW) <sup>2</sup>			50	Watts

#### Mechanical

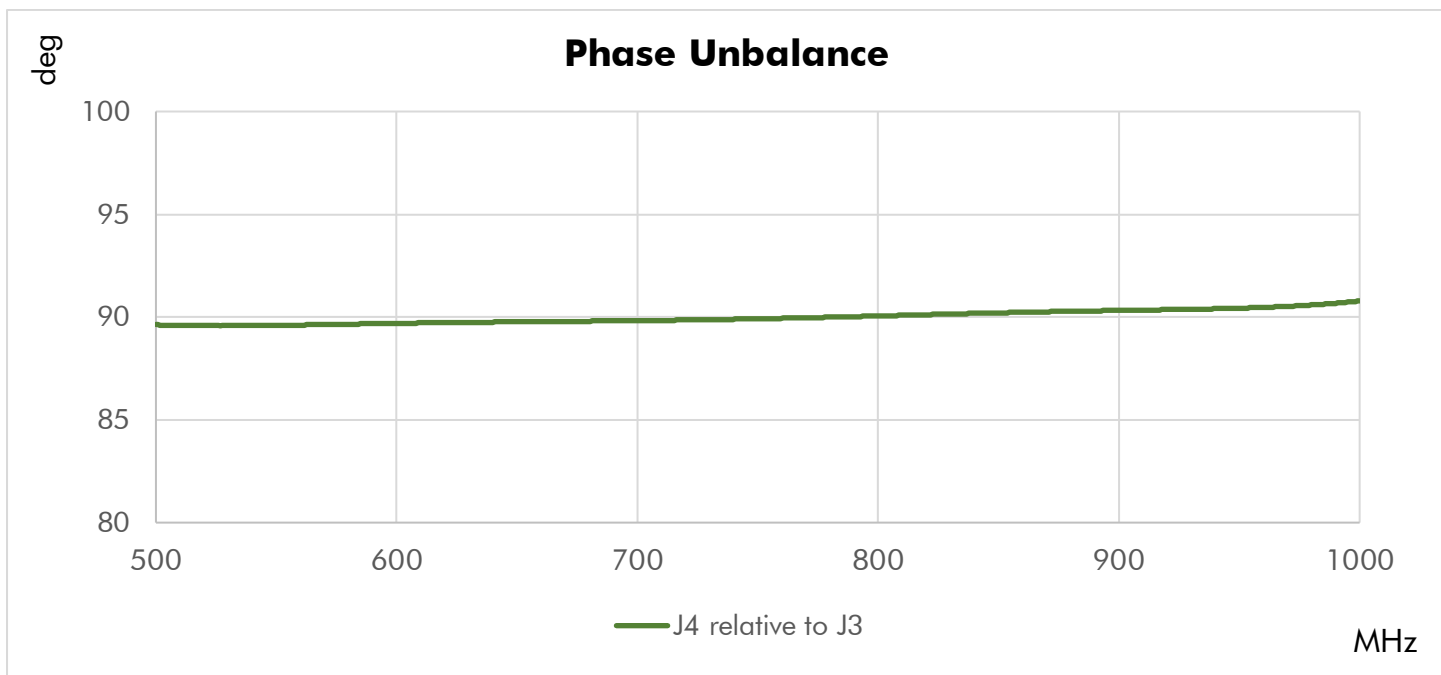
Connector Interface	SMA-Female
Operating Temperature <sup>3</sup>	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight	1.2 oz (33.9 g)
Humidity	10-90% non-condensing
Environment	Indoor Use Only

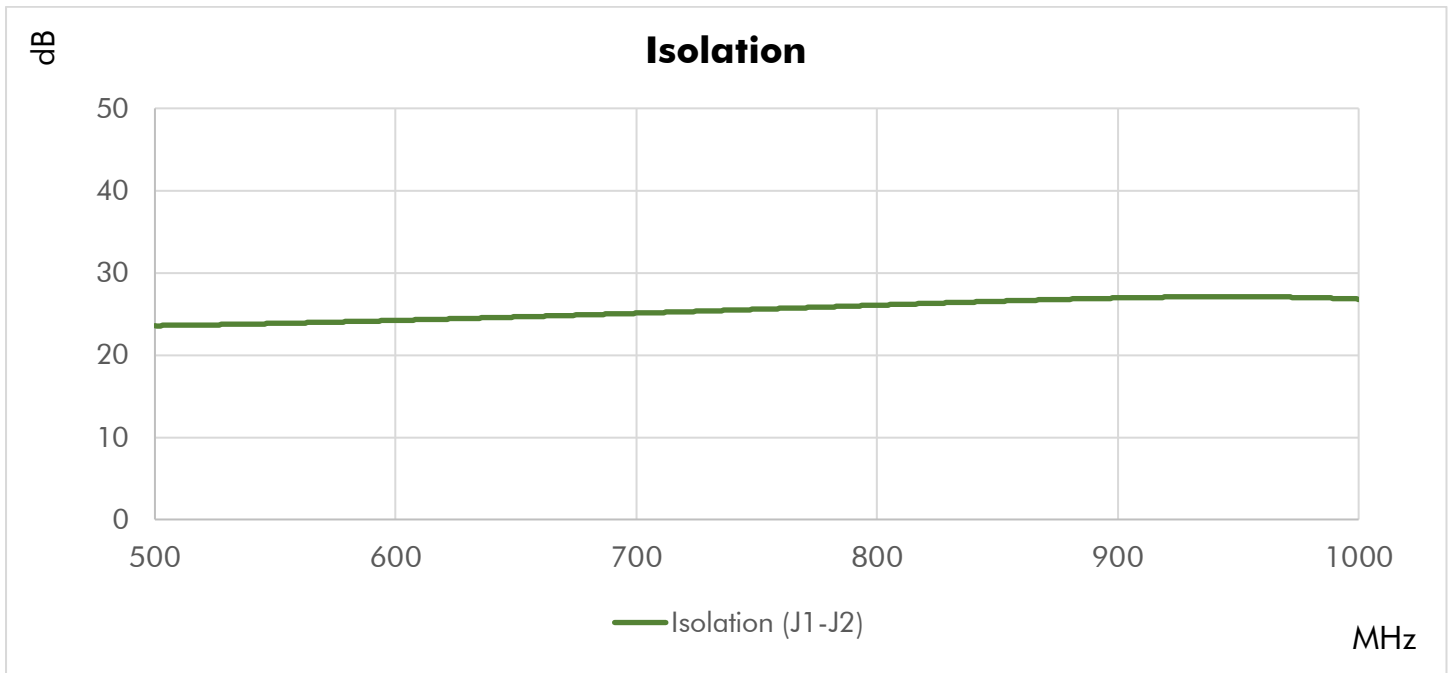
#### Materials

RoHS and REACH Compliant <sup>4</sup>	
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Gray Paint

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. Electrical specifications at +25 °C only.
4. To best of our knowledge at the time of publication.

## Typical Performance at +25 °C

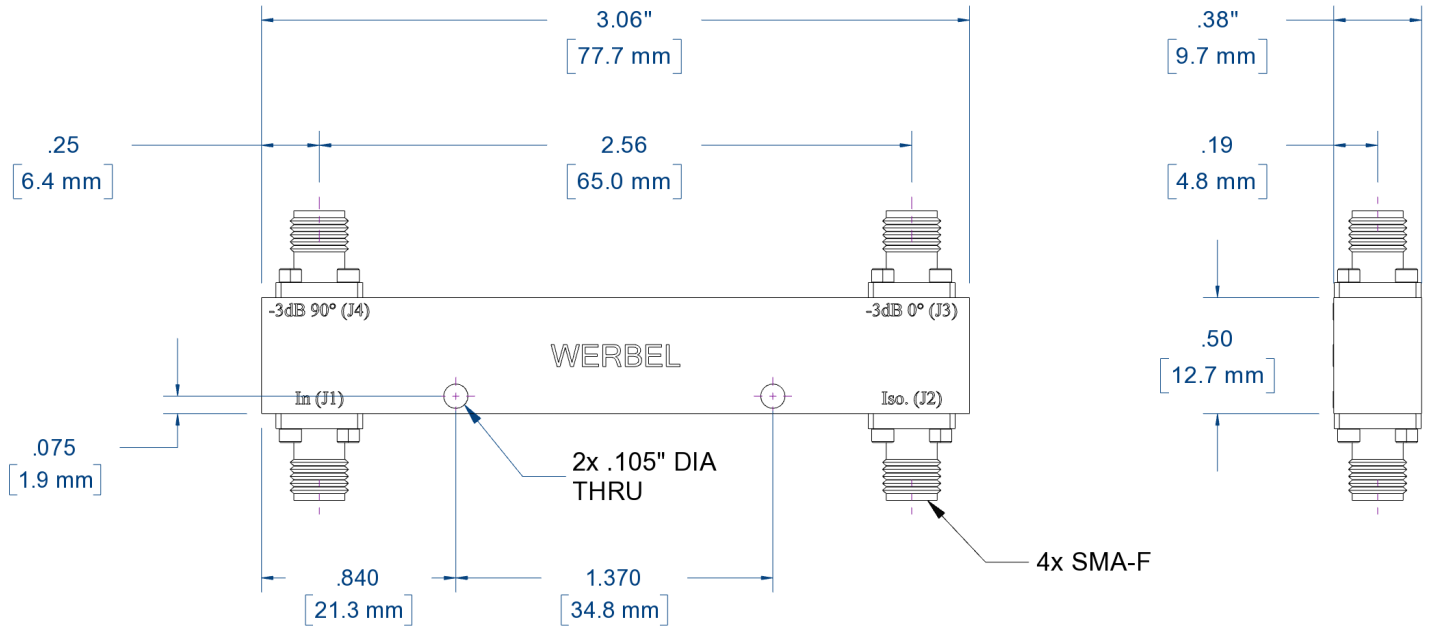




## Typical Performance at +25 °C

Frequency (MHz)	Insertion Loss (dB) J1-J3	Coupling (dB) J1-J4	Amplitude Unbalance (dB)	Phase Unbalance (deg)	Isolation (dB) J1-J2	Return Loss (dB) J1
500	3.0	3.6	0.6	89.6	23.8	25.8
525	2.9	3.4	0.5	89.5	24.0	22.4
550	2.9	3.1	0.2	89.8	24.1	22.6
575	3.1	3.1	0.0	89.5	24.3	22.1
600	3.2	3.1	0.1	89.7	24.5	22.2
625	3.3	3.0	0.3	90.1	24.7	22.6
650	3.3	2.9	0.4	89.7	25.0	22.8
675	3.3	2.9	0.5	89.7	25.2	22.7
700	3.4	2.9	0.5	89.8	25.4	22.7
725	3.4	2.9	0.5	90.1	25.7	23.3
750	3.5	2.8	0.7	89.9	26.0	23.2
775	3.4	2.8	0.6	90.0	26.2	23.0
800	3.4	2.9	0.5	90.2	26.5	23.3
825	3.3	2.9	0.4	90.2	26.7	24.0
850	3.4	3.0	0.3	90.0	27.0	24.1
875	3.3	3.0	0.3	90.6	27.2	23.2
900	3.3	3.2	0.1	90.3	27.5	23.7
925	3.1	3.1	0.1	90.3	27.5	24.4
950	3.0	3.3	0.3	90.2	27.6	24.4
975	2.8	3.4	0.6	89.9	27.5	24.4
1000	2.8	3.6	0.8	90.6	27.3	25.3

## Outline Dimensions



Outline # OL-QR501

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

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

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