

Directional Coupler 30 dB SMA Female from 6 GHz to 18 GHz

Directional Couplers Technical Data Sheet

C-1806-30

Description

Werbel Microwave designs and manufactures its own directional coupler products for a variety of uses in test and measurement applications. At times sensitive monitoring is required on the order of 1/1000 sampling ratio or 30 dB. Model C-1806-30 from Werbel Microwave is a 30 dB coupler covering the bandwidth of 6-18 GHz in a compact aluminum enclosure with stainless steel SMA female connectors. Enclosure measures only 1.00 x 0.60 x 0.38 inches not including connectors. Precision assembled and tested at our Whippany NJ facility, proudly made in the USA.



Specification	Min	Typ.	Max	Units
Frequency	6		18	GHz
Impedance		50		Ohm
Coupling		30	±2.0	dB
Frequency Sensitivity (Flatness)		±0.5	±1.5	dB
Insertion Loss Measured at Highest Frequency (above theoretical coupling/splitting loss)		0.36	0.6 (0.5)	dB
Directivity	11	14		dB
Main Line VSWR			1.5	:1
Secondary Line VSWR			1.5	:1
Input Power (CW) into 1.2:1 max load VSWR			50	Watts
Reverse Power (CW) into 1.2:1 max load VSWR			50	Watts
Termination			1	Watt

Mechanical

Connector Interface	SMA-Female
Operating Temperature*	-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

* Design to meet based on materials. Production-tested at +25 °C. External heatsink and convection cooling recommended to maintain body temperature below +50 °C.

Materials

RoHS and REACH Compliant

Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Gray Paint



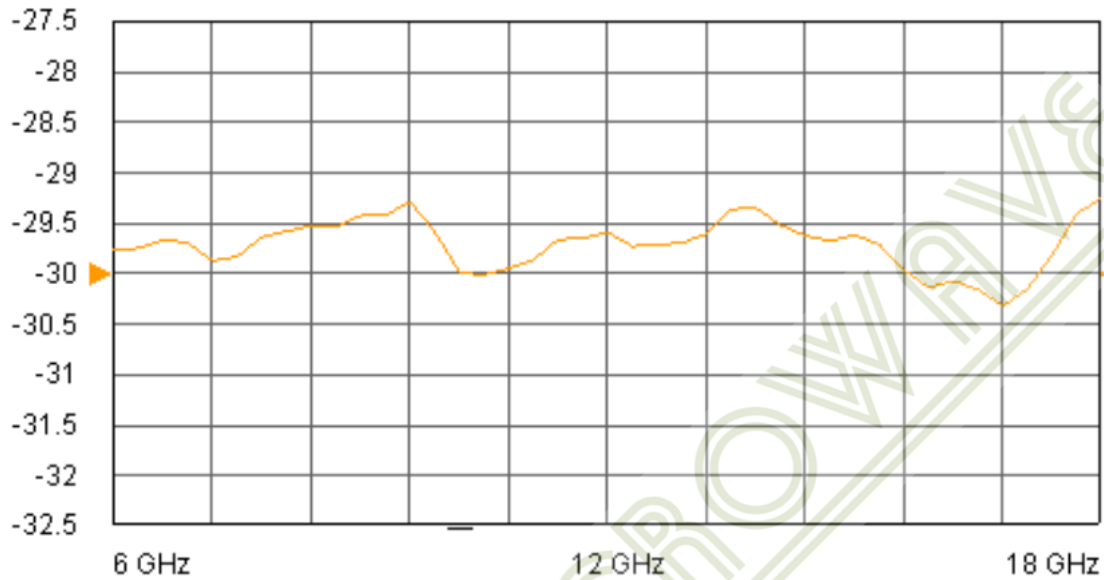
MADE IN USA

ISO 9001:2015

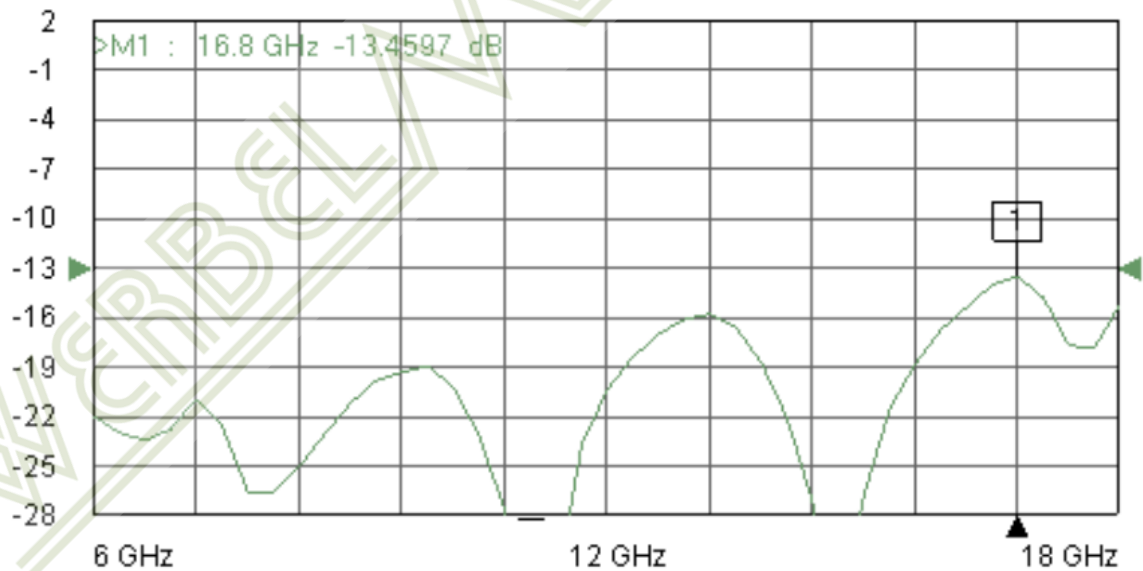
Certified Company

Typical Performance at +25 °C

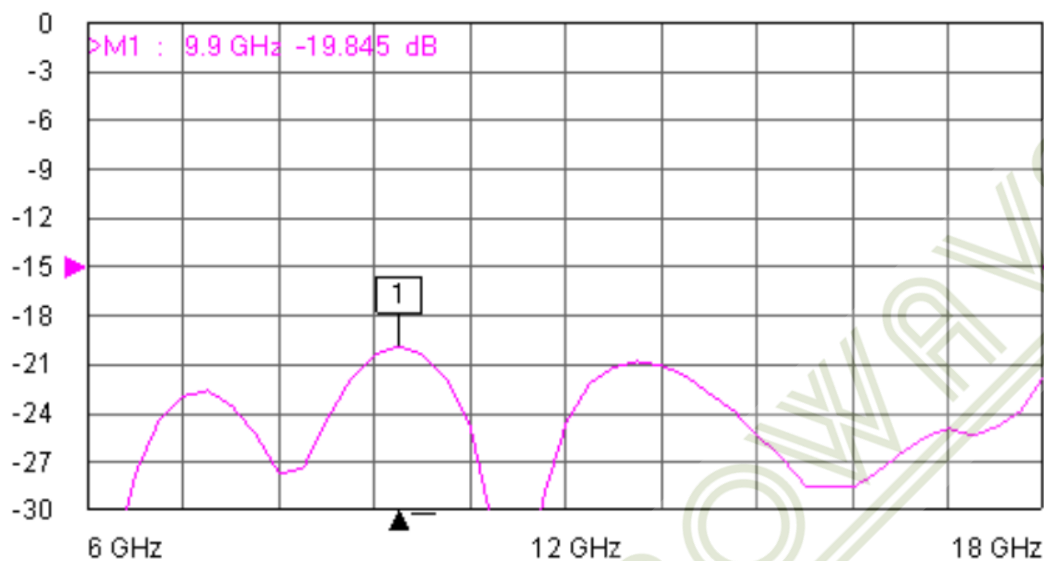
Coupling Value and Flatness



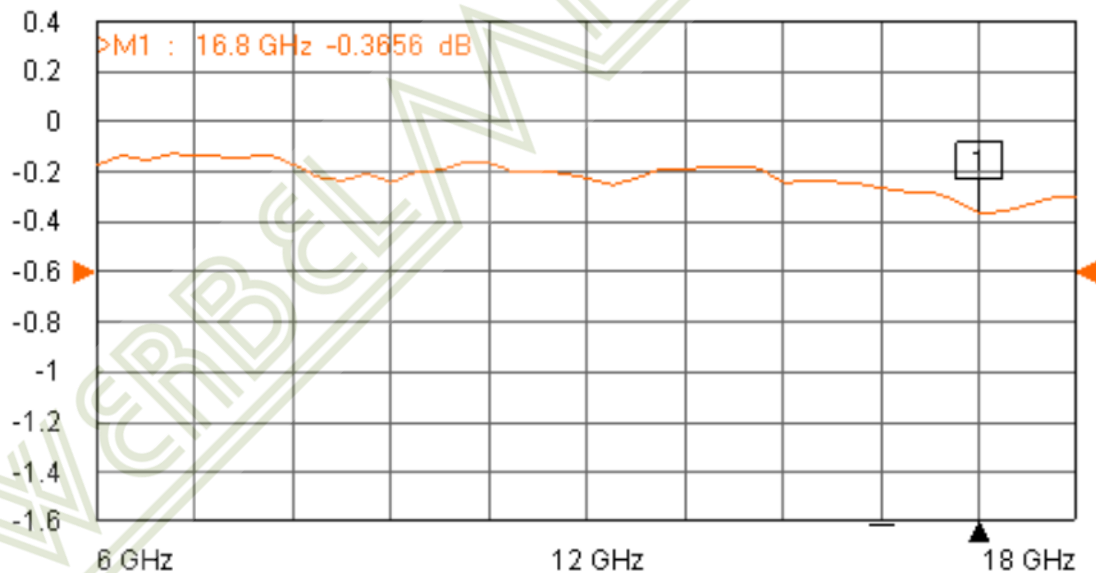
Directionality



Return Loss



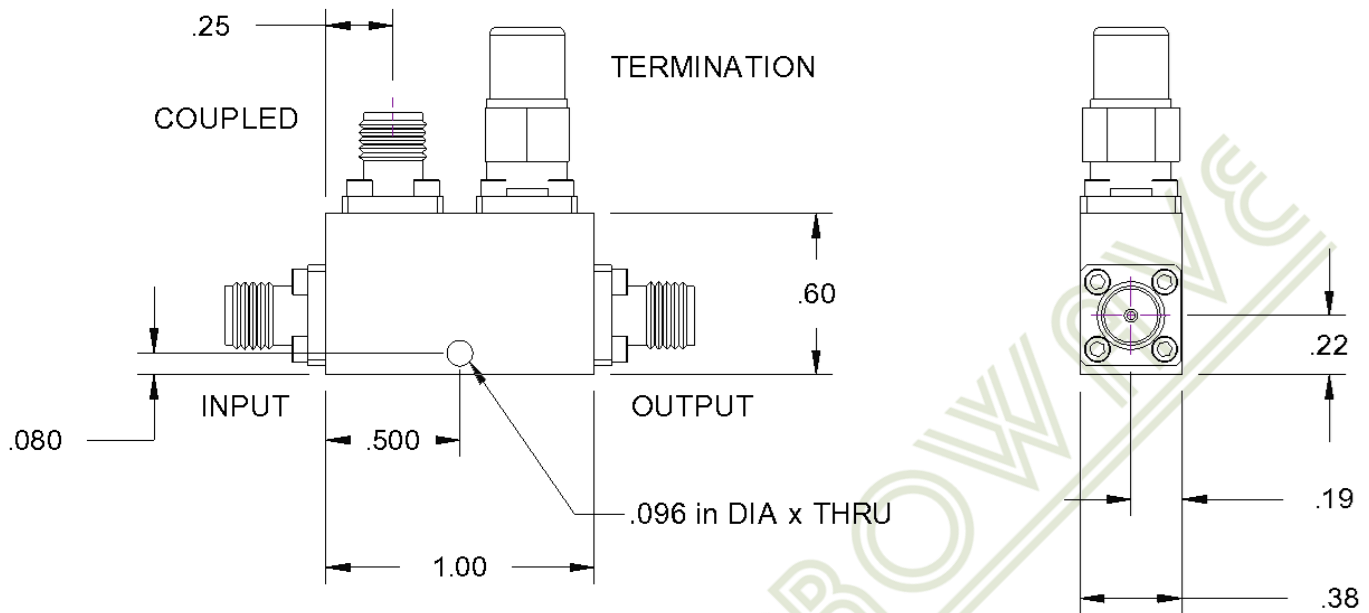
Insertion Loss



Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Coupling (dB)	Directivity (dB)	Return Loss Input (dB)	Return Loss Output (dB)	Return Loss Coupled (dB)
6.00	-0.17	-29.78	-21.95	-18.73	-18.64	-22.88
6.30	-0.13	-29.73	-22.86	-20.60	-20.18	-23.23
6.60	-0.15	-29.62	-23.40	-23.25	-22.15	-24.39
6.90	-0.13	-29.65	-22.70	-28.20	-25.50	-26.48
7.20	-0.13	-29.82	-20.83	-35.76	-27.47	-29.16
7.50	-0.14	-29.77	-22.53	-31.06	-25.97	-34.84
7.80	-0.14	-29.65	-26.46	-25.27	-23.25	-48.62
8.10	-0.13	-29.58	-26.53	-23.02	-21.65	-37.62
8.40	-0.17	-29.54	-25.29	-21.03	-20.23	-30.66
8.70	-0.22	-29.52	-23.07	-19.93	-19.52	-27.45
9.00	-0.23	-29.42	-21.19	-20.01	-19.81	-24.94
9.30	-0.20	-29.36	-19.86	-20.33	-20.11	-23.73
9.60	-0.24	-29.24	-19.27	-21.16	-21.18	-23.32
9.90	-0.20	-29.59	-18.79	-22.66	-22.30	-23.72
10.20	-0.19	-29.95	-20.25	-25.33	-24.53	-25.30
10.50	-0.16	-30.02	-23.05	-28.77	-26.62	-28.50
10.80	-0.16	-29.95	-27.85	-35.81	-28.82	-35.36
11.10	-0.20	-29.87	-36.86	-43.32	-30.11	-35.07
11.40	-0.19	-29.67	-32.36	-31.63	-28.97	-27.71
11.70	-0.20	-29.62	-23.62	-26.42	-25.93	-23.44
12.00	-0.22	-29.60	-20.24	-23.60	-23.30	-21.08
12.30	-0.25	-29.73	-18.31	-21.84	-21.79	-19.55
12.60	-0.22	-29.68	-16.99	-20.51	-20.64	-18.85
12.90	-0.18	-29.69	-16.11	-19.85	-20.08	-18.65
13.20	-0.19	-29.50	-15.75	-19.59	-20.04	-18.84
13.50	-0.17	-29.40	-16.48	-20.79	-21.11	-19.47
13.80	-0.17	-29.46	-18.72	-22.22	-22.96	-20.35
14.10	-0.18	-29.57	-22.01	-24.95	-24.88	-21.57
14.40	-0.24	-29.63	-27.11	-30.50	-28.50	-22.98
14.70	-0.23	-29.68	-34.74	-41.68	-27.91	-24.70
15.00	-0.23	-29.64	-26.78	-28.09	-25.54	-26.75
15.30	-0.24	-29.71	-21.51	-22.49	-21.80	-29.11
15.60	-0.26	-29.93	-18.72	-19.33	-19.44	-33.15
15.90	-0.27	-30.11	-16.70	-17.67	-18.03	-36.43
16.20	-0.27	-30.05	-15.31	-16.70	-17.36	-31.93
16.50	-0.31	-30.15	-13.95	-16.44	-17.06	-28.56
16.80	-0.36	-30.28	-13.44	-17.02	-17.67	-26.78
17.10	-0.35	-30.16	-14.80	-18.57	-19.30	-26.65
17.40	-0.32	-29.78	-17.76	-21.56	-22.14	-27.71
17.70	-0.30	-29.41	-17.72	-28.44	-27.97	-30.08
18.00	-0.29	-29.22	-15.10	-31.72	-28.17	-29.24

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 part described herein. It may be necessary to make modifications to the part and/or documentation of the part, in order to implement improvements. 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 does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, 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.