WERBEL MICROWAVE LLC
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High Power Dual Directional Coupler, 1-2GHz, 40dB, N/SMA-F WMHPDDC-1-2-40dB-NS

Description

Model WMHPDDC-1-2-40dB-NS from Werbel Microwave is a dual directional coupler that covers the L band, 1 to 2 GHz. This catalog model features 40dB coupling factor in both forward and reverse directions. It is capable of handling 500W CW on the main line. The catalog model ships with N Female connectors on the main line and SMA Female connectors on the coupled ports. Custom configurations of dB values and connector types are available. Consult the factory with your requirements.

The forward and reverse coupled outputs are independently isolated, which means that a mismatch on one coupled port will not affect the other. This is a useful characteristic in amplifier power monitoring applications where a good VSWR cannot always be guaranteed at the detector input.

Photo is representative.

Specifications	Min.	Typ.	Max.	Units
Frequency	1000	--	2000	MHz
Impedance	--	50	--	Ohm
Coupling	--	40	--	dB, typ.
Frequency Sensitivity (Flatness)	--	±1.0	±3.5	dB, max.
Mainline Loss[1]	--	0.2	0.4	dB, max.
Directivity	15	25	--	dB, min.
Return Loss (In and Out)	19	22	--	dB, min.
Input Power (CW)[2]	--	--	500	Watts

Mechanical

Connector Interface	N-Female
Operating Temperature[3]	-10 to +65 °C
Thermal compound between mounting surface and base plate is recommended.	
Storage Temperature	-55 to +100 °C
Weight	12.8 oz (363 g)
Humidity	10-90% non-condensing
Environment	Indoors Use Only

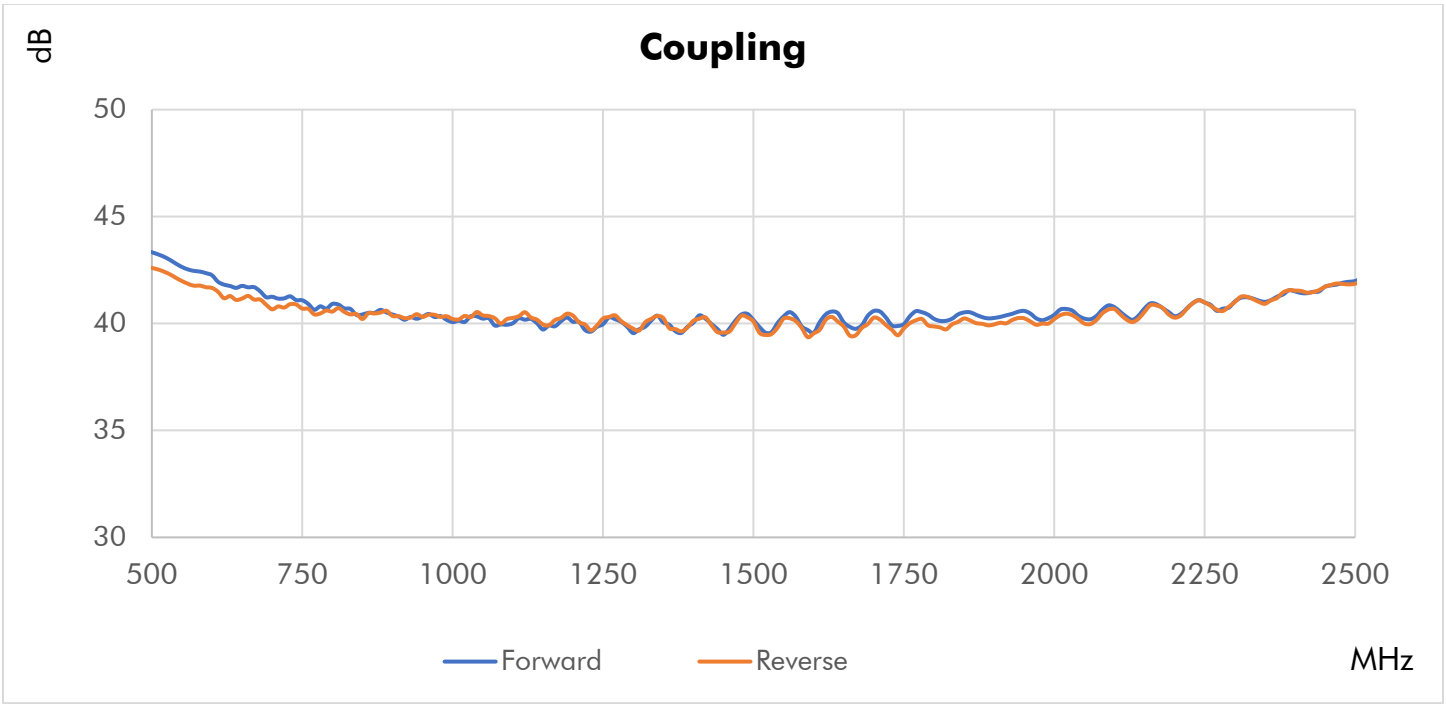
Materials

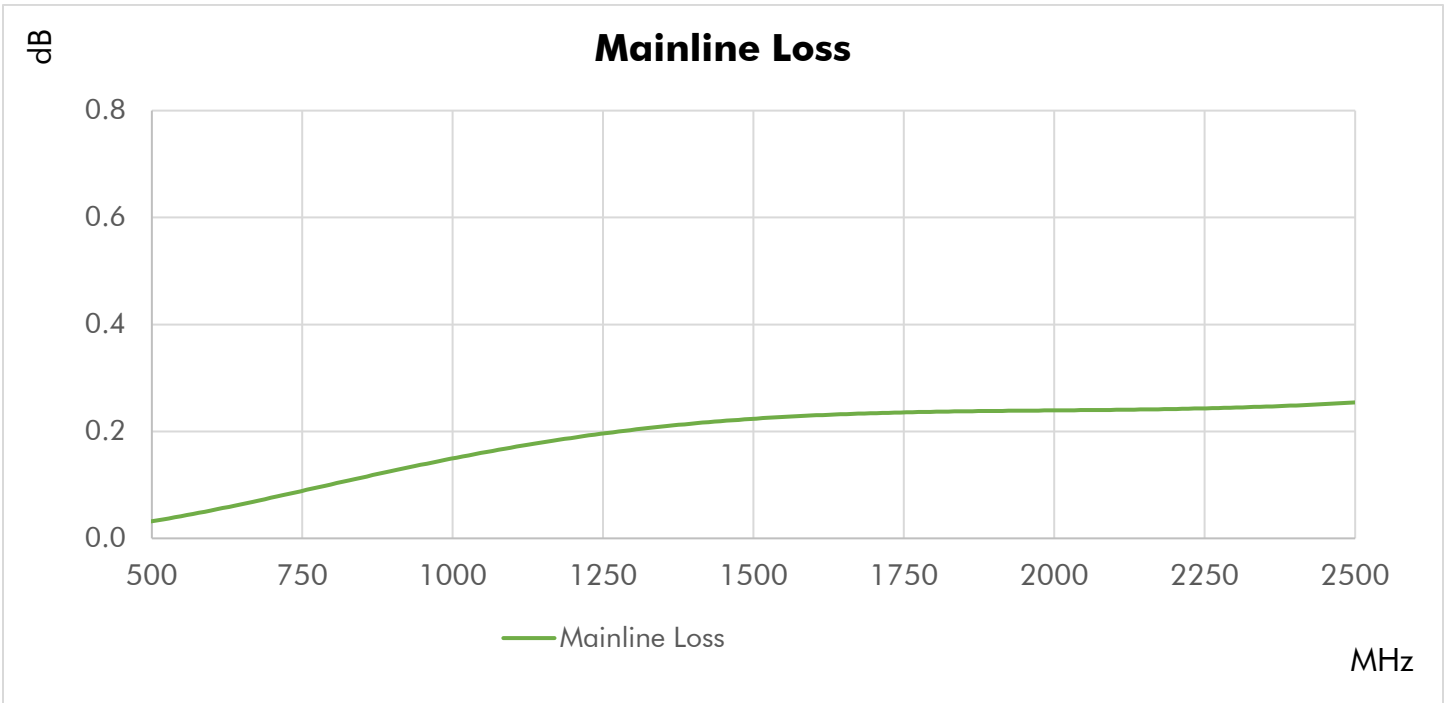
RoHS and REACH Compliant[4]

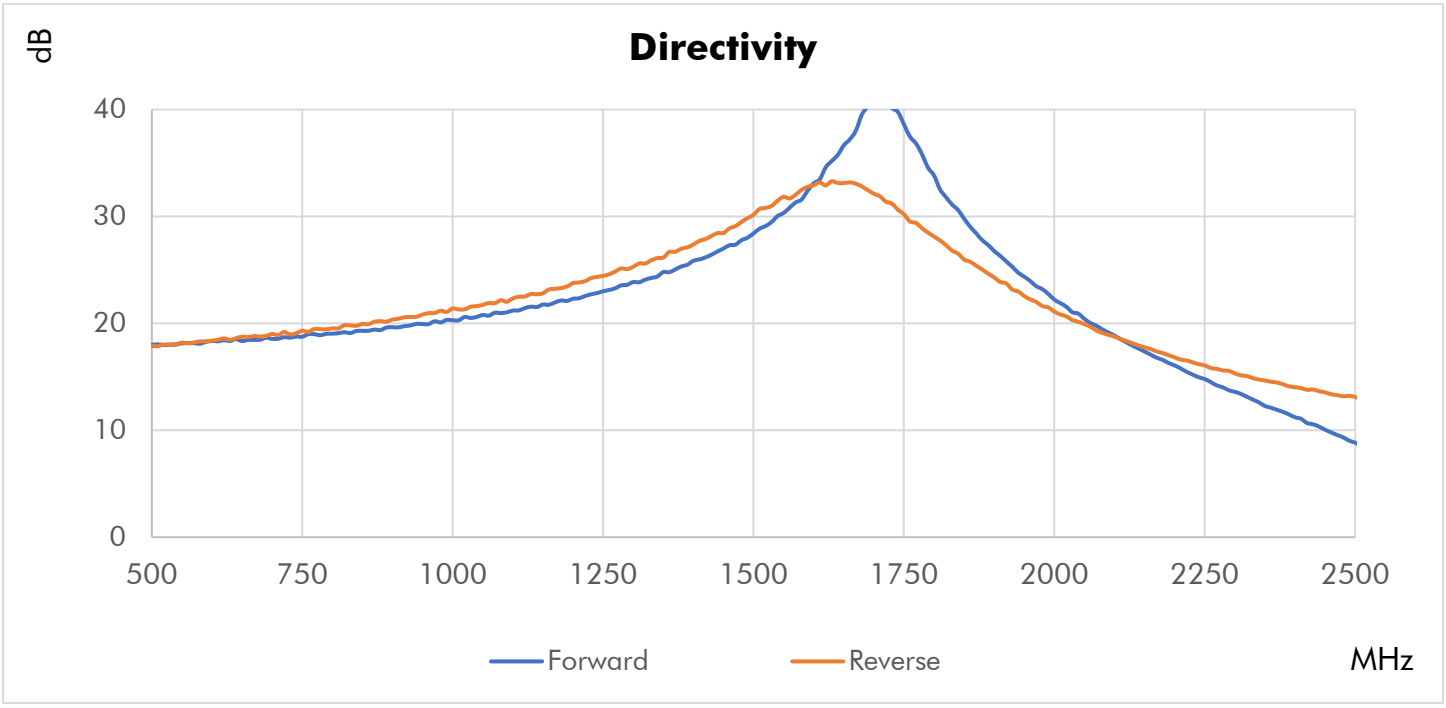
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish (Outer)	Green Paint
Finish (Mounting Surface)	Clear Conversion Film

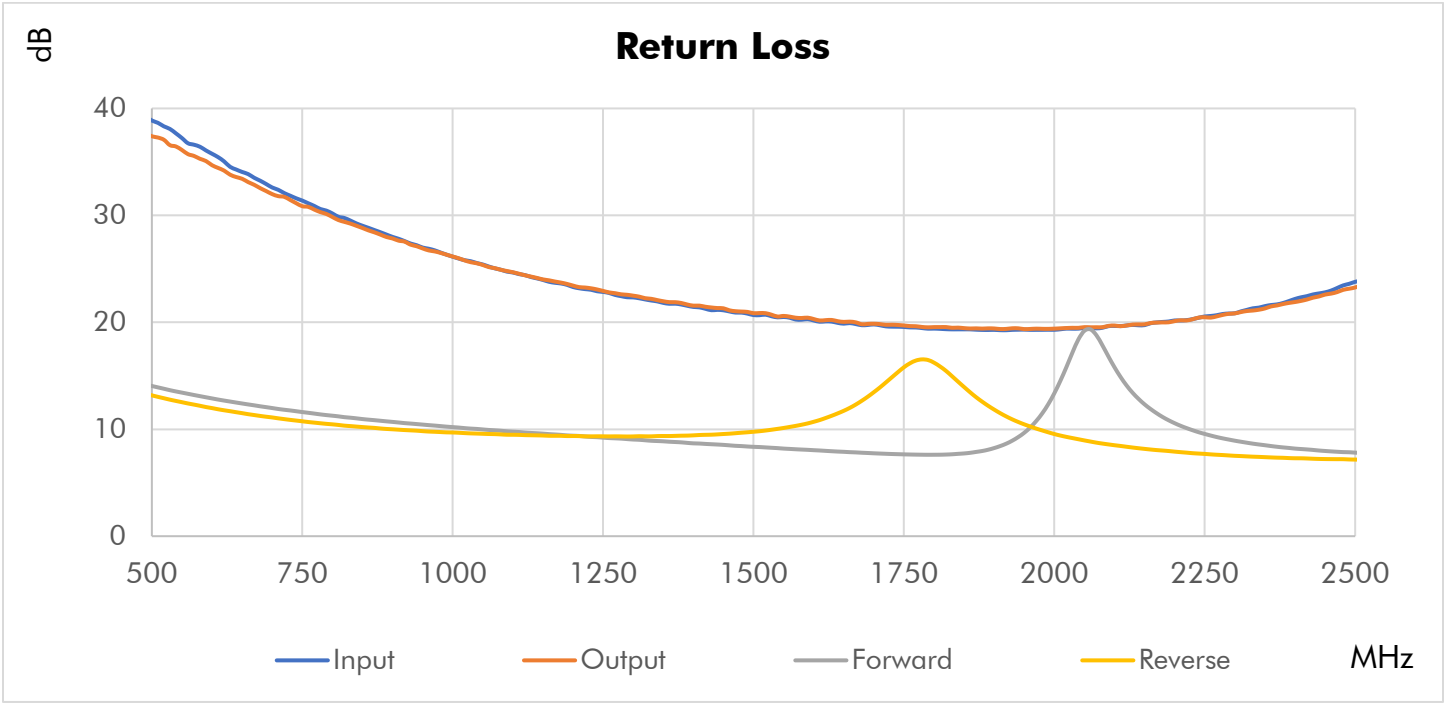
1. Mainline loss includes coupling loss.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Electrical specifications at +25 °C.
4. To the best of our knowledge at time of publication.

Typical Performance at +25 °C





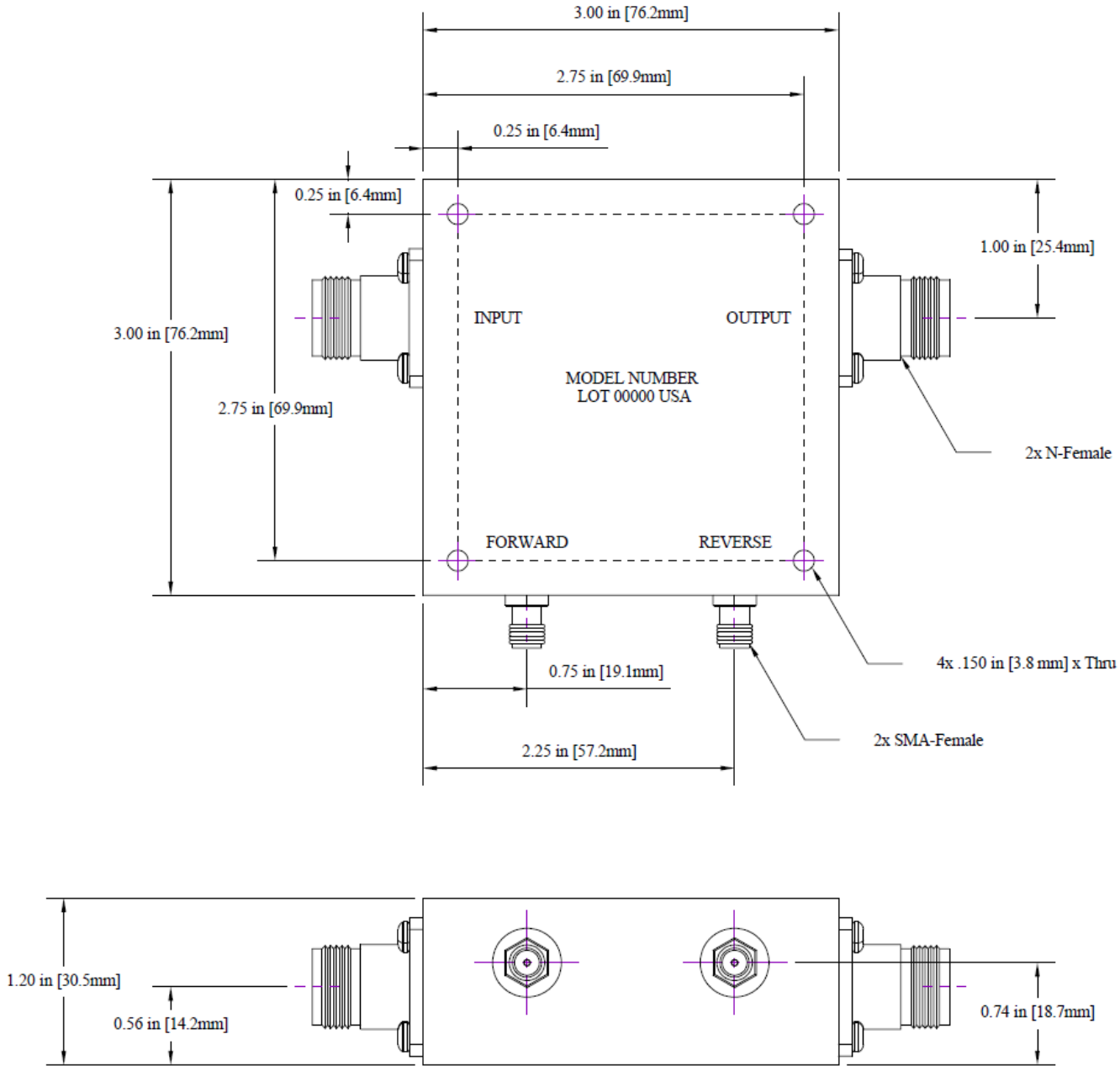

Directivity
dB
40
30
20
10
0
500
750
1000
1250
1500
1750
2000
2250
2500
Forward
Reverse
MHz


Return Loss
dB
40
30
20
10
0
500
750
1000
1250
1500
1750
2000
2250
2500
Input
Output
Forward
Reverse
MHz

Typical Performance Data

Frequency (MHz)	Return Loss (dB)				Mainline Loss (dB)	Coupling (dB)		Directivity (dB)	
	In	Out	Fwd.	Rev.	In-Out	Fwd.	Rev.	Fwd.	Rev.
500	38.87	37.40	14.05	13.17	0.08	43.33	42.60	17.99	17.89
550	37.23	36.11	13.43	12.53	0.08	42.64	41.99	18.13	18.20
600	35.76	34.69	12.88	11.98	0.08	42.26	41.67	18.35	18.39
650	34.06	33.42	12.41	11.51	0.10	41.76	41.17	18.34	18.75
700	32.61	31.99	11.98	11.10	0.11	41.25	40.66	18.55	19.01
750	31.38	30.86	11.61	10.75	0.08	41.09	40.70	18.75	19.31
800	30.18	29.85	11.27	10.46	0.12	40.92	40.56	19.03	19.54
850	29.03	28.82	10.95	10.20	0.12	40.42	40.21	19.30	19.95
900	27.99	27.84	10.69	10.00	0.11	40.42	40.35	19.64	20.35
950	26.99	26.91	10.44	9.82	0.12	40.32	40.31	19.93	20.83
1000	26.14	26.15	10.20	9.70	0.12	40.07	40.21	20.28	21.39
1050	25.41	25.36	9.98	9.58	0.09	40.23	40.38	20.78	21.73
1100	24.66	24.68	9.78	9.48	0.16	40.01	40.26	21.19	22.33
1150	23.96	24.01	9.59	9.42	0.11	39.72	39.96	21.76	22.81
1200	23.30	23.43	9.40	9.37	0.10	40.08	40.37	22.30	23.76
1250	22.84	22.93	9.21	9.34	0.19	39.97	40.24	23.00	24.44
1300	22.33	22.49	9.04	9.33	0.16	39.55	39.76	23.86	25.28
1350	21.82	21.97	8.87	9.37	0.10	40.05	40.26	24.79	26.15
1400	21.44	21.56	8.68	9.43	0.25	40.04	40.13	25.85	27.36
1450	21.13	21.31	8.54	9.56	0.22	39.47	39.58	27.00	28.45
1500	20.68	20.85	8.36	9.77	0.13	40.16	40.09	28.41	30.15
1550	20.50	20.60	8.19	10.12	0.29	40.33	40.23	30.32	31.83
1600	20.17	20.31	8.04	10.70	0.29	39.57	39.54	33.09	32.92
1650	19.88	20.04	7.89	11.73	0.16	40.05	39.86	36.64	33.12
1700	19.80	19.86	7.75	13.47	0.27	40.59	40.27	41.35	32.12
1750	19.57	19.70	7.65	15.80	0.32	39.97	39.77	38.61	30.20
1800	19.41	19.55	7.62	16.23	0.20	40.22	39.86	33.83	28.12
1850	19.34	19.46	7.74	13.95	0.27	40.52	40.24	29.79	25.97
1900	19.29	19.42	8.24	11.84	0.25	40.26	39.96	26.76	24.29
1950	19.32	19.36	9.67	10.46	0.22	40.59	40.24	24.36	22.55
2000	19.30	19.41	13.37	9.55	0.29	40.41	40.21	22.22	21.10
2050	19.47	19.55	19.21	8.96	0.23	40.23	40.00	20.42	19.92
2100	19.66	19.70	15.80	8.51	0.20	40.76	40.67	18.85	18.76
2150	19.74	19.81	12.33	8.16	0.31	40.71	40.55	17.37	17.75
2200	20.17	20.11	10.57	7.91	0.22	40.34	40.27	16.06	16.82
2250	20.54	20.48	9.56	7.69	0.22	40.98	40.99	14.79	16.07
2300	20.85	20.83	8.93	7.52	0.28	41.03	41.00	13.60	15.32
2350	21.51	21.30	8.51	7.39	0.22	41.01	40.92	12.27	14.66
2400	22.19	21.90	8.19	7.29	0.23	41.50	41.54	11.22	14.03
2450	22.80	22.60	7.97	7.21	0.26	41.73	41.72	10.05	13.55
2500	23.79	23.26	7.81	7.16	0.22	41.99	41.86	8.85	13.12

Outline Dimensions



Outline # OL-5003
Dimensions are in inches, [mm] shown for convenience.
Tolerances on 2-pl decimals: ±.03. 3-pl decimals: ± .015.