WERBEL MICROWAVE LLC
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Power Divider, 4-way, 2-18.5GHz, SMA Female

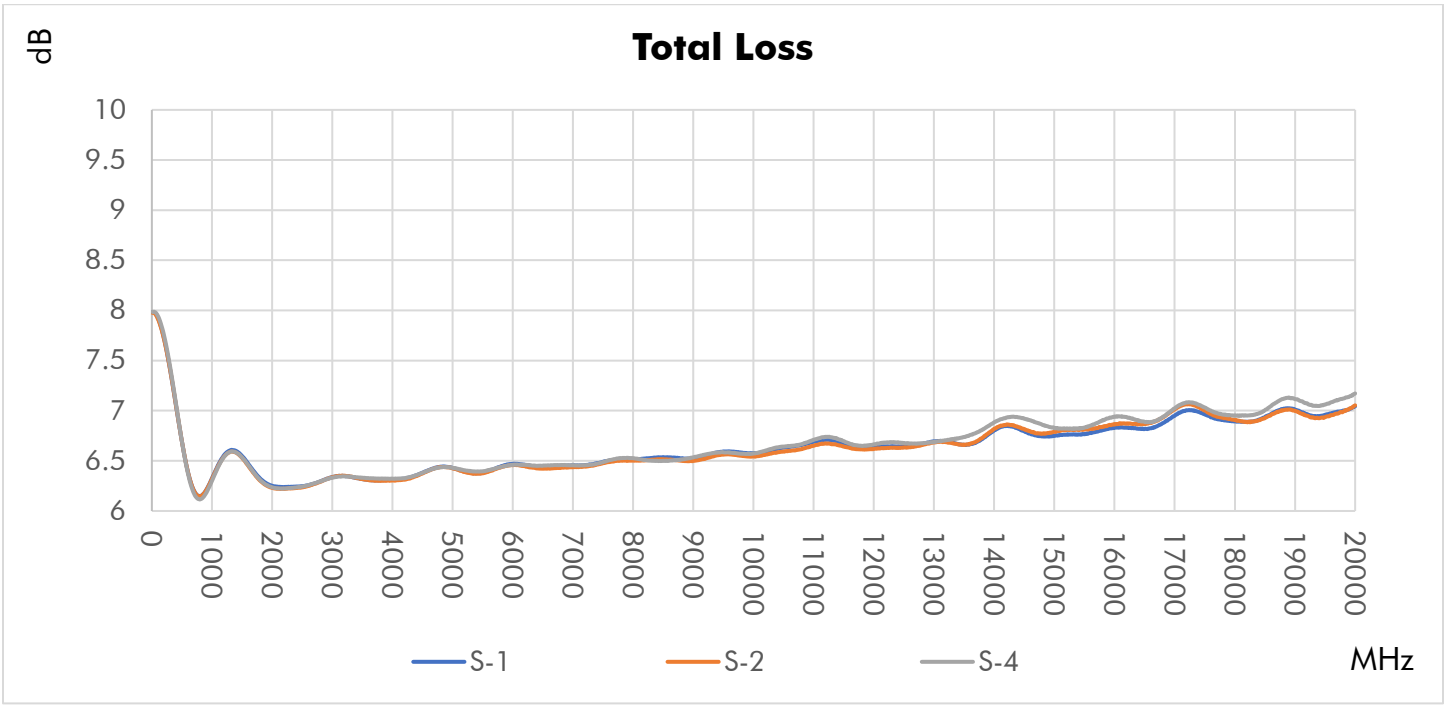
WM4PD-2-18.5-S

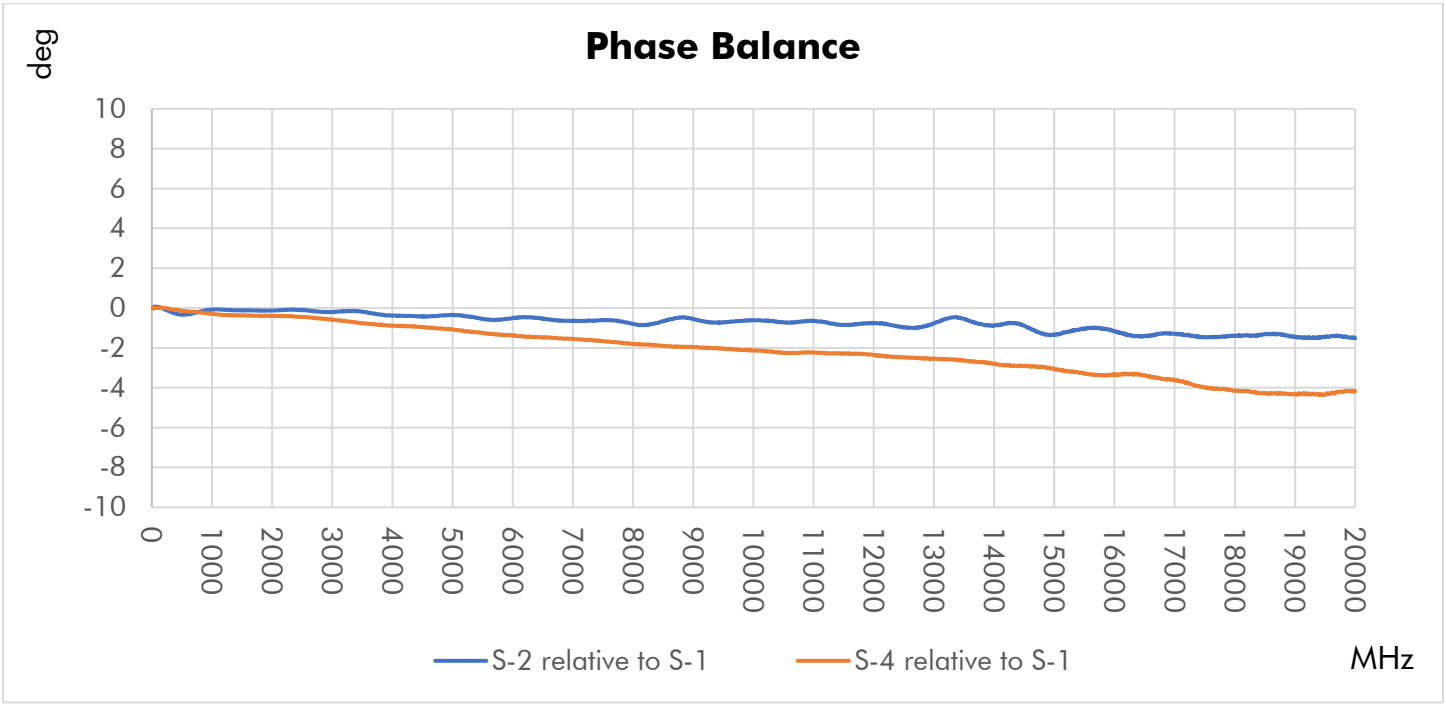
Parameter	Low Band		High Band	Units
Frequency Range	2,000-18,000	–	18,000-18,500	MHz
Impedance		50		Ohm
Return Loss (Port S) (VSWR)	11.7 (1.70)	–	10.9 (1.80)	dB, min (:1, max)
Return Loss (Port 1-4) (VSWR)	11.7 (1.70)	–	10.9 (1.80)	dB, min (:1, max)
Insertion Loss (above 6.02 dB)	0.70 1.80	–	0.90 2.00	dB, typ. dB, max
Isolation	14 20	–	10 31	dB, min dB, typ.
Amplitude Balance	–	0.5 0.8	–	dB, typ. dB, max
Phase Balance	–	3 12	–	Degrees, typ. Degrees, max
Input Power (CW)[1]		30		Watts, max

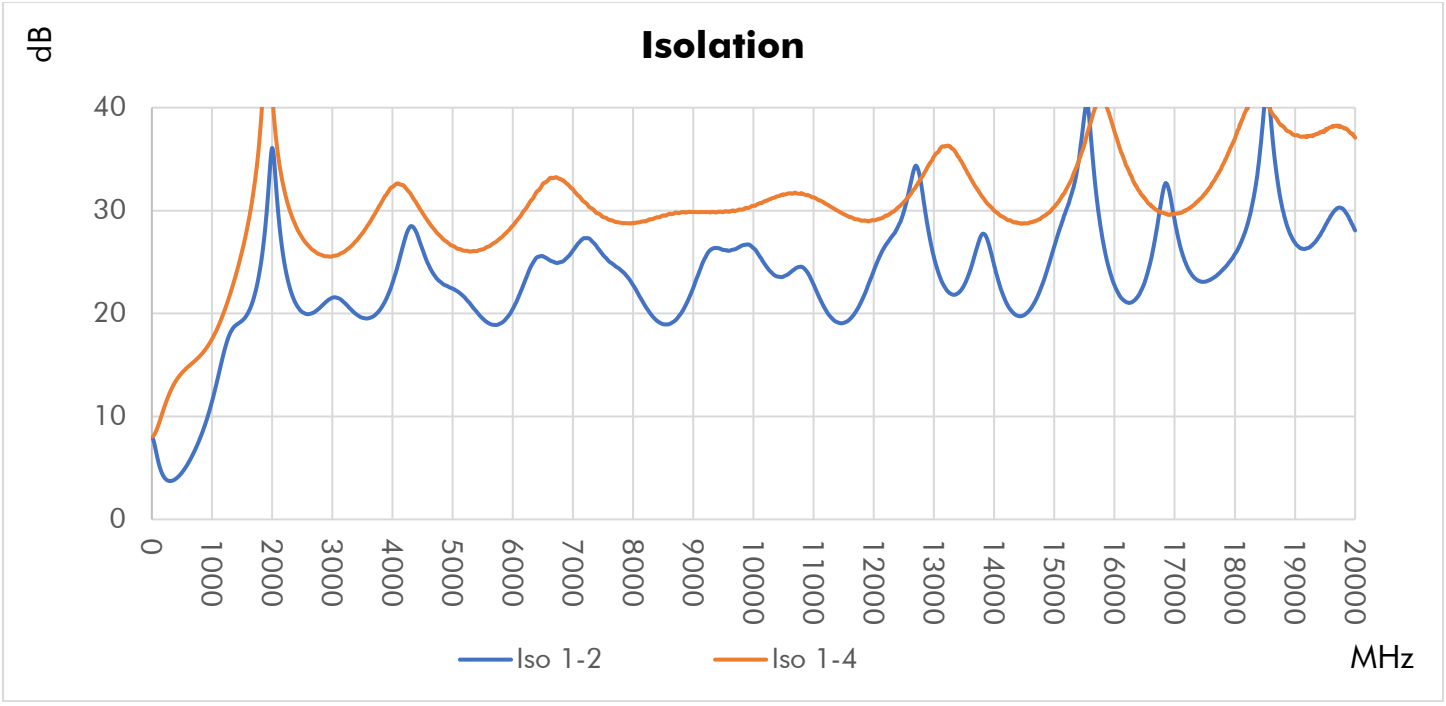
Connector Interface	SMA Female	RoHS Status[3]	RoHS3 Compliant
Operating Temperature[2]	-55 to +85 °C	REACH Status[3]	REACH Unaffected
Storage Temperature	-55 to +100 °C	Enclosure Material	Aluminum
Nominal Weight	115 g (4 oz)	Connectors Material	Stainless Steel
Operating Humidity	10-90% (non-condensing)	Contacts Material	Beryllium Copper, Gold Plated
Operating Environment	Indoor Use Only	Insulators Material	Virgin PTFE
HTSUS Code	8548.00.0000	Finish	Green Paint
ECCN	EAR99	Country of Origin	United States of America

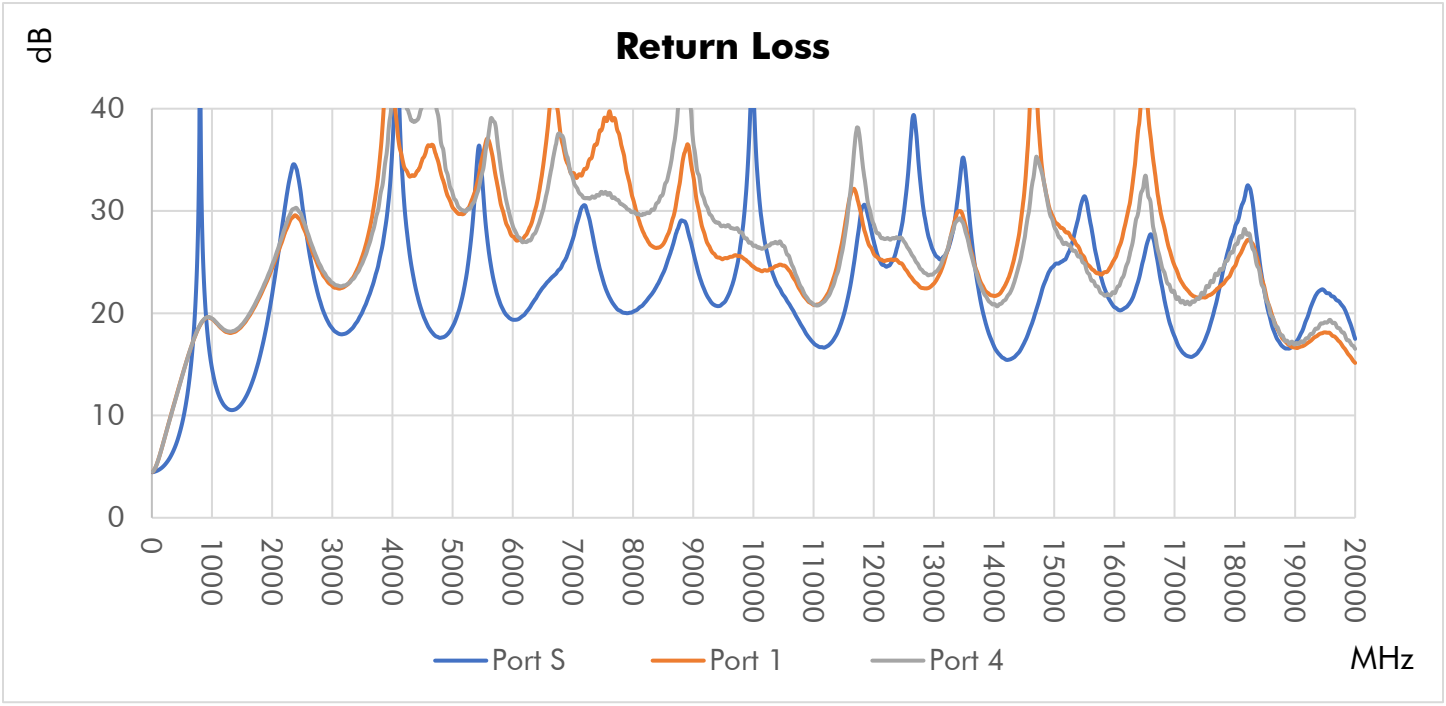
1. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
2. Electrical specifications are tested at +25 °C.
3. To the best of our knowledge at the time of publication.

Typical Performance at +25 °C

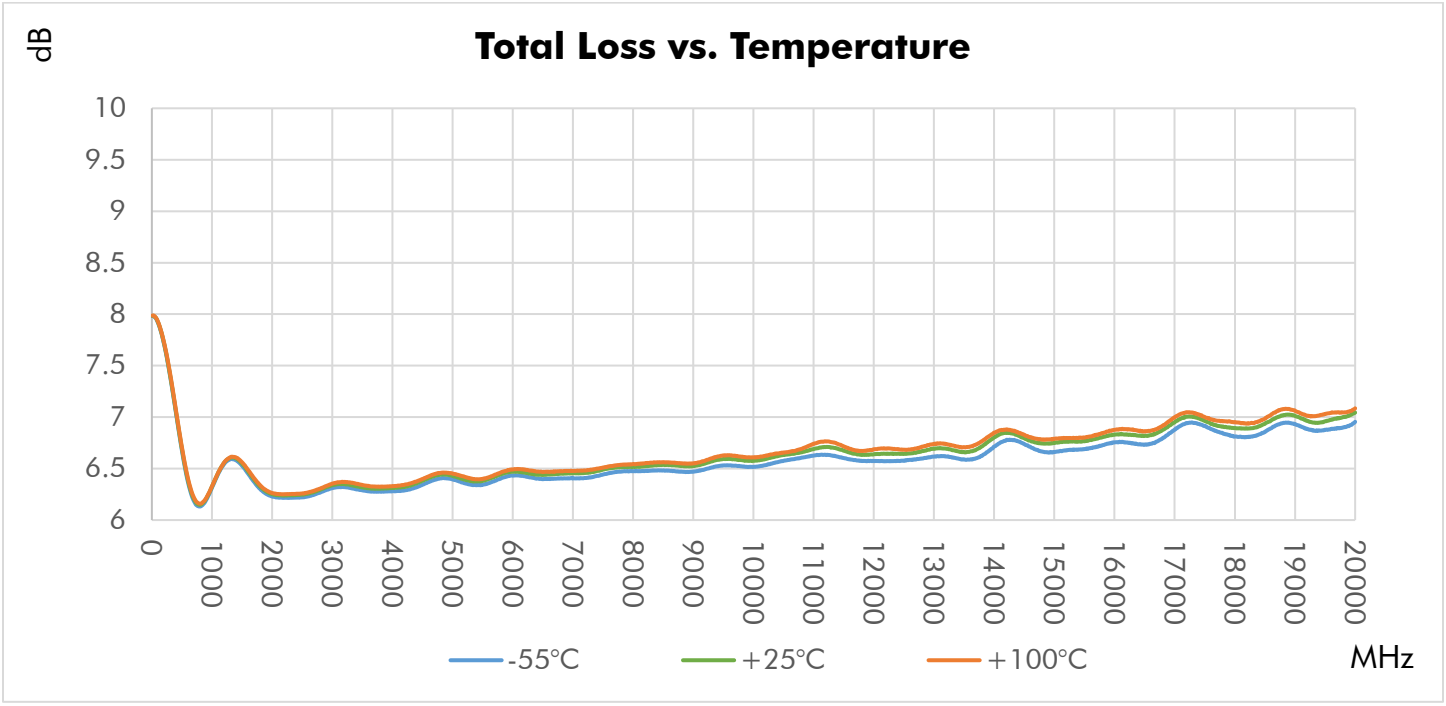


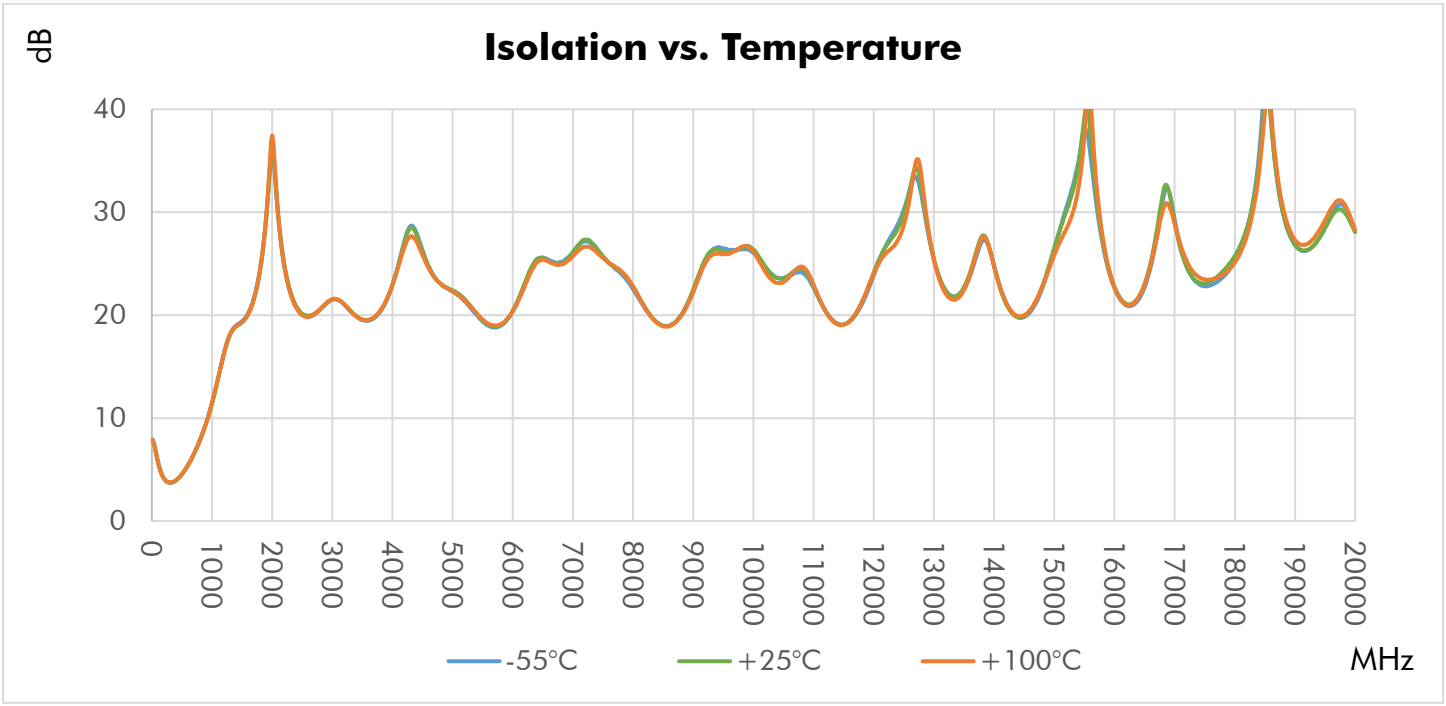


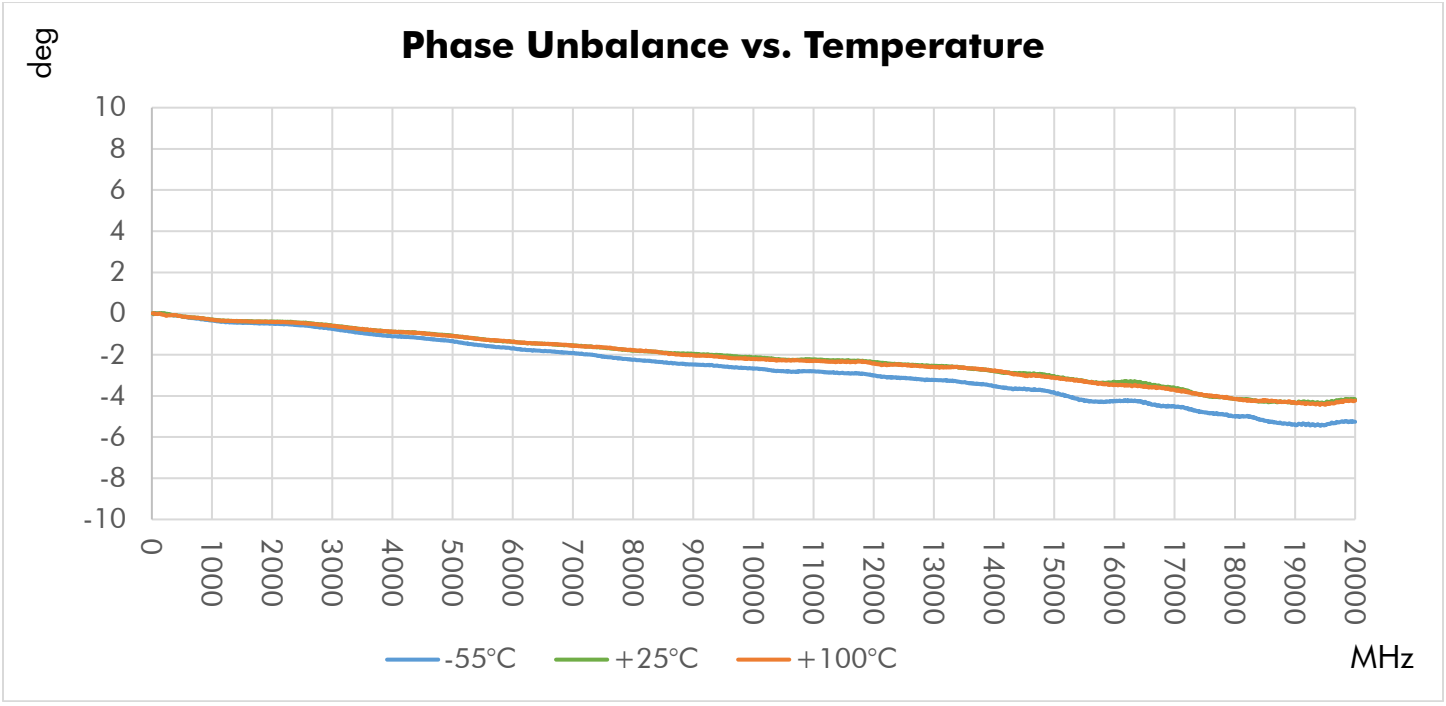

Isolation
dB
40
30
20
10
0
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
16000
17000
18000
19000
20000
Iso 1-2
Iso 1-4
MHz

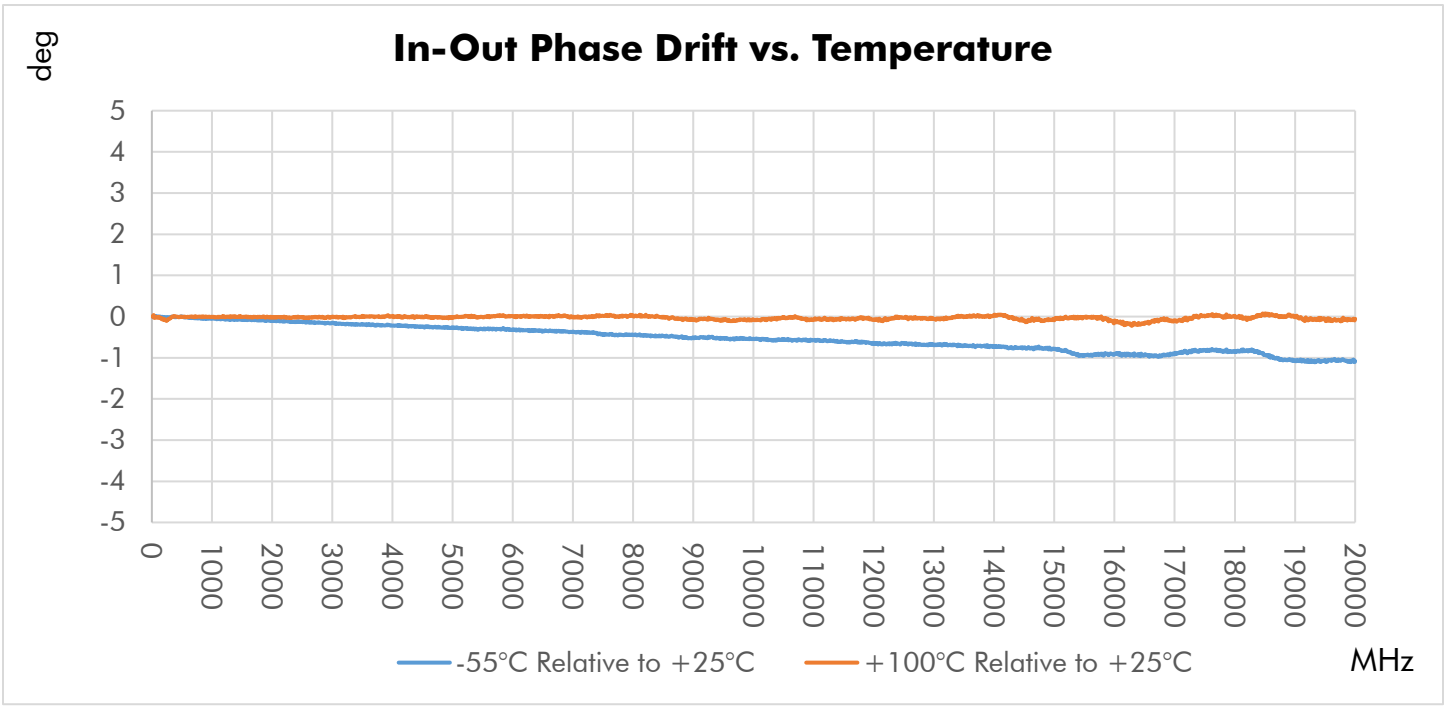

Return Loss
dB
40
30
20
10
0
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
16000
17000
18000
19000
20000
Port S
Port 1
Port 4
MHz

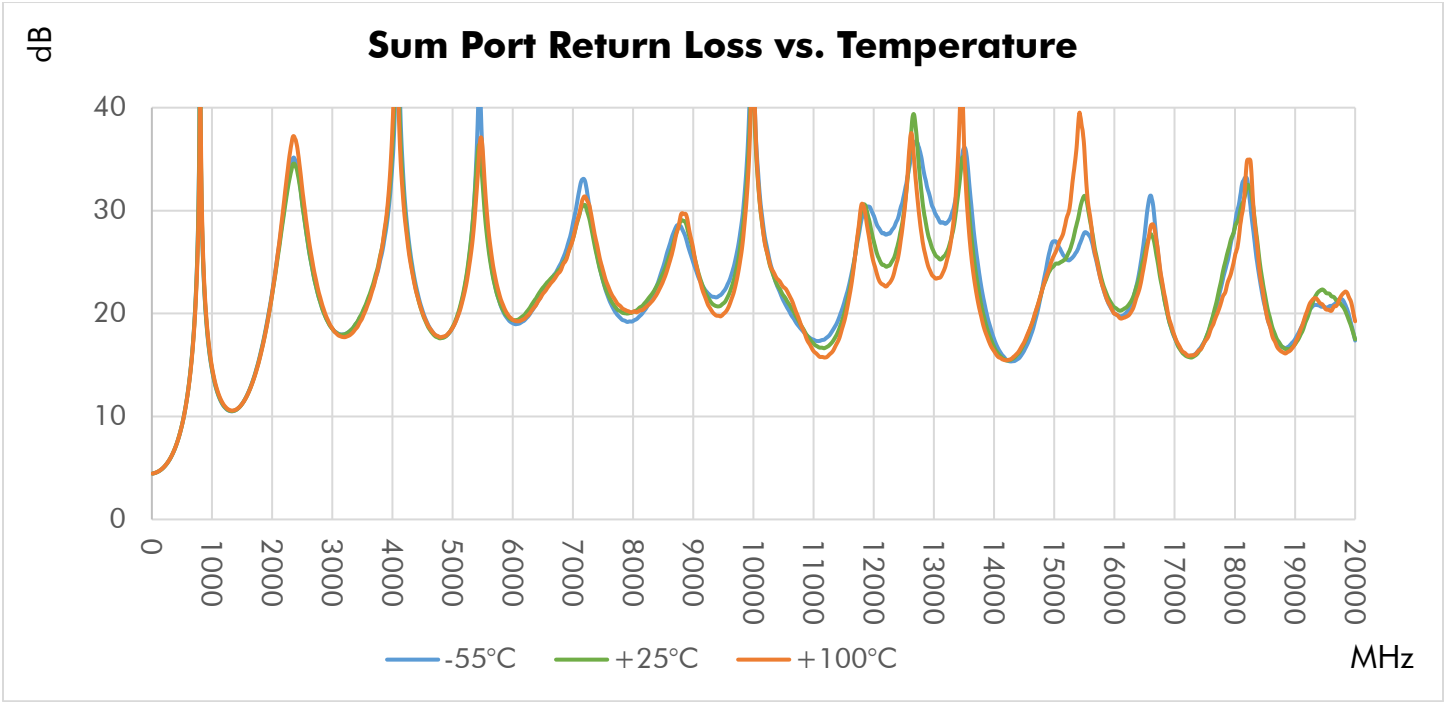
Typical Performance Over Temperature

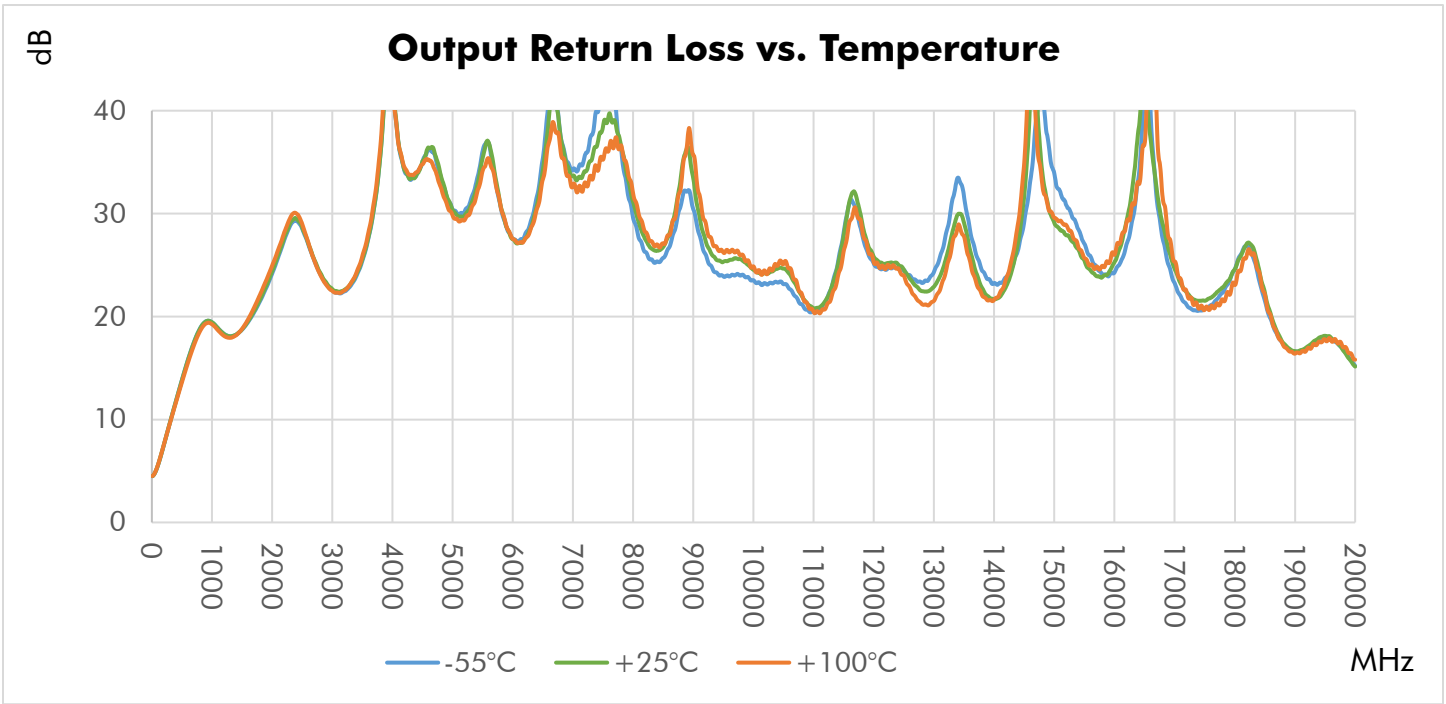





Phase Unbalance vs. Temperature
deg
10
8
6
4
2
0
-2
-4
-6
-8
-10
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
16000
17000
18000
19000
20000
-55°C
+25°C
+100°C
MHz


In-Out Phase Drift vs. Temperature
deg
5
4
3
2
1
0
-1
-2
-3
-4
-5
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
16000
17000
18000
19000
20000
-55°C Relative to +25°C
+100°C Relative to +25°C
MHz

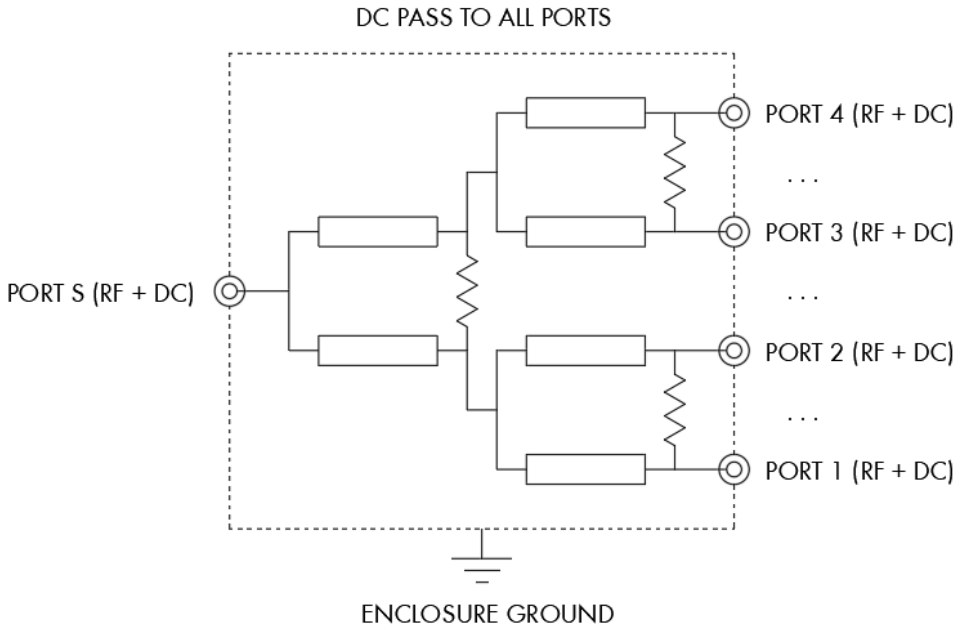

Sum Port Return Loss vs. Temperature
dB
40
30
20
10
0
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
16000
17000
18000
19000
20000
-55°C
+25°C
+100°C
MHz


Output Return Loss vs. Temperature
dB
40
30
20
10
0
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
16000
17000
18000
19000
20000
-55°C
+25°C
+100°C
MHz

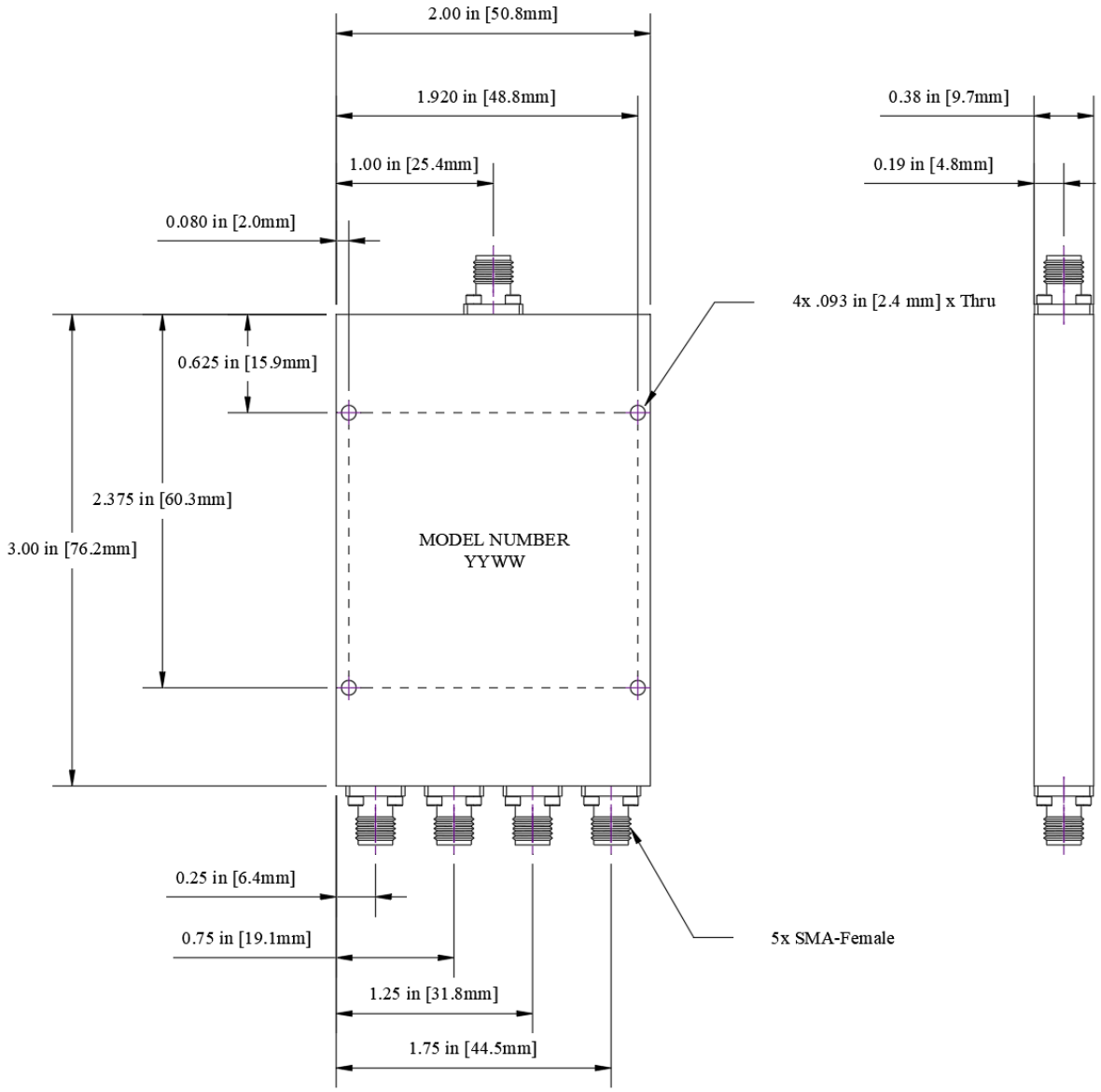
Typical Performance Data

Frequency (MHz)	Return Loss (dB)			Total Loss (dB)		Isolation (dB)	
	Port S	Port 1	Port 4	S-1	S-4	1-2	1-3
2000	21.97	24.24	23.53	6.23	6.21	34.48	38.90
2500	30.60	33.96	30.12	6.22	6.20	20.02	28.94
3000	17.58	25.10	24.64	6.32	6.31	21.76	26.78
3500	19.50	23.71	25.99	6.32	6.28	19.85	28.97
4000	37.10	35.16	40.03	6.27	6.26	24.16	31.71
4500	19.96	35.21	48.12	6.34	6.34	26.34	29.45
5000	19.71	31.06	31.73	6.36	6.33	23.10	26.55
5500	34.24	30.92	39.09	6.34	6.35	18.52	25.20
6000	19.74	27.52	29.54	6.44	6.41	20.18	27.44
6500	23.09	27.14	31.68	6.43	6.39	25.90	31.98
7000	32.04	29.79	34.99	6.43	6.38	26.21	35.84
7500	23.10	26.80	30.16	6.45	6.40	26.10	30.33
8000	19.90	27.13	27.75	6.46	6.42	21.62	28.75
8500	29.85	45.52	30.32	6.45	6.44	19.25	28.98
9000	23.61	32.68	39.73	6.49	6.46	21.78	29.20
9500	23.44	33.50	29.38	6.53	6.50	26.18	29.95
10000	42.05	36.41	28.61	6.52	6.49	26.89	30.58
10500	23.78	32.56	27.05	6.56	6.52	25.13	31.99
11000	16.64	24.10	21.47	6.65	6.63	22.24	29.24
11500	21.18	26.72	26.47	6.61	6.57	19.14	28.44
12000	28.54	32.39	28.31	6.60	6.56	23.59	30.28
12500	42.59	24.06	22.06	6.59	6.58	32.78	34.93
13000	27.72	22.21	21.70	6.62	6.60	23.92	35.00
13500	23.45	21.62	21.19	6.68	6.64	25.58	31.30
14000	15.45	18.90	19.83	6.84	6.81	23.08	30.54
14500	21.06	26.34	29.81	6.75	6.69	20.46	28.41
15000	28.64	23.69	23.05	6.69	6.69	26.63	29.82
15500	26.32	20.40	22.00	6.73	6.69	34.19	36.04
16000	22.71	28.42	34.88	6.76	6.71	21.46	33.52
16500	23.07	29.05	28.72	6.75	6.76	24.53	29.06
17000	18.50	26.93	27.69	6.86	6.82	27.45	28.24
17500	17.93	20.75	18.93	6.85	6.86	25.78	33.99
18000	17.18	22.08	19.13	6.87	6.89	22.86	42.62
18500	16.58	21.05	18.92	6.93	6.94	33.03	30.74

Simplified Electrical Schematic



Outline Dimensions



Outline drawing: OL-4181
Dimensions are in inches, [mm] shown for convenience.
Tolerances on 2-pl decimals: ±.03. 3-pl decimals: ± .015.