

Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 2.75V, Id = 64mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
20	22.55	25.80	10.51	15.85	1.03	0.53	30.81	14.56	1.13
30	22.27	25.29	12.15	16.81	1.03	0.50	33.06	15.77	1.07
40	22.07	25.00	13.12	16.48	1.03	0.48	32.74	16.96	1.04
50	21.92	25.08	14.05	15.81	1.04	0.50	32.52	17.66	1.09
60	21.86	24.80	14.18	15.84	1.04	0.47	32.93	17.76	1.08
70	21.81	24.75	14.40	15.66	1.04	0.47	33.12	17.98	1.09
80	21.77	24.66	14.56	15.63	1.04	0.46	33.16	17.97	1.13
90	21.74	24.76	14.68	15.57	1.04	0.47	33.59	18.03	1.16
100	21.71	24.68	14.74	15.54	1.04	0.46	33.89	18.02	1.15
150	21.64	24.73	14.61	15.65	1.05	0.48	33.29	18.18	1.22
200	21.58	24.76	14.20	15.93	1.05	0.50	34.22	18.24	1.17
250	21.53	24.78	13.65	16.37	1.05	0.51	33.83	18.33	1.16
300	21.47	24.84	13.05	16.85	1.05	0.53	33.09	18.46	1.16
350	21.40	24.90	12.39	17.53	1.05	0.56	32.82	18.44	1.19
400	21.32	25.04	11.77	18.29	1.06	0.59	32.84	18.36	1.21
450	21.23	25.16	11.17	19.18	1.06	0.62	32.38	18.19	1.18
500	21.13	25.29	10.57	20.16	1.07	0.66	32.51	17.98	1.20
550	21.02	25.45	10.05	21.11	1.07	0.70	31.91	18.26	1.20
600	20.90	25.54	9.57	21.97	1.07	0.73	31.67	18.09	1.26
650	20.78	25.66	9.13	22.43	1.08	0.76	31.19	18.17	1.27
700	20.65	25.82	8.78	22.44	1.08	0.79	31.21	18.06	1.25
750	20.50	25.93	8.44	22.00	1.09	0.82	31.08	17.93	1.24
800	20.36	26.01	8.17	21.12	1.09	0.85	30.91	17.88	1.32
850	20.22	26.18	7.94	20.09	1.10	0.87	30.65	18.02	1.27
900	20.09	26.30	7.72	19.00	1.10	0.90	30.36	17.94	1.27
950	19.97	26.41	7.52	17.98	1.10	0.92	30.62	17.89	1.27
1000	19.84	26.48	7.39	17.01	1.11	0.93	30.35	18.08	1.26
1100	19.59	26.66	7.18	15.28	1.11	0.96	30.13	17.89	1.31
1200	19.35	26.80	7.10	13.84	1.12	0.97	30.04	17.89	1.36
1300	19.12	26.93	7.13	12.70	1.12	0.98	30.00	17.66	1.36
1400	18.92	27.01	7.24	11.71	1.13	0.98	29.87	17.67	1.37
1500	18.73	27.07	7.43	10.88	1.13	0.97	29.76	17.80	1.38
1600	18.54	27.11	7.68	10.18	1.13	0.96	29.41	17.58	1.39
1700	18.36	27.17	7.96	9.63	1.14	0.96	29.28	17.18	1.42
1800	18.15	27.21	8.19	9.20	1.14	0.95	29.49	17.42	1.42
1900	17.90	27.27	8.28	8.86	1.15	0.96	29.08	17.32	1.44
2000	17.60	27.37	8.13	8.62	1.16	0.97	28.98	17.12	1.50
2100	17.22	27.51	7.69	8.47	1.17	1.00	28.57	17.00	1.57
2200	16.77	27.80	6.99	8.38	1.19	1.04	28.54	16.80	1.71
2300	16.22	28.15	6.18	8.32	1.22	1.09	28.14	16.76	1.86
2400	15.57	28.46	5.35	8.31	1.24	1.14	27.77	16.54	2.03
2500	14.86	28.93	4.57	8.31	1.28	1.20	27.84	16.53	3.00

Note: Test data of Die packaged in industry standard 3x3 mm, 12-lead MCL package



Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3.00V, Id = 73mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)			(dBm)	(dBm)	(dB)
20	22.74	25.90	10.52	15.57	1.03	0.52	32.76	15.76	1.16
30	22.45	25.37	12.04	16.35	1.03	0.49	34.88	16.98	1.13
40	22.24	25.17	12.91	15.92	1.03	0.48	33.86	18.16	1.08
50	22.09	25.43	13.62	15.26	1.05	0.51	34.02	18.75	1.08
60	22.03	25.00	13.85	15.29	1.04	0.47	34.94	18.84	1.09
70	21.97	24.92	14.08	15.11	1.04	0.46	34.98	18.95	1.11
80	21.93	24.80	14.20	15.08	1.04	0.45	34.69	18.91	1.13
90	21.91	24.87	14.30	15.00	1.04	0.46	34.66	18.98	1.18
100	21.88	24.84	14.35	15.00	1.04	0.46	35.65	19.04	1.17
150	21.81	24.84	14.27	15.08	1.04	0.47	34.88	19.11	1.12
200	21.75	24.91	13.98	15.32	1.05	0.49	36.52	19.25	1.17
250	21.70	24.86	13.49	15.72	1.05	0.49	35.19	19.34	1.17
300	21.65	24.96	13.03	16.13	1.05	0.52	34.53	19.40	1.16
350	21.59	25.02	12.47	16.71	1.05	0.54	34.69	19.38	1.17
400	21.52	25.18	11.94	17.36	1.06	0.58	34.35	19.29	1.18
450	21.44	25.23	11.39	18.10	1.06	0.60	33.97	19.14	1.19
500	21.35	25.41	10.83	18.97	1.06	0.64	33.79	18.92	1.21
550	21.25	25.51	10.36	19.81	1.07	0.67	33.11	19.23	1.21
600	21.15	25.62	9.88	20.69	1.07	0.70	32.96	19.04	1.26
650	21.03	25.71	9.46	21.40	1.07	0.73	32.91	19.04	1.27
700	20.91	25.85	9.11	21.87	1.08	0.76	32.61	18.94	1.24
750	20.78	25.97	8.78	21.93	1.09	0.79	32.36	18.89	1.23
800	20.64	26.11	8.50	21.55	1.09	0.82	32.23	18.77	1.19
850	20.52	26.27	8.26	20.89	1.10	0.85	32.18	19.01	1.25
900	20.39	26.35	8.03	20.02	1.10	0.87	31.73	18.94	1.23
950	20.28	26.53	7.83	19.05	1.11	0.89	31.91	18.80	1.25
1000	20.15	26.57	7.68	18.06	1.11	0.91	31.67	19.02	1.25
1100	19.91	26.76	7.46	16.26	1.12	0.94	31.41	18.92	1.31
1200	19.67	26.92	7.36	14.71	1.13	0.95	31.52	18.93	1.32
1300	19.45	27.07	7.39	13.43	1.14	0.96	31.27	18.71	1.33
1400	19.25	27.16	7.49	12.32	1.14	0.96	31.15	18.64	1.34
1500	19.07	27.24	7.69	11.41	1.15	0.96	31.08	18.80	1.37
1600	18.90	27.34	7.98	10.62	1.16	0.95	30.82	18.59	1.40
1700	18.73	27.32	8.33	9.99	1.16	0.94	30.49	18.09	1.42
1800	18.54	27.35	8.66	9.49	1.16	0.93	30.88	18.49	1.40
1900	18.33	27.42	8.87	9.08	1.16	0.94	30.42	18.42	1.46
2000	18.06	27.56	8.83	8.79	1.18	0.95	30.48	18.13	1.48
2100	17.73	27.66	8.46	8.60	1.19	0.97	29.90	18.14	1.56
2200	17.31	27.89	7.72	8.51	1.20	1.01	29.88	17.86	1.71
2300	16.78	28.22	6.80	8.47	1.23	1.06	29.49	17.83	1.86
2400	16.15	28.66	5.85	8.47	1.27	1.12	29.16	17.53	2.08
2500	15.43	29.10	4.97	8.51	1.31	1.18	29.36	17.68	2.36

Note: Test data of Die packaged in industry standard 3x3 mm, 12-lead MCL package



Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3.25V, Id = 81mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)			(dBm)	(dBm)	(dB)
20	22.87	25.93	10.51	15.50	1.02	0.51	33.20	16.78	1.11
30	22.57	25.45	11.98	15.94	1.02	0.48	35.23	18.08	1.06
40	22.37	25.23	12.79	15.47	1.03	0.47	34.63	19.16	1.02
50	22.21	25.81	13.40	14.83	1.06	0.53	34.99	19.72	1.07
60	22.15	25.11	13.67	14.86	1.04	0.46	36.53	19.79	1.07
70	22.09	25.00	13.88	14.70	1.04	0.45	35.67	19.82	1.10
80	22.05	24.92	13.99	14.66	1.03	0.44	35.38	19.76	1.10
90	22.02	24.98	14.08	14.57	1.04	0.45	36.43	19.83	1.13
100	22.00	24.90	14.13	14.57	1.04	0.45	35.11	19.89	1.14
150	21.93	24.98	14.10	14.61	1.04	0.46	36.98	19.95	1.21
200	21.87	25.00	13.87	14.86	1.05	0.48	35.92	20.02	1.16
250	21.83	25.00	13.47	15.24	1.05	0.49	35.49	20.13	1.17
300	21.78	25.09	13.09	15.63	1.05	0.51	36.50	20.26	1.16
350	21.72	25.17	12.59	16.18	1.05	0.54	35.92	20.24	1.17
400	21.66	25.26	12.12	16.81	1.06	0.56	35.57	20.16	1.19
450	21.59	25.36	11.62	17.56	1.06	0.59	34.76	20.01	1.17
500	21.50	25.45	11.10	18.39	1.06	0.62	35.31	19.71	1.19
550	21.41	25.56	10.64	19.24	1.07	0.65	34.01	20.12	1.19
600	21.31	25.69	10.19	20.10	1.07	0.68	33.75	19.92	1.24
650	21.21	25.82	9.80	20.87	1.08	0.72	33.91	19.94	1.25
700	21.10	25.95	9.45	21.39	1.08	0.75	33.53	19.83	1.23
750	20.97	26.06	9.12	21.62	1.09	0.77	33.03	19.71	1.23
800	20.85	26.21	8.86	21.38	1.10	0.80	33.23	19.59	1.28
850	20.73	26.26	8.63	20.86	1.10	0.82	32.76	19.85	1.24
900	20.62	26.42	8.41	20.06	1.11	0.85	32.51	19.78	1.25
950	20.51	26.52	8.22	19.13	1.11	0.87	32.92	19.64	1.21
1000	20.40	26.62	8.07	18.19	1.11	0.88	32.66	19.88	1.24
1100	20.17	26.79	7.86	16.40	1.12	0.91	32.44	19.79	1.30
1200	19.96	26.95	7.77	14.84	1.13	0.93	32.16	19.81	1.33
1300	19.76	27.06	7.82	13.59	1.14	0.93	32.20	19.60	1.35
1400	19.57	27.17	7.94	12.50	1.14	0.93	32.24	19.53	1.34
1500	19.40	27.26	8.15	11.59	1.15	0.93	31.97	19.70	1.33
1600	19.23	27.34	8.44	10.84	1.15	0.93	31.45	19.41	1.39
1700	19.07	27.40	8.76	10.23	1.16	0.92	31.29	18.97	1.37
1800	18.88	27.45	9.05	9.77	1.16	0.92	31.53	19.40	1.37
1900	18.66	27.55	9.18	9.39	1.17	0.93	30.94	19.24	1.40
2000	18.38	27.69	9.03	9.12	1.18	0.94	31.06	19.03	1.47
2100	18.05	27.85	8.55	8.95	1.20	0.97	30.66	18.96	1.52
2200	17.64	28.07	7.76	8.84	1.21	1.01	30.59	18.75	1.63
2300	17.13	28.33	6.83	8.79	1.22	1.06	30.19	18.66	1.78
2400	16.53	28.73	5.88	8.77	1.25	1.12	29.86	18.36	1.95
2500	15.86	29.14	5.00	8.76	1.27	1.18	29.89	18.47	2.24

Note: Test data of Die packaged in industry standard 3x3 mm, 12-lead MCL package



Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4.75V, Id = 134mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)			(dBm)	(dBm)	(dB)
20	23.37	26.36	10.44	14.76	1.02	0.49	36.40	21.36	1.17
30	23.04	25.86	11.65	14.81	1.02	0.46	39.34	22.32	1.09
40	22.82	25.61	12.23	14.31	1.02	0.44	39.72	23.00	1.04
50	22.66	25.97	12.77	13.69	1.04	0.49	36.78	23.36	1.09
60	22.60	25.46	12.83	13.68	1.03	0.43	38.54	23.32	1.11
70	22.54	25.38	12.97	13.54	1.03	0.42	41.60	23.32	1.10
80	22.49	25.36	13.02	13.48	1.03	0.42	38.21	23.24	1.15
90	22.47	25.40	13.12	13.41	1.04	0.43	40.48	23.38	1.14
100	22.44	25.36	13.17	13.39	1.04	0.43	38.87	23.36	1.15
150	22.37	25.36	13.21	13.38	1.04	0.43	39.42	23.44	1.24
200	22.33	25.36	13.19	13.51	1.04	0.44	42.51	23.59	1.18
250	22.30	25.36	13.06	13.73	1.04	0.45	39.89	23.73	1.18
300	22.27	25.45	12.93	13.96	1.05	0.47	37.61	23.81	1.16
350	22.23	25.47	12.73	14.25	1.05	0.48	39.37	23.81	1.20
400	22.19	25.58	12.51	14.59	1.05	0.50	37.85	23.71	1.19
450	22.15	25.65	12.25	14.97	1.06	0.52	38.47	23.52	1.18
500	22.09	25.72	11.91	15.39	1.06	0.55	37.80	23.31	1.19
550	22.04	25.85	11.62	15.77	1.07	0.57	38.31	23.76	1.20
600	21.97	25.94	11.30	16.17	1.07	0.59	37.76	23.47	1.25
650	21.90	26.04	10.99	16.49	1.08	0.62	36.69	23.53	1.25
700	21.83	26.14	10.72	16.76	1.08	0.64	36.68	23.43	1.23
750	21.74	26.22	10.45	16.97	1.09	0.66	36.40	23.23	1.21
800	21.65	26.42	10.23	17.04	1.10	0.69	35.79	23.23	1.23
850	21.57	26.50	10.04	17.10	1.10	0.71	36.35	23.44	1.22
900	21.49	26.62	9.83	16.98	1.11	0.73	35.67	23.27	1.24
950	21.41	26.69	9.64	16.73	1.11	0.74	35.09	23.16	1.25
1000	21.33	26.84	9.50	16.39	1.12	0.76	36.12	23.55	1.20
1100	21.16	27.02	9.30	15.52	1.14	0.79	35.59	23.35	1.27
1200	21.00	27.26	9.24	14.55	1.15	0.81	35.31	23.40	1.30
1300	20.84	27.47	9.30	13.62	1.17	0.82	34.86	23.01	1.32
1400	20.70	27.69	9.47	12.77	1.19	0.83	34.81	22.95	1.33
1500	20.57	27.82	9.75	11.97	1.20	0.83	34.64	23.15	1.31
1600	20.44	27.99	10.13	11.33	1.21	0.83	34.11	22.77	1.34
1700	20.31	28.18	10.60	10.79	1.23	0.84	33.13	22.07	1.33
1800	20.17	28.35	11.05	10.36	1.25	0.84	34.08	22.88	1.36
1900	20.00	28.55	11.36	10.01	1.27	0.85	33.55	22.74	1.38
2000	19.80	28.69	11.26	9.75	1.27	0.87	33.32	22.42	1.42
2100	19.54	28.92	10.68	9.56	1.29	0.90	33.93	22.45	1.48
2200	19.22	29.28	9.65	9.42	1.31	0.95	32.50	22.07	1.59
2300	18.81	29.70	8.43	9.33	1.34	1.00	32.51	22.11	1.73
2400	18.32	30.14	7.19	9.23	1.37	1.06	32.16	21.68	1.89
2500	17.75	30.53	6.05	9.15	1.38	1.12	32.50	21.90	2.16

Note: Test data of Die packaged in industry standard 3x3 mm, 12-lead MCL package



Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.00V, Id = 143mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)			(dBm)	(dBm)	(dB)
20	23.44	26.51	10.42	14.74	1.02	0.50	38.03	21.98	1.20
30	23.11	25.94	11.59	14.76	1.02	0.46	38.75	22.79	1.16
40	22.88	25.69	12.12	14.23	1.02	0.44	39.63	23.39	1.10
50	22.72	25.49	12.71	13.77	1.03	0.42	39.07	23.80	1.09
60	22.65	25.47	12.70	13.63	1.03	0.43	39.61	23.70	1.11
70	22.59	25.40	12.83	13.47	1.03	0.42	42.10	23.76	1.11
80	22.55	25.47	12.89	13.42	1.03	0.43	40.26	23.69	1.14
90	22.52	25.31	12.99	13.37	1.03	0.41	42.01	23.76	1.17
100	22.50	25.38	13.02	13.33	1.03	0.42	37.95	23.80	1.19
150	22.43	25.35	13.07	13.32	1.04	0.42	41.98	23.82	1.16
200	22.38	25.39	13.03	13.43	1.04	0.44	40.57	23.97	1.18
250	22.35	25.46	12.94	13.59	1.04	0.45	37.96	24.11	1.16
300	22.33	25.47	12.82	13.79	1.05	0.46	38.94	24.25	1.16
350	22.29	25.57	12.64	14.03	1.05	0.48	36.74	24.19	1.18
400	22.25	25.60	12.45	14.30	1.05	0.49	36.45	24.17	1.21
450	22.22	25.67	12.21	14.59	1.06	0.51	37.28	23.98	1.19
500	22.16	25.75	11.91	14.93	1.06	0.53	38.33	23.78	1.19
550	22.11	25.87	11.67	15.22	1.07	0.56	38.08	24.14	1.20
600	22.05	25.94	11.35	15.53	1.07	0.58	37.21	23.93	1.28
650	21.98	26.06	11.06	15.77	1.08	0.60	37.95	24.00	1.28
700	21.91	26.17	10.82	15.98	1.08	0.62	37.12	23.81	1.23
750	21.83	26.34	10.56	16.14	1.09	0.65	36.45	23.70	1.23
800	21.74	26.40	10.34	16.22	1.10	0.67	36.52	23.62	1.20
850	21.67	26.50	10.16	16.29	1.10	0.69	36.32	23.83	1.22
900	21.59	26.59	9.94	16.22	1.11	0.71	36.16	23.76	1.23
950	21.52	26.73	9.77	16.07	1.12	0.73	35.94	23.66	1.23
1000	21.44	26.83	9.63	15.81	1.12	0.74	36.80	24.05	1.22
1100	21.27	27.07	9.41	15.11	1.14	0.77	36.25	23.74	1.26
1200	21.11	27.34	9.32	14.29	1.16	0.80	35.24	23.79	1.32
1300	20.95	27.58	9.38	13.46	1.18	0.81	35.24	23.51	1.32
1400	20.81	27.76	9.53	12.66	1.20	0.82	35.32	23.45	1.30
1500	20.68	27.94	9.81	11.90	1.21	0.82	35.24	23.53	1.35
1600	20.55	28.15	10.22	11.26	1.23	0.82	34.29	23.27	1.34
1700	20.43	28.27	10.76	10.72	1.24	0.82	33.98	22.46	1.34
1800	20.30	28.48	11.34	10.28	1.26	0.83	34.57	23.39	1.34
1900	20.15	28.64	11.80	9.91	1.28	0.83	34.35	23.26	1.42
2000	19.97	28.98	11.92	9.63	1.31	0.85	33.93	22.85	1.44
2100	19.74	29.21	11.47	9.42	1.33	0.88	34.05	22.90	1.51
2200	19.44	29.52	10.42	9.29	1.35	0.92	33.06	22.43	1.65
2300	19.05	29.90	9.07	9.19	1.37	0.97	33.40	22.47	1.78
2400	18.56	30.34	7.70	9.12	1.40	1.03	32.57	22.04	1.96
2500	17.99	30.83	6.45	9.03	1.43	1.10	32.95	22.25	2.24

Note: Test data of Die packaged in industry standard 3x3 mm, 12-lead MCL package



Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.25V, Id = 151mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)			(dBm)	(dBm)	(dB)
20	23.47	26.51	10.43	14.70	1.02	0.49	35.45	22.49	1.22
30	23.14	25.93	11.56	14.74	1.02	0.45	40.19	23.18	1.14
40	22.91	25.70	12.11	14.19	1.02	0.44	38.43	23.84	1.10
50	22.75	25.25	12.57	13.72	1.02	0.39	40.22	24.20	1.14
60	22.68	25.51	12.66	13.55	1.03	0.43	38.35	24.16	1.14
70	22.62	25.46	12.79	13.41	1.03	0.42	44.88	24.15	1.11
80	22.58	25.52	12.85	13.35	1.04	0.43	39.98	24.08	1.15
90	22.55	25.36	12.94	13.31	1.03	0.41	39.60	24.22	1.17
100	22.52	25.37	12.98	13.26	1.03	0.42	37.44	24.20	1.20
150	22.46	25.42	13.06	13.24	1.04	0.43	42.74	24.28	1.24
200	22.41	25.44	13.04	13.33	1.04	0.44	39.31	24.44	1.18
250	22.39	25.52	12.97	13.50	1.04	0.45	37.42	24.58	1.19
300	22.36	25.48	12.87	13.68	1.04	0.46	41.52	24.66	1.20
350	22.32	25.61	12.69	13.92	1.05	0.48	38.79	24.67	1.21
400	22.29	25.65	12.52	14.17	1.05	0.49	38.50	24.66	1.22
450	22.25	25.69	12.32	14.48	1.06	0.51	39.29	24.47	1.22
500	22.20	25.81	12.02	14.80	1.06	0.53	38.38	24.20	1.21
550	22.15	25.92	11.77	15.07	1.07	0.56	38.41	24.64	1.22
600	22.09	25.98	11.49	15.35	1.07	0.57	38.87	24.44	1.29
650	22.02	26.06	11.20	15.57	1.07	0.59	37.71	24.43	1.28
700	21.96	26.19	10.96	15.70	1.08	0.62	38.09	24.33	1.26
750	21.87	26.29	10.70	15.82	1.09	0.64	37.14	24.13	1.24
800	21.79	26.46	10.50	15.85	1.10	0.66	36.78	24.15	1.28
850	21.72	26.52	10.32	15.84	1.10	0.68	37.58	24.36	1.28
900	21.64	26.64	10.13	15.73	1.11	0.70	36.57	24.29	1.24
950	21.57	26.73	9.94	15.54	1.11	0.71	36.09	24.20	1.25
1000	21.50	26.85	9.82	15.26	1.12	0.73	36.88	24.59	1.26
1100	21.34	27.11	9.62	14.56	1.14	0.76	36.16	24.29	1.29
1200	21.19	27.34	9.56	13.77	1.16	0.78	36.24	24.35	1.35
1300	21.04	27.55	9.64	13.00	1.17	0.79	35.78	23.97	1.34
1400	20.90	27.78	9.83	12.26	1.19	0.80	35.37	23.91	1.35
1500	20.78	28.02	10.13	11.58	1.21	0.81	36.00	24.10	1.36
1600	20.65	28.17	10.53	11.01	1.23	0.81	35.15	23.73	1.37
1700	20.54	28.43	11.05	10.54	1.25	0.81	34.28	22.91	1.37
1800	20.40	28.59	11.56	10.16	1.27	0.82	35.20	23.85	1.37
1900	20.25	28.93	11.90	9.82	1.30	0.84	35.11	23.72	1.38
2000	20.05	29.16	11.83	9.58	1.32	0.86	34.23	23.39	1.44
2100	19.81	29.46	11.21	9.39	1.34	0.89	34.68	23.43	1.50
2200	19.51	29.82	10.12	9.23	1.37	0.93	33.76	22.85	1.61
2300	19.12	30.24	8.81	9.10	1.39	0.98	33.42	22.89	1.76
2400	18.65	30.64	7.50	8.98	1.41	1.04	32.60	22.47	1.94
2500	18.11	31.18	6.32	8.84	1.44	1.10	33.09	22.82	3.16

Note: Test data of Die packaged in industry standard 3x3 mm, 12-lead MCL package



MMIC Amplifier Die

TSS-23HLN-D+

Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 7.60V, Id = 224mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)			(dBm)	(dBm)	(dB)
20	23.64	26.42	10.43	14.93	1.02	0.46	37.10	25.81	1.43
30	23.29	26.11	11.40	14.80	1.02	0.46	37.46	25.89	1.34
40	23.06	25.81	11.84	14.20	1.02	0.43	42.33	27.04	1.29
50	22.88	26.31	12.33	13.56	1.05	0.50	38.72	27.41	1.33
60	22.82	25.68	12.28	13.54	1.03	0.43	42.21	27.07	1.30
70	22.76	25.60	12.37	13.37	1.03	0.42	41.75	26.92	1.30
80	22.71	25.55	12.41	13.31	1.03	0.42	39.46	27.17	1.34
90	22.68	25.60	12.48	13.23	1.04	0.43	43.53	27.22	1.36
100	22.66	25.54	12.51	13.20	1.03	0.42	37.86	27.20	1.34
150	22.59	25.59	12.56	13.09	1.04	0.43	42.24	27.31	1.42
200	22.55	25.61	12.57	13.12	1.04	0.44	42.46	27.45	1.37
250	22.52	25.58	12.54	13.19	1.04	0.44	38.55	27.57	1.34
300	22.49	25.64	12.51	13.21	1.05	0.45	41.92	27.73	1.32
350	22.46	25.68	12.41	13.30	1.05	0.46	41.61	27.71	1.35
400	22.43	25.84	12.30	13.36	1.05	0.48	41.84	27.72	1.38
450	22.40	25.86	12.16	13.43	1.06	0.49	43.02	27.61	1.34
500	22.35	25.91	11.95	13.52	1.06	0.51	42.72	27.47	1.37
550	22.30	26.04	11.76	13.52	1.07	0.53	44.56	27.81	1.39
600	22.25	26.16	11.55	13.55	1.07	0.55	47.18	27.72	1.43
650	22.19	26.23	11.34	13.49	1.08	0.56	41.99	27.76	1.43
700	22.13	26.38	11.14	13.40	1.08	0.58	43.66	27.68	1.40
750	22.06	26.47	10.93	13.31	1.09	0.60	42.19	27.59	1.40
800	21.99	26.63	10.78	13.16	1.10	0.62	42.07	27.56	1.41
850	21.92	26.74	10.63	13.04	1.11	0.63	42.16	27.83	1.41
900	21.86	26.83	10.46	12.86	1.11	0.64	40.39	27.72	1.40
950	21.79	26.98	10.31	12.66	1.12	0.66	42.83	27.75	1.41
1000	21.73	27.11	10.20	12.41	1.13	0.67	42.72	28.04	1.37
1100	21.58	27.37	10.04	11.90	1.15	0.69	41.55	27.85	1.43
1200	21.44	27.63	10.02	11.38	1.17	0.71	43.81	27.93	1.46
1300	21.30	27.95	10.14	10.84	1.19	0.73	41.71	27.82	1.43
1400	21.17	28.20	10.36	10.36	1.21	0.74	44.66	27.76	1.49
1500	21.06	28.49	10.71	9.88	1.24	0.74	43.71	27.81	1.50
1600	20.94	28.78	11.18	9.48	1.26	0.75	41.74	27.56	1.49
1700	20.83	29.16	11.75	9.15	1.30	0.76	45.53	26.99	1.50
1800	20.70	29.46	12.32	8.85	1.33	0.77	44.51	27.65	1.51
1900	20.55	29.85	12.68	8.57	1.36	0.79	43.38	27.42	1.55
2000	20.36	30.28	12.55	8.34	1.40	0.81	43.23	27.32	1.60
2100	20.13	30.67	11.83	8.12	1.43	0.84	42.43	27.13	1.72
2200	19.85	31.25	10.61	7.90	1.48	0.88	43.11	27.07	1.83
2300	19.48	31.89	9.21	7.68	1.54	0.92	41.64	26.82	1.97
2400	19.05	32.54	7.83	7.45	1.59	0.97	41.69	26.24	2.17
2500	18.54	33.13	6.58	7.19	1.61	1.02	42.32	26.73	2.47

Note: Test data of Die packaged in industry standard 3x3 mm, 12-lead MCL package



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IF/RF MICROWAVE COMPONENTS

REV. OR
 TSS-23HLN-D+
 6/6/2019

Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 8.00V, Id = 236mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)			(dBm)	(dBm)	(dB)
20	23.65	26.47	10.44	14.98	1.02	0.46	37.83	26.16	1.52
30	23.29	26.02	11.37	14.91	1.02	0.45	39.91	26.25	1.73
40	23.06	25.93	11.78	14.24	1.03	0.45	40.11	27.45	1.35
50	22.89	25.32	11.99	13.75	1.02	0.38	39.72	27.75	1.37
60	22.82	25.64	12.17	13.61	1.03	0.43	41.71	27.43	1.36
70	22.76	25.68	12.28	13.43	1.03	0.43	47.00	27.26	1.35
80	22.71	25.61	12.32	13.36	1.03	0.43	46.38	27.52	1.38
90	22.68	25.60	12.36	13.31	1.03	0.43	41.24	27.87	1.42
100	22.66	25.63	12.40	13.25	1.04	0.43	39.34	27.57	1.42
150	22.59	25.59	12.46	13.18	1.04	0.43	42.26	27.69	1.38
200	22.55	25.61	12.45	13.16	1.04	0.44	43.06	27.80	1.40
250	22.52	25.66	12.40	13.20	1.04	0.45	40.83	27.90	1.36
300	22.49	25.69	12.37	13.22	1.05	0.46	41.47	28.06	1.38
350	22.46	25.77	12.26	13.25	1.05	0.47	38.36	28.08	1.38
400	22.43	25.78	12.16	13.30	1.05	0.48	40.73	28.09	1.42
450	22.39	25.91	12.03	13.32	1.06	0.50	41.80	27.94	1.39
500	22.35	25.92	11.82	13.37	1.06	0.50	42.10	27.86	1.40
550	22.30	26.07	11.67	13.35	1.07	0.53	44.94	28.18	1.40
600	22.25	26.20	11.45	13.33	1.07	0.55	41.73	28.04	1.47
650	22.19	26.28	11.23	13.26	1.08	0.56	42.95	28.15	1.47
700	22.14	26.37	11.05	13.17	1.08	0.57	40.51	28.06	1.45
750	22.06	26.45	10.85	13.04	1.09	0.59	44.14	27.98	1.42
800	21.99	26.62	10.69	12.92	1.10	0.61	42.21	27.96	1.42
850	21.92	26.74	10.55	12.79	1.10	0.63	41.75	28.15	1.42
900	21.86	26.88	10.39	12.62	1.11	0.64	43.41	28.12	1.42
950	21.79	26.99	10.23	12.45	1.12	0.65	42.74	28.16	1.44
1000	21.72	27.09	10.12	12.21	1.13	0.67	41.51	28.43	1.41
1100	21.57	27.41	9.95	11.73	1.15	0.69	42.36	28.22	1.47
1200	21.43	27.69	9.90	11.22	1.17	0.71	43.66	28.30	1.47
1300	21.28	27.98	10.01	10.73	1.19	0.73	41.50	28.20	1.51
1400	21.15	28.31	10.21	10.26	1.22	0.74	41.93	28.13	1.51
1500	21.03	28.63	10.55	9.79	1.25	0.75	42.47	28.10	1.51
1600	20.91	28.87	11.03	9.39	1.27	0.75	42.06	27.93	1.54
1700	20.80	29.23	11.64	9.03	1.31	0.76	42.90	27.39	1.54
1800	20.67	29.57	12.31	8.73	1.34	0.77	43.16	28.00	1.56
1900	20.53	29.89	12.83	8.45	1.37	0.78	44.21	27.78	1.62
2000	20.35	30.38	12.93	8.21	1.42	0.80	41.42	27.69	1.67
2100	20.13	30.85	12.33	7.97	1.47	0.83	40.45	27.51	1.76
2200	19.85	31.39	11.10	7.77	1.51	0.86	41.81	27.48	1.91
2300	19.48	32.02	9.61	7.55	1.57	0.91	43.52	27.23	2.06
2400	19.04	32.62	8.14	7.32	1.62	0.95	43.56	26.77	2.30
2500	18.51	33.30	6.82	7.07	1.67	1.00	45.11	27.22	2.56

Note: Test data of Die packaged in industry standard 3x3 mm, 12-lead MCL package



Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 8.40V, Id = 245mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)			(dBm)	(dBm)	(dB)
20	23.61	26.56	10.45	15.05	1.02	0.48	36.92	26.78	1.58
30	23.26	26.14	11.38	14.95	1.02	0.47	40.85	26.80	1.45
40	23.03	25.84	11.79	14.35	1.02	0.44	38.34	28.15	1.42
50	22.86	26.24	11.99	13.68	1.05	0.50	40.17	28.31	1.45
60	22.79	25.72	12.18	13.67	1.03	0.44	39.45	28.03	1.43
70	22.73	25.68	12.26	13.50	1.03	0.44	42.62	27.78	1.42
80	22.69	25.56	12.32	13.43	1.03	0.42	41.87	28.20	1.45
90	22.66	25.65	12.36	13.35	1.04	0.44	40.70	28.50	1.47
100	22.63	25.59	12.37	13.31	1.04	0.43	38.77	28.06	1.50
150	22.57	25.66	12.45	13.21	1.04	0.44	41.54	28.32	1.53
200	22.52	25.65	12.45	13.20	1.04	0.45	39.84	28.43	1.46
250	22.49	25.60	12.41	13.27	1.04	0.45	38.43	28.52	1.46
300	22.47	25.67	12.38	13.27	1.05	0.46	41.71	28.68	1.47
350	22.43	25.69	12.28	13.32	1.05	0.47	41.32	28.70	1.49
400	22.40	25.81	12.18	13.35	1.05	0.48	41.08	28.71	1.49
450	22.37	25.88	12.07	13.38	1.06	0.50	42.61	28.60	1.47
500	22.32	26.00	11.84	13.43	1.06	0.52	42.73	28.50	1.47
550	22.28	26.08	11.67	13.39	1.07	0.53	42.93	28.79	1.50
600	22.22	26.17	11.46	13.38	1.07	0.55	42.51	28.73	1.53
650	22.16	26.30	11.25	13.28	1.08	0.57	40.91	28.83	1.56
700	22.11	26.47	11.08	13.15	1.09	0.59	43.00	28.71	1.53
750	22.03	26.56	10.87	13.04	1.09	0.60	41.92	28.64	1.49
800	21.96	26.69	10.71	12.87	1.10	0.62	42.55	28.68	1.52
850	21.89	26.82	10.58	12.72	1.11	0.63	43.78	28.83	1.52
900	21.83	26.90	10.42	12.52	1.12	0.64	42.43	28.80	1.52
950	21.77	26.99	10.28	12.31	1.12	0.65	42.76	28.88	1.53
1000	21.70	27.19	10.17	12.07	1.13	0.67	41.46	29.05	1.50
1100	21.55	27.46	10.03	11.54	1.15	0.69	44.14	28.83	1.55
1200	21.41	27.70	10.01	11.03	1.17	0.71	41.99	28.91	1.57
1300	21.28	28.01	10.12	10.51	1.19	0.72	40.31	28.83	1.56
1400	21.15	28.32	10.35	10.05	1.22	0.73	41.65	28.74	1.62
1500	21.03	28.62	10.71	9.58	1.25	0.74	41.73	28.69	1.59
1600	20.92	28.94	11.17	9.21	1.28	0.75	41.42	28.54	1.64
1700	20.80	29.25	11.73	8.88	1.30	0.76	42.42	28.09	1.65
1800	20.67	29.56	12.29	8.58	1.33	0.76	43.53	28.60	1.63
1900	20.52	29.87	12.62	8.31	1.36	0.78	39.87	28.36	1.68
2000	20.33	30.45	12.46	8.08	1.42	0.81	42.01	28.27	1.73
2100	20.10	30.94	11.72	7.85	1.46	0.83	40.20	28.08	1.81
2200	19.81	31.50	10.51	7.62	1.51	0.87	42.19	28.07	1.93
2300	19.44	32.08	9.11	7.40	1.55	0.91	44.11	27.80	2.15
2400	19.00	32.70	7.74	7.16	1.59	0.96	43.76	27.36	2.34
2500	18.49	33.34	6.53	6.90	1.63	1.00	40.11	27.67	2.63

Note: Test data of Die packaged in industry standard 3x3 mm, 12-lead MCL package

