

# MMIC Amplifier

# ERA-4SM+

## Typical Performance Data

**NOTE: Use PDF Bookmarks to view DATA at required conditions  
or to view GRAPHS.**

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 65mA, Vd = 4.93V @Temperature = +25degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	13.99	18.46	10.98	14.76	1.09	0.65	33.14	16.86	4.38
100	13.99	18.43	11.01	14.78	1.09	0.65	33.13	17.18	4.82
200	13.96	18.47	10.97	14.73	1.10	0.65	33.38	16.88	4.74
300	13.94	18.46	10.99	14.72	1.10	0.65	33.03	16.75	4.39
400	13.93	18.47	11.01	14.70	1.10	0.64	32.96	16.99	4.96
500	13.91	18.47	11.00	14.63	1.10	0.64	32.75	17.08	4.59
600	13.90	18.48	11.00	14.54	1.10	0.64	32.87	16.92	4.50
700	13.88	18.48	10.99	14.44	1.10	0.64	32.85	17.13	4.91
800	13.86	18.49	10.96	14.36	1.10	0.64	33.19	17.26	4.59
900	13.85	18.49	10.96	14.27	1.10	0.64	32.78	17.29	4.59
1000	13.83	18.48	10.97	14.17	1.10	0.64	32.79	17.25	4.91
1100	13.81	18.49	10.97	14.05	1.10	0.64	32.73	16.99	4.43
1200	13.80	18.49	10.96	13.94	1.10	0.64	32.99	16.63	4.71
1300	13.78	18.49	10.97	13.82	1.10	0.64	32.73	16.84	4.92
1400	13.77	18.49	11.02	13.71	1.10	0.64	32.32	16.90	4.51
1500	13.75	18.49	11.05	13.59	1.11	0.63	32.03	16.87	4.97
1600	13.73	18.49	11.10	13.51	1.11	0.63	32.17	16.94	4.83
1700	13.71	18.47	11.19	13.43	1.11	0.63	32.52	16.92	4.40
1800	13.69	18.47	11.28	13.32	1.11	0.63	32.20	16.82	4.82
1900	13.68	18.46	11.41	13.26	1.11	0.63	31.88	16.86	4.71
2000	13.66	18.45	11.53	13.20	1.11	0.63	31.71	16.73	4.65
2100	13.64	18.44	11.70	13.18	1.11	0.63	31.38	16.55	4.89
2200	13.62	18.42	11.87	13.13	1.11	0.63	30.93	16.51	4.66
2300	13.59	18.42	12.05	13.07	1.12	0.63	30.44	16.48	4.66
2400	13.57	18.42	12.26	13.04	1.12	0.62	29.66	16.30	4.97
2500	13.53	18.42	12.57	13.09	1.12	0.62	29.51	16.19	4.72
2600	13.50	18.37	12.88	13.10	1.12	0.62	29.27	15.99	4.82
2700	13.47	18.35	13.21	13.03	1.12	0.62	29.14	15.80	5.01
2800	13.44	18.33	13.49	13.01	1.13	0.62	28.92	15.63	4.76
2900	13.41	18.32	13.84	12.97	1.13	0.61	28.57	15.38	4.92
3000	13.35	18.33	14.11	12.88	1.13	0.61	28.10	15.16	4.98
3100	13.27	18.36	14.56	13.07	1.14	0.60	27.59	14.81	4.82
3200	13.25	18.30	15.05	13.05	1.14	0.60	27.29	14.63	5.00
3300	13.20	18.28	15.36	12.89	1.14	0.60	27.06	14.44	5.20
3400	13.14	18.28	16.04	13.04	1.15	0.59	26.85	14.21	5.02
3500	13.07	18.26	16.38	12.96	1.15	0.58	26.43	14.10	5.09
3600	13.02	18.23	16.81	12.90	1.15	0.58	26.03	13.78	5.16
3700	12.93	18.22	16.99	12.74	1.16	0.58	25.78	13.58	5.04
3800	12.82	18.27	17.39	12.81	1.17	0.56	25.60	13.34	5.12
4000	12.67	18.21	17.98	12.63	1.17	0.56	25.22	12.90	5.26

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### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 52mA, Vd = 4.86V @Temperature = +25degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	13.82	18.28	11.43	15.56	1.10	0.64	29.29	14.13	4.32
100	13.81	18.26	11.45	15.56	1.10	0.64	29.23	14.44	4.74
200	13.79	18.29	11.42	15.50	1.10	0.64	29.36	14.10	4.67
300	13.77	18.29	11.43	15.49	1.10	0.64	29.13	13.89	4.31
400	13.76	18.31	11.45	15.46	1.10	0.64	29.13	14.19	4.88
500	13.74	18.31	11.44	15.40	1.10	0.64	29.01	14.23	4.49
600	13.73	18.32	11.43	15.28	1.10	0.64	29.18	14.28	4.41
700	13.71	18.32	11.42	15.18	1.10	0.63	29.17	14.45	4.81
800	13.70	18.32	11.38	15.09	1.10	0.63	29.44	14.52	4.53
900	13.69	18.32	11.39	14.98	1.11	0.63	29.17	14.51	4.51
1000	13.67	18.32	11.40	14.85	1.11	0.63	29.26	14.48	4.83
1100	13.66	18.32	11.41	14.69	1.11	0.63	29.33	14.32	4.37
1200	13.65	18.33	11.38	14.57	1.11	0.63	29.56	13.94	4.63
1300	13.63	18.33	11.40	14.44	1.11	0.63	29.44	14.27	4.82
1400	13.62	18.33	11.43	14.31	1.11	0.63	29.17	14.29	4.44
1500	13.60	18.33	11.47	14.17	1.11	0.63	29.07	14.30	4.86
1600	13.59	18.33	11.53	14.06	1.11	0.63	29.20	14.35	4.73
1700	13.57	18.32	11.61	13.98	1.11	0.63	29.63	14.43	4.33
1800	13.56	18.32	11.70	13.84	1.11	0.63	29.65	14.39	4.72
1900	13.54	18.31	11.84	13.76	1.11	0.63	29.64	14.48	4.65
2000	13.53	18.30	11.97	13.68	1.11	0.63	29.65	14.44	4.57
2100	13.51	18.29	12.15	13.65	1.12	0.63	29.47	14.37	4.81
2200	13.50	18.28	12.33	13.58	1.12	0.63	29.06	14.53	4.56
2300	13.48	18.28	12.50	13.51	1.12	0.62	28.63	14.69	4.59
2400	13.45	18.28	12.72	13.47	1.12	0.62	28.04	14.71	4.86
2500	13.41	18.28	13.05	13.50	1.13	0.62	28.07	14.66	4.65
2600	13.40	18.24	13.38	13.49	1.13	0.62	28.07	14.49	4.73
2700	13.37	18.22	13.73	13.42	1.13	0.61	28.05	14.50	4.89
2800	13.34	18.21	14.02	13.39	1.13	0.61	27.84	14.41	4.69
2900	13.31	18.20	14.39	13.34	1.13	0.61	27.49	14.33	4.79
3000	13.25	18.20	14.66	13.24	1.14	0.61	27.02	14.21	4.89
3100	13.18	18.23	15.14	13.42	1.14	0.60	26.60	14.01	4.73
3200	13.15	18.18	15.65	13.39	1.14	0.60	26.33	13.79	4.88
3300	13.10	18.16	15.96	13.23	1.15	0.59	26.14	13.75	5.08
3400	13.05	18.17	16.67	13.38	1.15	0.59	25.97	13.56	4.87
3500	12.98	18.15	17.02	13.29	1.15	0.58	25.57	13.36	4.97
3600	12.93	18.12	17.46	13.22	1.15	0.58	25.18	13.20	5.03
3700	12.84	18.11	17.61	13.05	1.16	0.57	24.95	13.00	4.93
3800	12.74	18.16	17.99	13.13	1.17	0.56	24.77	12.72	4.98
4000	12.57	18.11	18.50	12.95	1.17	0.55	24.34	12.16	5.16

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### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 78mA, Vd = 5.03V @Temperature = +25degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	14.10	18.54	10.69	14.39	1.09	0.66	35.89	18.86	4.48
100	14.09	18.55	10.73	14.32	1.09	0.65	35.85	19.06	4.92
200	14.06	18.57	10.71	14.29	1.09	0.65	36.17	18.83	4.82
300	14.04	18.56	10.72	14.29	1.09	0.65	35.73	18.73	4.46
400	14.02	18.58	10.74	14.26	1.10	0.65	35.63	18.95	5.07
500	14.01	18.58	10.75	14.19	1.10	0.65	35.31	18.99	4.68
600	13.99	18.58	10.74	14.13	1.10	0.65	35.34	18.87	4.57
700	13.98	18.58	10.73	14.03	1.10	0.64	35.29	18.97	5.01
800	13.95	18.59	10.73	13.97	1.10	0.64	35.62	19.07	4.69
900	13.93	18.59	10.72	13.88	1.10	0.64	35.10	19.02	4.68
1000	13.93	18.59	10.74	13.79	1.10	0.64	35.01	19.00	5.01
1100	13.90	18.60	10.73	13.69	1.10	0.64	34.80	18.84	4.50
1200	13.89	18.59	10.76	13.62	1.10	0.64	34.97	18.58	4.80
1300	13.86	18.59	10.76	13.52	1.10	0.64	34.65	18.67	5.03
1400	13.85	18.58	10.82	13.42	1.10	0.64	34.11	18.68	4.59
1500	13.83	18.58	10.84	13.32	1.10	0.64	33.69	18.61	5.06
1600	13.80	18.59	10.91	13.23	1.11	0.63	33.77	18.60	4.90
1700	13.79	18.57	11.00	13.16	1.11	0.64	34.05	18.55	4.49
1800	13.77	18.56	11.08	13.09	1.11	0.63	33.50	18.33	4.91
1900	13.75	18.55	11.19	13.00	1.11	0.63	33.03	18.22	4.81
2000	13.73	18.54	11.32	12.95	1.11	0.63	32.75	18.03	4.72
2100	13.70	18.54	11.46	12.89	1.11	0.63	32.36	17.71	5.02
2200	13.67	18.52	11.65	12.90	1.11	0.63	31.91	17.52	4.74
2300	13.65	18.50	11.86	12.87	1.11	0.63	31.39	17.39	4.74
2400	13.62	18.49	12.04	12.82	1.12	0.62	30.58	17.10	5.06
2500	13.59	18.48	12.31	12.85	1.12	0.62	30.36	16.94	4.81
2600	13.56	18.46	12.58	12.84	1.12	0.62	30.03	16.74	4.91
2700	13.53	18.44	12.84	12.76	1.12	0.62	29.87	16.48	5.11
2800	13.47	18.45	13.16	12.83	1.13	0.61	29.64	16.29	4.86
2900	13.44	18.41	13.54	12.80	1.13	0.61	29.31	16.05	5.02
3000	13.40	18.40	13.88	12.77	1.13	0.61	28.82	15.81	5.11
3100	13.35	18.39	14.24	12.78	1.14	0.60	28.30	15.39	4.91
3200	13.30	18.38	14.64	12.78	1.14	0.60	27.99	15.18	5.12
3300	13.25	18.34	15.09	12.72	1.14	0.60	27.75	15.01	5.30
3400	13.18	18.35	15.42	12.65	1.15	0.59	27.51	14.83	5.11
3500	13.10	18.34	16.00	12.75	1.15	0.58	27.10	14.60	5.19
3600	13.04	18.32	16.35	12.68	1.16	0.58	26.69	14.32	5.26
3700	12.97	18.31	16.81	12.72	1.16	0.57	26.44	14.10	5.16
3800	12.92	18.25	17.33	12.64	1.16	0.57	26.27	13.90	5.24
4000	12.71	18.27	17.90	12.51	1.17	0.56	25.92	13.44	5.39

# MMIC Amplifier

# ERA-4SM+

## 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: INPUT POWER = -15dBm, Icc = 65mA, Vd = 5.24V @Temperature = -45degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	14.09	18.55	10.57	14.05	1.09	0.66	33.63	16.67	3.77
100	14.10	18.54	10.70	14.18	1.09	0.66	33.59	16.93	4.18
200	14.09	18.54	10.82	14.32	1.09	0.65	33.80	16.54	4.09
300	14.05	18.57	10.65	14.11	1.09	0.65	33.49	16.48	3.73
400	14.02	18.57	10.48	13.89	1.09	0.65	33.50	16.75	4.30
500	14.01	18.58	10.46	13.85	1.09	0.65	33.32	16.78	3.90
600	14.00	18.59	10.47	13.78	1.09	0.65	33.49	16.76	3.82
700	13.98	18.58	10.42	13.67	1.09	0.65	33.49	16.99	4.21
800	13.96	18.58	10.42	13.63	1.10	0.65	33.83	17.11	3.91
900	13.95	18.57	10.49	13.63	1.10	0.65	33.51	17.16	3.93
1000	13.93	18.57	10.49	13.54	1.10	0.65	33.57	17.08	4.23
1100	13.91	18.57	10.44	13.38	1.10	0.65	33.60	16.84	3.74
1200	13.89	18.57	10.40	13.28	1.10	0.65	33.89	16.50	4.02
1300	13.87	18.56	10.42	13.21	1.10	0.65	33.74	16.75	4.23
1400	13.85	18.56	10.45	13.12	1.10	0.64	33.39	16.73	3.81
1500	13.85	18.56	10.46	12.99	1.10	0.64	33.18	16.78	4.28
1600	13.82	18.55	10.55	13.00	1.10	0.64	33.27	16.84	4.14
1700	13.80	18.54	10.60	12.91	1.10	0.64	33.79	16.92	3.68
1800	13.78	18.56	10.56	12.71	1.10	0.64	33.75	16.89	4.13
1900	13.76	18.52	10.68	12.71	1.10	0.64	33.53	16.93	4.02
2000	13.73	18.51	10.76	12.70	1.10	0.64	33.48	16.85	3.95
2100	13.71	18.49	10.83	12.63	1.10	0.64	33.23	16.76	4.23
2200	13.69	18.48	10.91	12.53	1.10	0.64	32.79	16.83	3.96
2300	13.67	18.48	10.97	12.40	1.10	0.64	32.27	16.94	3.94
2400	13.63	18.49	11.10	12.38	1.11	0.63	31.49	16.91	4.26
2500	13.62	18.45	11.37	12.34	1.11	0.63	31.44	16.84	4.01
2600	13.58	18.43	11.73	12.50	1.11	0.63	31.29	16.68	4.11
2700	13.57	18.40	12.02	12.44	1.11	0.63	31.22	16.56	4.28
2800	13.55	18.37	12.25	12.47	1.11	0.63	31.00	16.44	4.04
2900	13.50	18.40	12.50	12.49	1.12	0.62	30.62	16.28	4.18
3000	13.48	18.38	12.66	12.28	1.12	0.62	30.09	16.06	4.28
3100	13.42	18.38	13.07	12.49	1.13	0.62	29.58	15.76	4.06
3200	13.39	18.33	13.45	12.50	1.13	0.61	29.29	15.60	4.30
3300	13.36	18.31	13.53	12.26	1.13	0.62	29.09	15.47	4.48
3400	13.28	18.33	14.00	12.46	1.13	0.61	28.88	15.23	4.24
3500	13.25	18.29	14.14	12.22	1.13	0.61	28.46	15.05	4.37
3600	13.19	18.28	14.32	12.07	1.14	0.60	28.07	14.86	4.44
3700	13.16	18.23	14.76	12.09	1.14	0.60	27.81	14.67	4.27
3800	13.03	18.32	14.94	12.12	1.15	0.59	27.63	14.41	4.38
4000	12.95	18.22	15.47	11.87	1.15	0.59	27.19	13.89	4.53

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## 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: INPUT POWER = -15dBm, Icc = 52mA, Vd = 5.16V @Temperature = -45degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	13.94	18.37	10.94	14.68	1.09	0.65	29.46	13.74	3.71
100	13.95	18.37	11.08	14.82	1.09	0.65	29.38	14.04	4.11
200	13.94	18.38	11.21	14.97	1.09	0.65	29.50	13.68	4.03
300	13.91	18.40	11.02	14.74	1.10	0.65	29.30	13.66	3.68
400	13.88	18.41	10.84	14.51	1.10	0.65	29.34	13.93	4.23
500	13.87	18.42	10.82	14.45	1.10	0.65	29.26	13.94	3.84
600	13.85	18.43	10.83	14.38	1.10	0.64	29.46	13.95	3.76
700	13.83	18.44	10.78	14.25	1.10	0.64	29.45	14.09	4.15
800	13.82	18.42	10.78	14.20	1.10	0.64	29.72	14.24	3.86
900	13.81	18.42	10.86	14.19	1.10	0.64	29.46	14.22	3.85
1000	13.79	18.42	10.85	14.09	1.10	0.64	29.61	14.25	4.16
1100	13.77	18.43	10.79	13.92	1.10	0.64	29.70	14.00	3.68
1200	13.76	18.43	10.73	13.80	1.10	0.64	29.94	13.71	3.95
1300	13.74	18.42	10.76	13.71	1.10	0.64	29.87	13.95	4.13
1400	13.73	18.42	10.79	13.60	1.10	0.64	29.62	13.96	3.76
1500	13.72	18.42	10.81	13.46	1.10	0.64	29.57	14.00	4.19
1600	13.70	18.41	10.90	13.46	1.10	0.64	29.69	14.09	4.08
1700	13.68	18.41	10.94	13.35	1.10	0.64	30.18	14.14	3.64
1800	13.67	18.43	10.91	13.14	1.10	0.64	30.35	14.12	4.05
1900	13.65	18.39	11.02	13.13	1.10	0.64	30.46	14.31	3.95
2000	13.62	18.38	11.10	13.09	1.10	0.64	30.60	14.27	3.86
2100	13.61	18.37	11.18	13.02	1.11	0.64	30.52	14.26	4.13
2200	13.59	18.36	11.26	12.91	1.11	0.64	30.12	14.45	3.87
2300	13.57	18.35	11.32	12.76	1.11	0.64	29.73	14.66	3.86
2400	13.53	18.37	11.46	12.72	1.11	0.63	29.26	14.83	4.17
2500	13.53	18.33	11.74	12.68	1.11	0.63	29.53	15.00	3.93
2600	13.49	18.30	12.10	12.84	1.11	0.63	29.66	14.88	4.02
2700	13.47	18.29	12.40	12.75	1.12	0.63	29.75	14.87	4.19
2800	13.46	18.26	12.63	12.78	1.12	0.63	29.59	14.86	3.97
2900	13.41	18.28	12.92	12.80	1.12	0.62	29.19	14.79	4.11
3000	13.39	18.26	13.08	12.57	1.12	0.62	28.71	14.71	4.18
3100	13.33	18.27	13.49	12.78	1.13	0.61	28.35	14.66	4.01
3200	13.31	18.23	13.88	12.78	1.13	0.61	28.12	14.55	4.22
3300	13.28	18.21	13.97	12.53	1.13	0.61	28.00	14.56	4.40
3400	13.20	18.22	14.46	12.73	1.14	0.60	27.90	14.39	4.15
3500	13.17	18.19	14.60	12.48	1.14	0.60	27.47	14.23	4.26
3600	13.12	18.18	14.76	12.31	1.14	0.60	27.11	14.04	4.32
3700	13.09	18.14	15.21	12.34	1.14	0.60	26.89	13.93	4.19
3800	12.96	18.23	15.39	12.38	1.15	0.59	26.70	13.64	4.28
4000	12.87	18.12	15.91	12.11	1.15	0.59	26.22	13.27	4.41

# MMIC Amplifier

# ERA-4SM+

## 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: INPUT POWER = -15dBm, Icc = 78mA, Vd = 5.35V @Temperature = -45degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	14.18	18.63	10.35	13.82	1.09	0.66	36.58	18.96	3.83
100	14.19	18.61	10.56	14.06	1.09	0.66	36.53	19.19	4.27
200	14.18	18.62	10.72	14.28	1.09	0.66	36.85	18.90	4.16
300	14.14	18.65	10.45	13.81	1.09	0.66	36.43	18.79	3.81
400	14.10	18.68	10.22	13.43	1.09	0.66	36.32	19.09	4.39
500	14.09	18.68	10.24	13.46	1.09	0.65	36.08	19.06	3.98
600	14.08	18.67	10.25	13.44	1.09	0.65	36.25	18.91	3.88
700	14.06	18.67	10.20	13.30	1.09	0.65	36.19	19.14	4.32
800	14.05	18.68	10.22	13.28	1.09	0.65	36.65	19.25	3.98
900	14.03	18.66	10.29	13.31	1.09	0.65	36.15	19.22	3.99
1000	14.02	18.66	10.29	13.19	1.09	0.65	36.17	19.17	4.33
1100	13.99	18.67	10.25	13.05	1.09	0.65	36.09	18.97	3.80
1200	13.97	18.65	10.24	12.96	1.09	0.65	36.37	18.65	4.09
1300	13.94	18.66	10.17	12.77	1.09	0.65	36.12	18.80	4.33
1400	13.93	18.64	10.22	12.71	1.09	0.65	35.58	18.81	3.89
1500	13.92	18.63	10.32	12.74	1.09	0.65	35.25	18.81	4.37
1600	13.89	18.63	10.39	12.69	1.10	0.64	35.33	18.82	4.23
1700	13.88	18.61	10.41	12.63	1.10	0.65	35.83	18.84	3.78
1800	13.86	18.62	10.42	12.59	1.10	0.64	35.48	18.69	4.21
1900	13.85	18.59	10.56	12.58	1.10	0.64	35.05	18.71	4.11
2000	13.82	18.58	10.64	12.46	1.10	0.64	34.84	18.53	4.01
2100	13.78	18.59	10.63	12.30	1.10	0.64	34.48	18.35	4.31
2200	13.74	18.57	10.70	12.26	1.10	0.64	34.04	18.28	4.03
2300	13.74	18.55	10.83	12.17	1.10	0.64	33.48	18.20	4.01
2400	13.71	18.54	10.95	12.08	1.10	0.64	32.60	17.98	4.35
2500	13.69	18.50	11.22	12.12	1.11	0.64	32.37	17.85	4.08
2600	13.64	18.53	11.42	12.16	1.11	0.63	32.15	17.64	4.21
2700	13.63	18.48	11.69	12.10	1.11	0.63	32.00	17.43	4.38
2800	13.60	18.46	12.01	12.21	1.11	0.63	31.79	17.28	4.11
2900	13.57	18.44	12.31	12.19	1.12	0.63	31.42	17.05	4.29
3000	13.54	18.41	12.57	12.17	1.12	0.63	30.88	16.80	4.37
3100	13.50	18.39	12.87	12.25	1.12	0.62	30.39	16.44	4.19
3200	13.46	18.37	13.19	12.26	1.12	0.62	30.06	16.23	4.40
3300	13.41	18.36	13.46	12.21	1.13	0.62	29.81	16.11	4.55
3400	13.36	18.36	13.61	12.09	1.13	0.61	29.59	15.91	4.35
3500	13.31	18.33	13.99	12.08	1.13	0.61	29.16	15.68	4.47
3600	13.26	18.31	14.28	12.05	1.13	0.61	28.78	15.43	4.53
3700	13.20	18.30	14.59	12.05	1.14	0.60	28.50	15.27	4.38
3800	13.17	18.24	14.93	11.96	1.14	0.60	28.32	15.03	4.49
4000	12.91	18.36	15.10	11.77	1.16	0.58	27.95	14.57	4.64

# MMIC Amplifier

# ERA-4SM+

## 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: INPUT POWER = -15dBm, Icc = 65mA, Vd = 4.71V @Temperature = +85degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	13.92	18.38	11.35	15.44	1.10	0.64	32.96	17.15	5.00
100	13.90	18.38	11.29	15.31	1.10	0.64	32.93	17.42	5.41
200	13.86	18.40	11.13	15.08	1.10	0.64	33.18	17.21	5.36
300	13.85	18.39	11.17	15.14	1.10	0.64	32.82	17.02	5.00
400	13.85	18.39	11.35	15.26	1.10	0.64	32.73	17.25	5.54
500	13.84	18.39	11.43	15.33	1.10	0.64	32.45	17.25	5.19
600	13.82	18.40	11.43	15.18	1.10	0.64	32.53	17.19	5.11
700	13.80	18.40	11.43	15.08	1.10	0.64	32.44	17.32	5.51
800	13.79	18.41	11.43	15.05	1.10	0.63	32.79	17.41	5.20
900	13.79	18.40	11.51	15.02	1.11	0.63	32.34	17.42	5.19
1000	13.77	18.40	11.55	14.94	1.11	0.63	32.27	17.38	5.52
1100	13.75	18.40	11.59	14.80	1.11	0.63	32.15	17.16	5.04
1200	13.74	18.40	11.56	14.70	1.11	0.63	32.29	16.81	5.33
1300	13.72	18.41	11.60	14.59	1.11	0.63	32.02	16.96	5.51
1400	13.71	18.40	11.66	14.47	1.11	0.63	31.53	17.00	5.14
1500	13.69	18.41	11.68	14.27	1.11	0.63	31.23	16.97	5.58
1600	13.67	18.41	11.76	14.21	1.11	0.63	31.32	16.94	5.44
1700	13.65	18.40	11.84	14.10	1.11	0.63	31.50	16.95	5.00
1800	13.63	18.41	11.93	13.88	1.12	0.63	31.02	16.70	5.42
1900	13.61	18.39	12.13	13.86	1.12	0.62	30.65	16.68	5.34
2000	13.57	18.37	12.29	13.78	1.12	0.62	30.38	16.54	5.29
2100	13.56	18.38	12.44	13.70	1.12	0.62	30.05	16.21	5.53
2200	13.54	18.36	12.68	13.63	1.12	0.62	29.59	16.07	5.30
2300	13.51	18.35	12.87	13.52	1.12	0.62	29.11	15.96	5.30
2400	13.46	18.37	13.15	13.51	1.13	0.61	28.35	15.70	5.60
2500	13.44	18.34	13.49	13.43	1.13	0.61	27.98	15.55	5.35
2600	13.38	18.32	13.92	13.52	1.13	0.61	27.76	15.34	5.45
2700	13.34	18.31	14.27	13.36	1.14	0.60	27.73	15.09	5.62
2800	13.31	18.29	14.61	13.33	1.14	0.60	27.47	14.83	5.40
2900	13.23	18.34	14.99	13.33	1.15	0.59	27.13	14.66	5.53
3000	13.19	18.29	15.25	13.03	1.14	0.59	26.63	14.42	5.61
3100	13.11	18.31	15.85	13.29	1.15	0.58	26.14	14.01	5.49
3200	13.07	18.26	16.55	13.32	1.15	0.58	25.79	13.77	5.63
3300	13.01	18.24	16.94	13.16	1.16	0.58	25.57	13.59	5.81
3400	12.91	18.28	17.94	13.45	1.17	0.57	25.24	13.34	5.65
3500	12.83	18.24	18.23	13.24	1.17	0.56	24.92	13.14	5.71
3600	12.76	18.18	18.55	13.09	1.17	0.56	24.53	12.85	5.82
3700	12.67	18.20	19.35	13.28	1.18	0.55	24.25	12.60	5.76
3800	12.53	18.19	19.13	13.00	1.18	0.54	24.08	12.43	5.76
4000	12.36	18.15	20.10	13.07	1.19	0.53	23.72	11.94	5.97

# MMIC Amplifier

# ERA-4SM+

## 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: INPUT POWER = -15dBm, Icc = 52mA, Vd = 4.65V @Temperature = +85degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	13.74	18.17	11.83	16.26	1.10	0.64	29.26	14.32	4.89
100	13.72	18.19	11.77	16.21	1.10	0.64	29.20	14.68	5.33
200	13.68	18.23	11.57	15.94	1.10	0.63	29.38	14.44	5.23
300	13.66	18.21	11.64	15.95	1.10	0.63	29.11	14.27	4.90
400	13.67	18.21	11.83	16.09	1.10	0.63	29.08	14.54	5.46
500	13.66	18.20	11.93	16.17	1.11	0.63	28.94	14.51	5.09
600	13.65	18.22	11.89	16.04	1.11	0.63	29.08	14.51	5.03
700	13.63	18.23	11.88	15.90	1.11	0.63	29.03	14.68	5.41
800	13.62	18.23	11.90	15.84	1.11	0.63	29.34	14.76	5.14
900	13.62	18.23	11.96	15.79	1.11	0.63	29.02	14.83	5.13
1000	13.60	18.23	11.99	15.72	1.11	0.63	29.07	14.81	5.41
1100	13.58	18.24	12.01	15.52	1.11	0.63	29.08	14.55	4.98
1200	13.57	18.23	12.03	15.36	1.11	0.63	29.31	14.20	5.21
1300	13.56	18.23	12.06	15.25	1.11	0.63	29.14	14.44	5.42
1400	13.56	18.24	12.13	15.11	1.11	0.63	28.82	14.50	5.05
1500	13.54	18.25	12.12	14.92	1.11	0.62	28.67	14.53	5.49
1600	13.52	18.25	12.22	14.80	1.12	0.62	28.81	14.59	5.34
1700	13.51	18.25	12.33	14.66	1.12	0.62	29.12	14.68	4.93
1800	13.50	18.26	12.37	14.45	1.12	0.62	29.00	14.57	5.32
1900	13.47	18.24	12.58	14.40	1.12	0.62	28.85	14.68	5.22
2000	13.44	18.23	12.74	14.30	1.12	0.62	28.76	14.54	5.19
2100	13.42	18.23	12.95	14.18	1.12	0.62	28.52	14.48	5.43
2200	13.41	18.22	13.18	14.10	1.12	0.62	28.10	14.51	5.19
2300	13.39	18.21	13.41	13.99	1.13	0.62	27.64	14.53	5.20
2400	13.35	18.23	13.66	13.98	1.13	0.61	27.01	14.47	5.47
2500	13.32	18.20	14.02	13.88	1.13	0.61	26.77	14.42	5.26
2600	13.27	18.20	14.44	13.95	1.14	0.60	26.69	14.22	5.36
2700	13.23	18.18	14.86	13.77	1.14	0.60	26.73	14.05	5.50
2800	13.20	18.15	15.22	13.71	1.14	0.60	26.48	13.83	5.31
2900	13.13	18.20	15.62	13.73	1.15	0.59	26.12	13.70	5.43
3000	13.10	18.16	15.87	13.42	1.15	0.59	25.64	13.49	5.50
3100	13.01	18.18	16.50	13.67	1.16	0.58	25.16	13.11	5.38
3200	12.97	18.14	17.22	13.67	1.16	0.58	24.87	12.95	5.53
3300	12.91	18.10	17.63	13.53	1.16	0.58	24.67	12.83	5.70
3400	12.82	18.16	18.64	13.83	1.17	0.56	24.37	12.56	5.55
3500	12.74	18.13	18.86	13.61	1.17	0.56	24.07	12.32	5.58
3600	12.67	18.08	19.12	13.45	1.17	0.56	23.70	12.18	5.70
3700	12.58	18.09	19.89	13.64	1.18	0.55	23.41	11.92	5.62
3800	12.44	18.07	19.57	13.31	1.18	0.54	23.24	11.68	5.63
4000	12.27	18.05	20.36	13.44	1.19	0.53	22.86	11.22	5.83

# MMIC Amplifier

# ERA-4SM+

## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

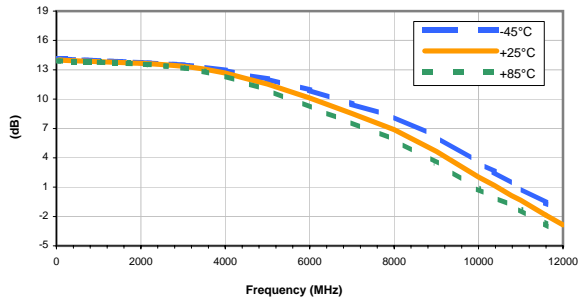
TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 78mA, Vd = 4.74V @Temperature = +85degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	14.03	18.48	11.01	14.89	1.09	0.65	35.56	18.87	5.08
100	14.00	18.48	10.91	14.64	1.09	0.65	35.62	19.02	5.51
200	13.96	18.51	10.69	14.28	1.10	0.65	35.96	18.93	5.44
300	13.94	18.50	10.82	14.44	1.10	0.65	35.40	18.76	5.08
400	13.94	18.49	11.05	14.75	1.10	0.64	35.31	18.95	5.67
500	13.93	18.49	11.13	14.78	1.10	0.64	34.89	18.95	5.26
600	13.92	18.50	11.11	14.72	1.10	0.64	34.88	18.85	5.19
700	13.90	18.51	11.13	14.67	1.10	0.64	34.74	18.92	5.61
800	13.89	18.52	11.19	14.64	1.10	0.64	35.04	18.97	5.32
900	13.88	18.51	11.28	14.70	1.10	0.64	34.42	18.88	5.30
1000	13.87	18.50	11.32	14.63	1.10	0.64	34.23	18.83	5.63
1100	13.85	18.50	11.34	14.53	1.11	0.63	33.93	18.71	5.14
1200	13.84	18.49	11.41	14.48	1.11	0.63	34.02	18.46	5.43
1300	13.81	18.50	11.42	14.37	1.11	0.63	33.62	18.50	5.64
1400	13.79	18.49	11.49	14.24	1.11	0.63	33.05	18.47	5.24
1500	13.78	18.50	11.50	14.09	1.11	0.63	32.63	18.35	5.71
1600	13.74	18.51	11.58	13.95	1.11	0.63	32.71	18.25	5.55
1700	13.73	18.49	11.68	13.83	1.11	0.63	32.72	18.14	5.12
1800	13.70	18.51	11.73	13.68	1.11	0.62	32.08	17.85	5.54
1900	13.68	18.49	11.86	13.55	1.11	0.63	31.61	17.71	5.43
2000	13.66	18.48	11.99	13.42	1.12	0.62	31.26	17.47	5.38
2100	13.62	18.48	12.17	13.33	1.12	0.62	30.88	17.10	5.64
2200	13.58	18.47	12.41	13.32	1.12	0.62	30.43	16.85	5.39
2300	13.56	18.45	12.66	13.24	1.12	0.62	29.93	16.70	5.39
2400	13.52	18.46	12.84	13.16	1.13	0.61	29.15	16.38	5.70
2500	13.49	18.43	13.21	13.18	1.13	0.61	28.74	16.16	5.45
2600	13.42	18.45	13.54	13.25	1.14	0.60	28.49	15.94	5.57
2700	13.40	18.41	13.86	13.07	1.14	0.61	28.39	15.69	5.74
2800	13.34	18.41	14.27	13.14	1.14	0.60	28.14	15.43	5.51
2900	13.30	18.38	14.70	13.05	1.14	0.60	27.81	15.25	5.66
3000	13.23	18.38	15.14	13.08	1.15	0.59	27.31	14.99	5.74
3100	13.17	18.35	15.64	13.12	1.15	0.59	26.80	14.56	5.61
3200	13.11	18.35	16.24	13.14	1.16	0.58	26.46	14.41	5.76
3300	13.04	18.32	16.80	13.10	1.16	0.58	26.24	14.16	5.94
3400	12.96	18.32	17.31	13.13	1.17	0.57	25.89	13.88	5.76
3500	12.88	18.29	18.05	13.19	1.17	0.56	25.58	13.69	5.84
3600	12.79	18.28	18.60	13.20	1.17	0.56	25.19	13.43	5.93
3700	12.70	18.28	19.25	13.33	1.18	0.55	24.88	13.18	5.89
3800	12.63	18.21	19.90	13.25	1.18	0.55	24.72	12.95	5.90
4000	12.35	18.32	20.94	13.48	1.21	0.52	24.40	12.42	6.10

## Typical Performance Curves

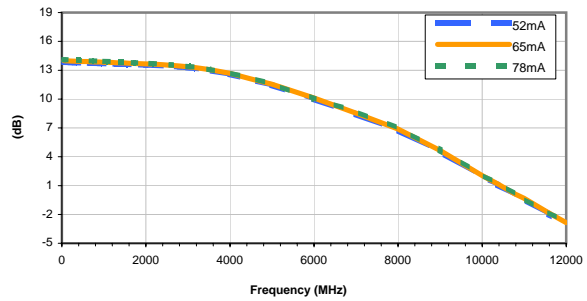
**GAIN vs. TEMPERATURE**

INPUT POWER = -15dBm, CURRENT = 65mA



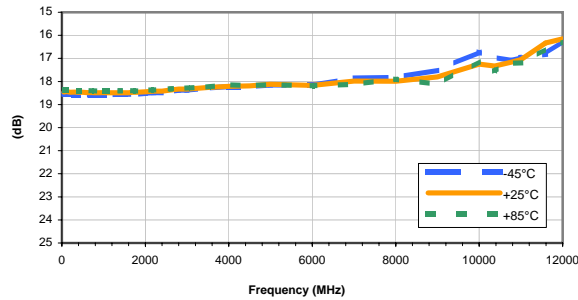
**GAIN vs. CURRENT**

INPUT POWER = -15dBm, Temperature = +25°C



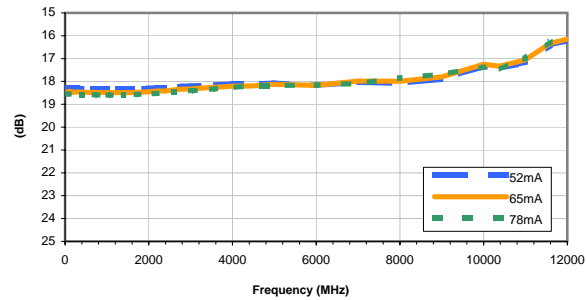
**ISOLATION vs. TEMPERATURE**

INPUT POWER = -15dBm, CURRENT = 65mA



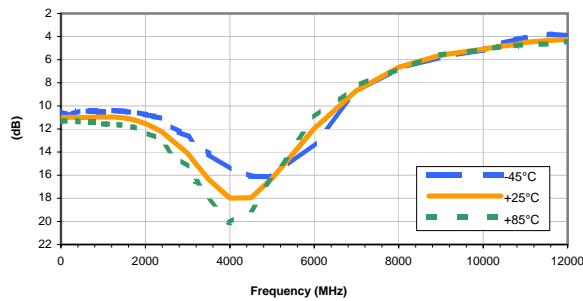
**ISOLATION vs. CURRENT**

INPUT POWER = -15dBm, Temperature = +25°C



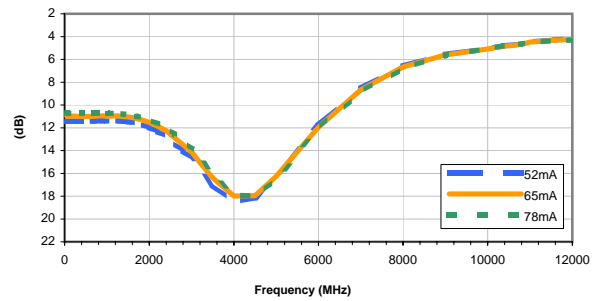
**INPUT RETURN LOSS vs. TEMPERATURE**

INPUT POWER = -15dBm, CURRENT = 65mA



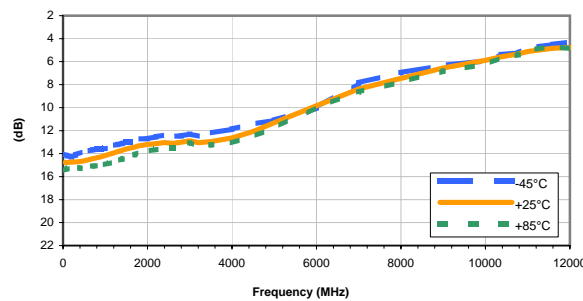
**INPUT RETURN LOSS vs. CURRENT**

INPUT POWER = -15dBm, Temperature = +25°C



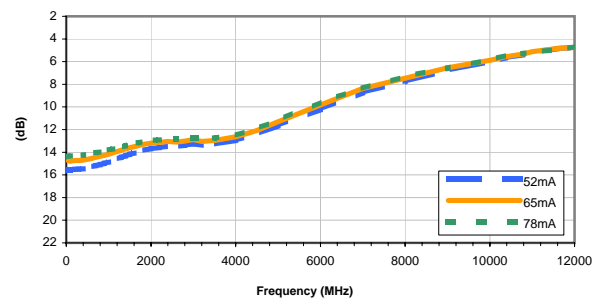
**OUTPUT RETURN LOSS vs. TEMPERATURE**

INPUT POWER = -15dBm, CURRENT = 65mA



**OUTPUT RETURN LOSS vs. CURRENT**

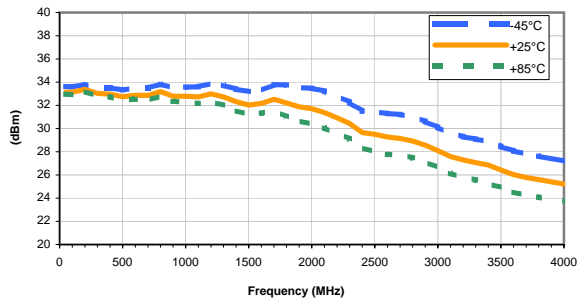
INPUT POWER = -15dBm, Temperature = +25°C



## Typical Performance Curves

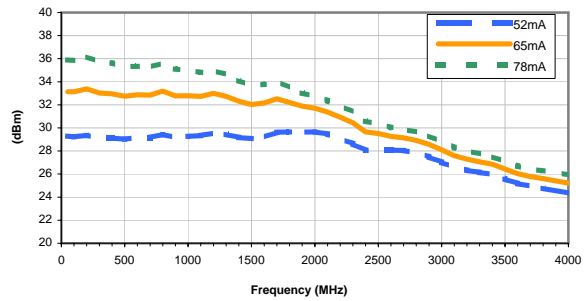
OUTPUT IP-3 vs. TEMPERATURE

INPUT POWER = -15dBm, CURRENT = 65mA



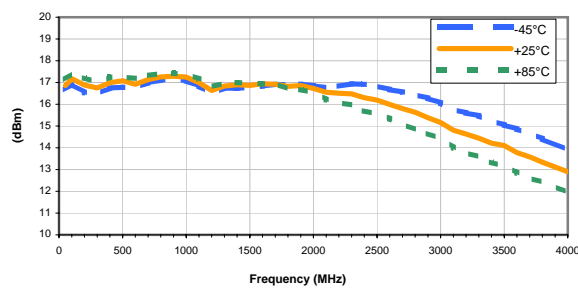
OUTPUT IP-3 vs. CURRENT

INPUT POWER = -15dBm, Temperature = +25°C



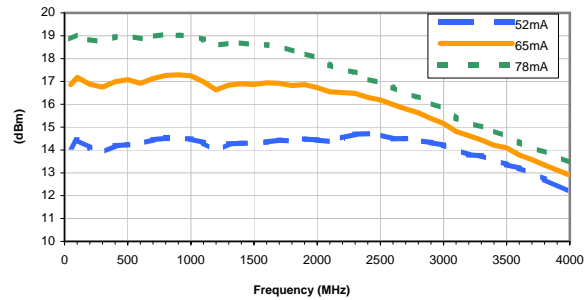
OUTPUT POWER at 1dB Compression vs. TEMPERATURE

INPUT POWER = -15dBm, CURRENT = 65mA



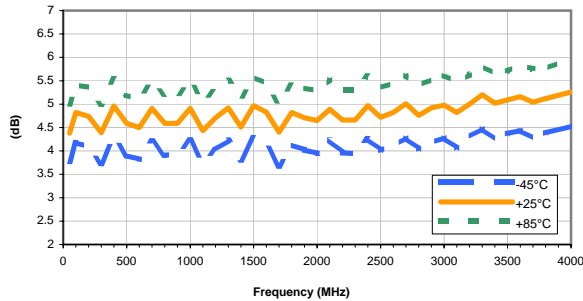
OUTPUT POWER at 1dB Compression vs. CURRENT

INPUT POWER = -15dBm, Temperature = +25°C



Noise Figure vs. TEMPERATURE

CURRENT = 65mA



Noise Figure vs. CURRENT

Temperature = +25°C

