

# MMIC Amplifier

# ERA-1+

## 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: Icc = 40mA, Vd = 3.43V @Temperature = +25degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	12.25	16.87	28.10	33.06	1.14	0.59	27.16	11.90	4.81
100	12.26	16.88	27.64	32.68	1.14	0.59	27.08	11.81	4.57
200	12.24	16.89	27.94	31.39	1.14	0.58	27.37	11.96	4.47
400	12.15	16.89	28.67	29.87	1.15	0.58	27.09	11.75	4.50
600	12.06	16.91	30.51	27.47	1.16	0.57	27.07	11.98	4.47
800	11.96	16.92	32.07	25.75	1.16	0.56	27.22	11.94	4.41
1000	11.87	16.95	35.09	24.02	1.17	0.56	27.87	11.56	4.38
1200	11.75	16.99	35.78	22.71	1.18	0.55	28.22	11.92	4.45
1400	11.63	17.02	33.48	21.59	1.19	0.54	27.80	11.87	4.41
1600	11.50	17.08	31.22	21.01	1.21	0.53	28.13	11.80	4.49
1800	11.40	17.14	29.13	20.40	1.22	0.52	27.78	11.92	4.38
2000	11.27	17.17	28.22	20.14	1.23	0.51	27.80	12.05	4.42
2200	11.15	17.26	27.37	20.16	1.25	0.50	27.45	12.05	4.43
2400	11.02	17.30	26.51	19.97	1.26	0.49	27.62	11.94	4.55
2600	10.89	17.42	25.96	20.04	1.29	0.47	27.57	12.05	4.51
2800	10.76	17.48	25.08	20.03	1.30	0.47	27.65	12.10	4.47
3000	10.62	17.53	25.81	20.37	1.32	0.45	27.38	12.05	4.49
3200	10.48	17.66	25.31	20.52	1.35	0.44	27.25	12.22	4.48
3400	10.35	17.72	24.05	20.16	1.37	0.43	27.58	12.17	4.58
3600	10.18	17.87	24.23	20.08	1.41	0.42	27.38	12.16	4.56
3800	10.00	18.04	23.40	19.62	1.45	0.40	27.39	12.32	4.65
4000	9.90	18.11	22.32	19.29	1.46	0.39	26.82	12.37	4.68
4200	9.77	18.32	22.85	19.15	1.51	0.38	26.94	12.36	4.62
4400	9.59	18.41	20.88	18.11	1.54	0.37	27.02	12.41	4.59
4600	9.49	18.58	20.48	17.70	1.57	0.36	26.52	12.54	4.60
4800	9.26	18.71	19.36	16.90	1.62	0.35	26.09	12.52	4.78
5000	9.22	18.89	18.88	17.02	1.65	0.34	25.76	12.32	4.66
5200	9.08	19.03	18.26	16.69	1.69	0.33	25.45	12.19	4.83
5400	8.84	19.28	17.64	16.03	1.76	0.32	24.61	12.15	4.94
5600	8.70	19.35	16.58	15.57	1.79	0.32	24.45	11.96	4.93
5800	8.74	19.57	16.85	16.06	1.83	0.31	24.25	11.95	5.01
6000	8.51	19.61	15.72	15.41	1.86	0.31	23.54	11.93	5.03
6200	8.27	19.79	15.33	15.50	1.94	0.29	23.46	11.62	5.04
6400	8.32	19.87	15.37	16.07	1.95	0.29	22.99	11.52	5.03
6600	8.23	20.13	15.25	16.30	2.02	0.28	22.35	11.67	5.25
6800	8.01	20.30	15.26	16.23	2.10	0.27	22.15	11.46	5.25
7000	8.31	20.85	15.71	18.36	2.17	0.25	22.19	11.32	5.22
7200	8.25	20.97	15.44	18.93	2.21	0.25	21.50	11.35	5.40
7600	8.10	20.99	14.62	19.14	2.23	0.24	20.73	10.84	5.41
8000	8.05	20.93	14.03	19.41	2.22	0.25	20.05	10.55	5.86

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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: Icc = 32mA, Vd = 3.33V @Temperature = +25degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	11.92	16.63	24.26	46.19	1.15	0.58	22.64	8.64	4.47
100	11.93	16.65	23.86	46.03	1.15	0.58	22.49	8.45	4.37
200	11.91	16.65	24.10	43.39	1.15	0.58	22.64	8.52	4.41
400	11.82	16.66	24.68	39.22	1.16	0.57	22.38	8.31	4.44
600	11.75	16.68	25.72	33.71	1.16	0.57	22.40	8.73	4.42
800	11.65	16.70	27.08	30.56	1.17	0.56	22.54	8.66	4.36
1000	11.57	16.72	29.42	27.87	1.18	0.55	23.06	8.29	4.32
1200	11.47	16.75	31.90	25.87	1.19	0.54	23.47	8.88	4.39
1400	11.34	16.80	34.10	24.31	1.20	0.53	23.07	8.73	4.33
1600	11.22	16.84	35.95	23.55	1.21	0.52	23.47	8.59	4.43
1800	11.13	16.90	34.49	22.71	1.22	0.51	22.98	8.94	4.30
2000	11.00	16.94	33.99	22.32	1.24	0.50	22.99	9.04	4.36
2200	10.90	17.01	32.99	22.29	1.25	0.50	22.70	9.02	4.36
2400	10.79	17.09	31.52	21.97	1.27	0.49	23.01	8.96	4.48
2600	10.66	17.18	30.46	22.07	1.29	0.47	22.61	9.15	4.44
2800	10.51	17.26	28.85	21.97	1.31	0.46	22.76	9.18	4.40
3000	10.40	17.33	29.80	22.30	1.33	0.45	22.89	9.12	4.42
3200	10.25	17.47	28.79	22.36	1.36	0.44	22.88	9.63	4.44
3400	10.14	17.52	26.63	21.88	1.38	0.43	23.44	9.48	4.51
3600	9.98	17.68	26.80	21.69	1.41	0.42	23.49	9.51	4.48
3800	9.81	17.86	25.42	21.05	1.45	0.40	23.68	9.87	4.57
4000	9.71	17.96	23.86	20.61	1.47	0.39	23.77	10.19	4.61
4200	9.59	18.15	24.27	20.34	1.51	0.38	23.92	10.21	4.53
4400	9.40	18.25	21.83	19.13	1.55	0.37	24.40	10.35	4.52
4600	9.32	18.44	21.31	18.67	1.58	0.36	24.42	10.68	4.50
4800	9.10	18.57	20.06	17.78	1.63	0.35	24.26	10.77	4.57
5000	9.06	18.76	19.37	17.91	1.66	0.34	23.97	10.53	4.59
5200	8.91	18.93	18.67	17.56	1.71	0.33	23.99	10.65	4.75
5400	8.68	19.17	18.02	16.79	1.78	0.32	23.52	10.82	4.84
5600	8.55	19.26	16.84	16.32	1.81	0.31	23.24	10.55	4.85
5800	8.59	19.51	17.00	16.87	1.85	0.30	22.89	10.47	4.89
6000	8.36	19.55	15.81	16.14	1.89	0.30	22.46	10.71	4.92
6200	8.13	19.75	15.48	16.26	1.96	0.29	22.49	10.49	4.93
6400	8.18	19.86	15.35	16.91	1.98	0.28	21.91	10.22	4.81
6600	8.09	20.14	15.20	17.13	2.05	0.27	21.31	10.42	4.98
6800	7.85	20.33	15.34	17.08	2.14	0.26	21.21	10.30	5.14
7000	8.16	20.95	15.45	19.46	2.22	0.24	21.25	10.09	5.07
7200	8.10	21.08	15.14	20.13	2.26	0.24	20.61	10.16	5.24
7600	7.95	21.16	14.26	20.39	2.30	0.23	19.77	9.70	5.15
8000	7.89	21.16	13.66	20.76	2.31	0.23	19.28	9.61	5.72

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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: I<sub>cc</sub> = 48mA, V<sub>d</sub> = 3.49V @Temperature = +25degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	12.42	17.00	31.60	28.80	1.14	0.59	30.32	13.74	5.03
100	12.44	17.01	30.76	28.47	1.14	0.59	30.33	13.72	4.71
200	12.41	17.01	31.11	27.64	1.14	0.59	30.66	13.82	4.53
400	12.32	17.03	31.83	26.75	1.15	0.58	30.35	13.67	4.52
600	12.24	17.04	34.25	25.06	1.15	0.57	30.25	13.68	4.52
800	12.13	17.07	35.41	23.73	1.16	0.57	30.34	13.60	4.43
1000	12.02	17.08	36.27	22.38	1.17	0.56	30.99	13.41	4.41
1200	11.91	17.11	33.44	21.27	1.18	0.55	30.98	13.44	4.50
1400	11.77	17.16	30.55	20.35	1.19	0.54	30.58	13.43	4.43
1600	11.64	17.22	28.48	19.86	1.20	0.53	30.56	13.43	4.56
1800	11.53	17.26	26.82	19.36	1.21	0.52	30.16	13.35	4.43
2000	11.40	17.30	26.06	19.12	1.23	0.51	30.19	13.50	4.48
2200	11.30	17.37	25.33	19.20	1.24	0.50	29.83	13.61	4.47
2400	11.16	17.43	24.66	19.05	1.26	0.49	29.68	13.39	4.60
2600	11.03	17.54	24.22	19.13	1.28	0.48	29.67	13.46	4.54
2800	10.88	17.59	23.50	19.14	1.30	0.47	29.49	13.61	4.52
3000	10.74	17.66	24.12	19.49	1.32	0.46	28.98	13.48	4.55
3200	10.58	17.79	23.75	19.67	1.35	0.44	28.74	13.42	4.53
3400	10.47	17.83	22.79	19.34	1.37	0.43	28.64	13.42	4.63
3600	10.30	17.99	22.95	19.33	1.40	0.42	28.22	13.36	4.61
3800	10.11	18.15	22.27	18.92	1.44	0.40	28.16	13.44	4.72
4000	10.00	18.22	21.40	18.66	1.46	0.40	27.52	13.44	4.72
4200	9.87	18.41	21.96	18.57	1.50	0.38	27.63	13.38	4.68
4400	9.68	18.50	20.23	17.60	1.53	0.37	27.43	13.38	4.63
4600	9.58	18.66	19.91	17.22	1.57	0.36	27.04	13.44	4.62
4800	9.36	18.80	18.88	16.48	1.61	0.35	26.60	13.42	4.82
5000	9.30	18.96	18.45	16.58	1.64	0.34	26.30	13.18	4.72
5200	9.16	19.09	17.91	16.27	1.68	0.34	25.98	12.92	4.89
5400	8.92	19.33	17.33	15.63	1.75	0.32	25.13	12.76	4.97
5600	8.79	19.39	16.33	15.17	1.78	0.32	25.02	12.61	5.02
5800	8.83	19.62	16.67	15.67	1.82	0.31	24.90	12.67	5.07
6000	8.59	19.63	15.56	15.02	1.85	0.31	24.19	12.52	5.11
6200	8.36	19.81	15.16	15.11	1.92	0.30	24.03	12.15	5.16
6400	8.41	19.87	15.30	15.66	1.93	0.30	23.63	12.09	5.20
6600	8.31	20.13	15.19	15.86	2.00	0.28	23.00	12.27	5.33
6800	8.08	20.30	15.13	15.82	2.08	0.27	22.76	12.01	5.33
7000	8.39	20.83	15.76	17.83	2.14	0.26	22.79	11.88	5.48
7200	8.33	20.91	15.49	18.34	2.17	0.25	22.09	11.91	5.49
7600	8.18	20.90	14.71	18.54	2.20	0.25	21.34	11.39	5.50
8000	8.12	20.81	14.17	18.78	2.18	0.25	20.61	11.02	5.99

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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: Icc = 40mA, Vd = 3.60V @Temperature = -45degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	12.40	16.95	28.79	31.61	1.14	0.59	27.13	11.81	4.15
100	12.43	16.96	27.75	31.66	1.14	0.59	27.02	11.66	3.97
200	12.40	16.96	27.78	31.05	1.14	0.59	27.31	11.80	3.92
400	12.32	16.97	28.75	29.27	1.14	0.58	27.07	11.55	3.90
600	12.25	16.96	31.09	26.63	1.15	0.58	27.12	11.89	3.89
800	12.14	16.97	32.04	25.03	1.15	0.57	27.28	11.85	3.83
1000	12.06	16.99	34.61	23.30	1.16	0.57	27.92	11.49	3.80
1200	11.94	17.02	33.82	22.00	1.17	0.56	28.37	11.99	3.86
1400	11.82	17.05	30.96	20.79	1.18	0.55	27.93	11.88	3.82
1600	11.70	17.09	29.12	20.22	1.19	0.54	28.38	11.72	3.92
1800	11.61	17.14	27.50	19.62	1.20	0.53	28.29	11.98	3.78
2000	11.47	17.17	26.22	19.31	1.21	0.52	28.30	12.16	3.81
2200	11.37	17.23	25.86	19.39	1.23	0.51	27.97	12.16	3.81
2400	11.24	17.30	24.68	19.15	1.24	0.50	28.22	12.04	3.95
2600	11.12	17.39	24.12	19.20	1.26	0.49	28.13	12.16	3.88
2800	10.97	17.45	23.68	19.28	1.28	0.48	28.24	12.22	3.86
3000	10.85	17.51	23.93	19.55	1.30	0.47	28.12	12.16	3.87
3200	10.70	17.63	23.70	19.79	1.32	0.45	28.09	12.48	3.89
3400	10.58	17.67	22.48	19.42	1.34	0.45	28.73	12.39	3.97
3600	10.43	17.82	23.08	19.48	1.37	0.43	28.67	12.43	3.95
3800	10.23	17.99	22.41	19.02	1.41	0.41	28.84	12.66	4.06
4000	10.13	18.04	21.46	18.67	1.42	0.41	28.67	12.79	4.07
4200	10.02	18.20	21.97	18.46	1.46	0.40	28.99	12.82	3.98
4400	9.80	18.31	20.20	17.36	1.49	0.38	29.52	12.89	3.96
4600	9.72	18.48	20.04	16.95	1.52	0.37	29.28	13.03	3.97
4800	9.48	18.62	18.82	16.14	1.57	0.36	29.13	13.09	4.17
5000	9.44	18.73	18.08	16.19	1.59	0.36	28.88	12.88	4.02
5200	9.29	18.94	17.92	15.86	1.64	0.35	29.06	12.83	4.23
5400	9.06	19.12	16.85	15.15	1.69	0.34	28.33	12.80	4.28
5600	8.92	19.23	16.01	14.66	1.72	0.33	28.12	12.69	4.22
5800	8.97	19.33	16.10	15.13	1.74	0.33	28.01	12.60	4.34
6000	8.74	19.36	15.16	14.59	1.77	0.33	27.46	12.64	4.31
6200	8.56	19.68	15.06	14.86	1.86	0.31	27.40	12.41	4.33
6400	8.52	19.60	15.02	15.17	1.85	0.31	27.05	12.33	4.37
6600	8.44	19.86	14.95	15.32	1.92	0.30	26.30	12.47	4.41
6800	8.28	20.18	15.13	15.55	2.01	0.28	26.05	12.30	4.51
7000	8.55	20.53	15.65	17.45	2.04	0.27	26.46	12.19	4.57
7200	8.48	20.64	15.30	17.94	2.08	0.27	25.29	12.17	4.61
7600	8.44	20.92	14.88	18.95	2.15	0.26	24.75	11.80	4.84
8000	8.28	20.56	13.98	18.20	2.09	0.27	23.50	11.51	5.13

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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: Icc = 32mA, Vd = 3.50V @Temperature = -45degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	12.12	16.75	25.04	46.22	1.14	0.59	22.14	8.34	3.86
100	12.13	16.75	24.38	46.61	1.14	0.59	21.96	8.09	3.77
200	12.12	16.75	24.39	43.34	1.14	0.59	22.16	8.30	3.81
400	12.03	16.75	25.04	36.30	1.15	0.58	21.93	8.02	3.83
600	11.97	16.75	26.70	31.51	1.15	0.58	22.02	8.35	3.83
800	11.89	16.76	27.77	28.80	1.16	0.57	22.13	8.39	3.76
1000	11.80	16.78	30.61	26.30	1.16	0.56	22.66	8.06	3.73
1200	11.69	16.81	32.97	24.55	1.17	0.55	23.12	8.62	3.77
1400	11.58	16.85	34.03	23.00	1.18	0.54	22.67	8.46	3.71
1600	11.47	16.90	33.39	22.20	1.20	0.53	23.12	8.35	3.83
1800	11.36	16.94	31.65	21.43	1.21	0.53	22.80	8.64	3.70
2000	11.24	16.96	29.93	21.06	1.22	0.52	22.75	8.76	3.72
2200	11.16	17.04	29.70	21.06	1.23	0.51	22.52	8.81	3.71
2400	11.04	17.10	27.95	20.74	1.25	0.50	22.83	8.70	3.86
2600	10.92	17.19	27.17	20.74	1.26	0.49	22.39	8.91	3.81
2800	10.77	17.27	26.46	20.75	1.28	0.48	22.51	8.91	3.77
3000	10.66	17.31	26.65	21.08	1.30	0.47	22.61	8.88	3.79
3200	10.51	17.46	26.31	21.26	1.33	0.45	22.62	9.44	3.81
3400	10.40	17.51	24.47	20.77	1.34	0.45	23.18	9.29	3.90
3600	10.25	17.65	25.23	20.72	1.38	0.43	23.23	9.34	3.86
3800	10.06	17.83	24.17	20.15	1.42	0.41	23.44	9.72	3.95
4000	9.96	17.87	22.85	19.76	1.43	0.41	23.72	10.02	3.97
4200	9.86	18.06	23.28	19.40	1.46	0.39	23.84	10.22	3.90
4400	9.66	18.18	21.13	18.15	1.50	0.38	24.43	10.27	3.89
4600	9.57	18.34	20.91	17.71	1.53	0.37	24.75	10.82	3.87
4800	9.34	18.48	19.56	16.83	1.57	0.36	24.95	11.02	4.02
5000	9.30	18.62	18.64	16.88	1.60	0.36	24.74	10.75	3.90
5200	9.17	18.84	18.44	16.52	1.65	0.34	25.16	11.02	4.12
5400	8.93	19.03	17.28	15.73	1.70	0.33	25.26	11.30	4.18
5600	8.79	19.14	16.34	15.24	1.74	0.33	24.98	10.96	4.12
5800	8.86	19.26	16.33	15.75	1.75	0.33	24.61	10.79	4.25
6000	8.62	19.28	15.34	15.19	1.78	0.32	24.65	11.25	4.28
6200	8.44	19.64	15.31	15.47	1.88	0.30	24.86	11.06	4.24
6400	8.41	19.57	15.12	15.80	1.87	0.30	24.32	10.73	4.31
6600	8.31	19.86	15.06	15.99	1.94	0.29	23.86	10.98	4.29
6800	8.17	20.16	15.34	16.19	2.04	0.28	23.89	10.94	4.42
7000	8.43	20.58	15.62	18.27	2.08	0.27	24.17	10.66	4.35
7200	8.37	20.73	15.25	18.82	2.12	0.26	23.41	10.73	4.47
7600	8.33	21.06	14.79	19.97	2.20	0.25	22.74	10.36	4.68
8000	8.18	20.79	13.87	19.26	2.16	0.26	22.18	10.45	4.92

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# MMIC Amplifier

# ERA-1+

## 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: Icc = 48mA, Vd = 3.67V @Temperature = -45degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	12.55	17.07	32.00	28.14	1.14	0.59	30.63	13.81	4.36
100	12.57	17.06	30.26	28.25	1.13	0.60	30.63	13.89	4.07
200	12.54	17.06	30.29	27.87	1.13	0.59	31.02	14.00	3.96
400	12.46	17.07	31.53	26.71	1.14	0.59	30.74	13.86	3.95
600	12.39	17.08	34.27	24.73	1.14	0.58	30.77	14.00	3.94
800	12.30	17.09	34.44	23.41	1.15	0.58	30.95	13.91	3.86
1000	12.19	17.11	34.42	21.96	1.16	0.57	31.72	13.66	3.85
1200	12.08	17.13	31.78	20.88	1.17	0.56	32.02	13.80	3.89
1400	11.95	17.17	28.83	19.82	1.18	0.55	31.63	13.77	3.86
1600	11.83	17.22	27.10	19.31	1.19	0.54	31.91	13.76	3.97
1800	11.72	17.26	25.73	18.77	1.20	0.53	31.78	13.74	3.86
2000	11.59	17.29	24.62	18.53	1.21	0.52	31.93	13.89	3.88
2200	11.48	17.35	24.33	18.60	1.22	0.51	31.56	13.98	3.89
2400	11.35	17.40	23.35	18.43	1.24	0.50	31.65	13.81	3.99
2600	11.22	17.49	22.84	18.47	1.26	0.49	31.86	13.87	3.95
2800	11.07	17.55	22.42	18.54	1.28	0.48	31.81	13.99	3.92
3000	10.94	17.60	22.71	18.84	1.29	0.47	31.36	13.94	3.93
3200	10.79	17.74	22.51	19.08	1.32	0.45	31.34	13.93	3.93
3400	10.68	17.77	21.50	18.77	1.34	0.45	31.76	13.93	4.03
3600	10.51	17.90	22.02	18.83	1.37	0.43	31.55	13.91	4.00
3800	10.32	18.09	21.40	18.46	1.41	0.41	31.62	14.01	4.09
4000	10.22	18.13	20.64	18.17	1.42	0.41	31.01	14.05	4.13
4200	10.10	18.28	21.15	17.97	1.45	0.40	31.57	13.99	4.06
4400	9.88	18.38	19.60	16.94	1.49	0.39	31.61	14.02	4.01
4600	9.80	18.54	19.45	16.57	1.52	0.38	31.15	14.10	4.02
4800	9.56	18.68	18.32	15.79	1.56	0.36	30.85	14.09	4.14
5000	9.51	18.79	17.69	15.83	1.58	0.36	30.66	13.89	4.05
5200	9.36	19.00	17.53	15.54	1.63	0.35	30.64	13.69	4.24
5400	9.12	19.17	16.52	14.84	1.68	0.34	29.61	13.58	4.37
5600	8.98	19.27	15.72	14.38	1.71	0.33	29.48	13.51	4.33
5800	9.03	19.36	15.89	14.82	1.73	0.33	29.61	13.51	4.45
6000	8.80	19.38	14.98	14.28	1.76	0.33	28.90	13.35	4.41
6200	8.61	19.70	14.86	14.54	1.84	0.31	28.56	13.07	4.44
6400	8.57	19.60	14.87	14.85	1.84	0.31	28.43	13.06	4.52
6600	8.50	19.87	14.81	15.00	1.90	0.30	27.66	13.18	4.57
6800	8.34	20.15	14.87	15.17	1.99	0.29	27.26	12.94	4.66
7000	8.60	20.51	15.55	17.00	2.03	0.28	27.56	12.89	4.63
7200	8.54	20.60	15.20	17.44	2.06	0.27	26.28	12.84	4.68
7600	8.48	20.84	14.88	18.38	2.12	0.26	25.84	12.42	5.12
8000	8.34	20.54	13.97	17.79	2.07	0.27	24.22	12.01	5.20

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# MMIC Amplifier

# ERA-1+

## 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: Icc = 40mA, Vd = 3.30V @Temperature = +85degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	12.13	16.80	27.60	35.43	1.15	0.58	26.91	11.94	5.39
100	12.14	16.81	27.27	34.09	1.15	0.58	26.84	11.77	5.18
200	12.11	16.82	28.06	31.85	1.15	0.58	27.10	11.94	5.07
400	12.02	16.85	28.10	30.81	1.16	0.57	26.76	11.76	5.08
600	11.93	16.85	29.82	28.51	1.16	0.57	26.71	11.89	5.07
800	11.83	16.88	30.64	26.91	1.17	0.56	26.85	11.79	5.03
1000	11.73	16.90	33.75	25.08	1.18	0.55	27.45	11.55	4.98
1200	11.61	16.96	35.45	23.83	1.19	0.54	27.73	11.74	5.07
1400	11.49	17.01	34.89	22.70	1.20	0.53	27.30	11.69	5.02
1600	11.35	17.05	33.36	22.04	1.22	0.52	27.54	11.64	5.13
1800	11.24	17.11	30.92	21.34	1.23	0.51	27.34	11.67	5.00
2000	11.11	17.16	30.36	21.05	1.24	0.50	27.37	11.80	5.05
2200	10.99	17.24	29.44	21.05	1.26	0.49	27.00	11.86	5.06
2400	10.88	17.31	28.38	20.73	1.28	0.48	27.06	11.73	5.20
2600	10.73	17.42	27.88	20.78	1.30	0.47	27.02	11.82	5.14
2800	10.59	17.49	26.72	20.59	1.32	0.46	27.05	11.88	5.14
3000	10.45	17.58	27.53	20.95	1.35	0.44	26.68	11.84	5.16
3200	10.30	17.71	26.86	21.15	1.38	0.43	26.50	11.93	5.18
3400	10.19	17.74	25.21	20.68	1.39	0.42	26.66	11.91	5.23
3600	10.03	17.93	25.15	20.57	1.43	0.41	26.41	11.78	5.24
3800	9.83	18.11	23.93	20.05	1.48	0.39	26.40	11.94	5.34
4000	9.73	18.17	22.59	19.74	1.50	0.38	25.78	11.96	5.36
4200	9.59	18.38	22.92	19.67	1.54	0.37	25.90	11.97	5.32
4400	9.41	18.50	21.07	18.82	1.58	0.36	25.92	11.97	5.30
4600	9.31	18.68	20.56	18.30	1.61	0.35	25.49	12.06	5.29
4800	9.11	18.79	19.52	17.64	1.66	0.34	25.15	12.01	5.43
5000	9.04	19.08	19.46	18.06	1.72	0.33	24.81	11.81	5.47
5200	8.92	19.15	18.59	17.69	1.74	0.32	24.55	11.66	5.61
5400	8.64	19.33	17.71	16.79	1.81	0.31	23.80	11.51	5.72
5600	8.60	19.48	17.01	16.81	1.84	0.31	23.65	11.31	5.79
5800	8.52	19.66	16.81	16.80	1.89	0.30	23.39	11.35	5.78
6000	8.29	19.65	15.44	16.09	1.91	0.30	22.79	11.27	5.83
6200	8.01	19.92	15.34	16.07	2.02	0.28	22.66	10.91	5.87
6400	8.17	20.06	15.12	17.07	2.02	0.28	22.28	10.79	5.78
6600	8.13	20.46	15.31	17.48	2.11	0.26	21.55	10.96	5.85
6800	7.86	20.50	15.18	17.29	2.18	0.25	21.35	10.68	6.09
7000	8.00	20.96	15.13	18.92	2.26	0.24	21.38	10.54	6.26
7200	8.03	21.28	15.05	19.75	2.32	0.23	20.68	10.62	6.28
7600	7.83	21.18	14.18	19.31	2.33	0.23	19.96	10.01	6.28
8000	7.74	21.16	13.13	19.69	2.32	0.22	19.20	9.74	6.78

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# MMIC Amplifier

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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: Icc = 32mA, Vd = 3.21V @Temperature = +85degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	11.77	16.55	23.58	38.77	1.15	0.58	22.69	8.82	5.06
100	11.78	16.56	23.37	39.98	1.15	0.58	22.53	8.62	4.98
200	11.75	16.58	23.95	40.59	1.16	0.57	22.69	8.76	4.99
400	11.66	16.60	23.99	40.50	1.16	0.57	22.38	8.52	5.01
600	11.58	16.62	25.09	35.87	1.17	0.56	22.37	8.84	5.02
800	11.49	16.65	25.85	32.78	1.18	0.55	22.50	8.74	4.98
1000	11.40	16.66	27.74	29.89	1.19	0.54	23.02	8.48	4.95
1200	11.28	16.70	29.70	27.81	1.20	0.53	23.41	9.03	5.01
1400	11.16	16.75	31.76	26.06	1.21	0.52	23.03	8.88	4.95
1600	11.04	16.82	34.58	25.20	1.22	0.51	23.42	8.63	5.06
1800	10.95	16.86	35.93	24.22	1.24	0.51	23.18	9.01	4.91
2000	10.82	16.91	38.06	23.66	1.25	0.50	23.17	9.22	4.97
2200	10.72	16.97	37.88	23.62	1.27	0.49	22.92	9.20	4.98
2400	10.60	17.06	35.89	23.12	1.28	0.48	23.21	9.15	5.11
2600	10.48	17.18	34.39	23.09	1.31	0.46	22.92	9.28	5.05
2800	10.34	17.27	31.68	22.83	1.33	0.45	23.05	9.33	5.05
3000	10.21	17.36	32.68	23.15	1.35	0.44	23.12	9.26	5.06
3200	10.06	17.50	31.27	23.29	1.38	0.43	23.09	9.73	5.07
3400	9.96	17.54	27.96	22.61	1.40	0.42	23.60	9.72	5.15
3600	9.80	17.71	27.83	22.43	1.44	0.40	23.58	9.59	5.13
3800	9.61	17.91	25.93	21.71	1.48	0.39	23.70	9.93	5.24
4000	9.53	17.98	24.01	21.25	1.50	0.38	23.59	10.08	5.26
4200	9.40	18.20	24.02	21.07	1.55	0.37	23.70	10.11	5.22
4400	9.21	18.33	21.78	20.02	1.59	0.36	24.03	10.21	5.19
4600	9.11	18.54	21.14	19.41	1.63	0.35	23.88	10.46	5.15
4800	8.91	18.65	19.95	18.66	1.67	0.34	23.60	10.52	5.26
5000	8.86	18.95	19.75	19.10	1.73	0.32	23.31	10.31	5.32
5200	8.74	19.04	18.72	18.70	1.76	0.32	23.20	10.35	5.47
5400	8.46	19.23	17.87	17.73	1.83	0.31	22.66	10.40	5.55
5600	8.42	19.40	17.08	17.74	1.87	0.30	22.44	10.17	5.64
5800	8.35	19.61	16.74	17.76	1.92	0.29	22.09	10.07	5.64
6000	8.12	19.59	15.38	16.94	1.94	0.29	21.62	10.27	5.72
6200	7.84	19.89	15.40	16.98	2.05	0.27	21.60	10.00	5.72
6400	7.99	20.06	14.93	18.05	2.05	0.27	21.14	9.76	5.72
6600	7.94	20.52	15.00	18.51	2.16	0.25	20.45	9.96	5.81
6800	7.68	20.56	14.96	18.29	2.23	0.24	20.31	9.76	5.95
7000	7.81	21.08	14.73	20.18	2.32	0.23	20.35	9.55	6.01
7200	7.84	21.43	14.57	21.15	2.40	0.22	19.68	9.63	6.03
7600	7.64	21.43	13.70	20.66	2.43	0.21	18.93	9.16	5.96
8000	7.54	21.45	12.63	20.87	2.43	0.21	18.30	8.99	6.63

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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: Icc = 48mA, Vd = 3.38V @Temperature = +85degC

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	12.32	16.95	30.71	29.72	1.14	0.59	30.01	13.56	5.59
100	12.34	16.95	30.18	29.06	1.14	0.59	30.01	13.54	5.34
200	12.30	16.96	31.49	27.78	1.14	0.58	30.30	13.61	5.17
400	12.21	16.99	31.62	27.16	1.15	0.58	29.88	13.48	5.15
600	12.13	17.00	33.94	25.68	1.16	0.57	29.71	13.45	5.14
800	12.01	17.02	34.45	24.53	1.17	0.56	29.76	13.31	5.09
1000	11.90	17.04	37.33	23.14	1.18	0.55	30.25	13.12	5.08
1200	11.79	17.09	35.17	22.13	1.19	0.54	30.09	13.09	5.15
1400	11.64	17.12	32.31	21.21	1.20	0.53	29.68	13.10	5.12
1600	11.52	17.20	30.14	20.68	1.21	0.52	29.53	13.08	5.22
1800	11.41	17.25	28.12	20.11	1.23	0.51	29.01	13.00	5.11
2000	11.26	17.29	27.53	19.87	1.24	0.50	29.02	13.13	5.15
2200	11.16	17.38	26.79	19.90	1.26	0.49	28.66	13.25	5.18
2400	11.02	17.44	26.10	19.65	1.28	0.48	28.47	12.98	5.29
2600	10.88	17.56	25.70	19.71	1.30	0.47	28.38	13.04	5.26
2800	10.73	17.62	24.83	19.59	1.32	0.46	28.22	13.21	5.24
3000	10.59	17.70	25.48	19.93	1.34	0.44	27.75	13.01	5.27
3200	10.42	17.83	25.04	20.19	1.38	0.43	27.48	12.93	5.27
3400	10.31	17.87	23.84	19.79	1.39	0.42	27.41	12.95	5.36
3600	10.15	18.03	23.81	19.74	1.43	0.41	26.98	12.83	5.37
3800	9.96	18.22	22.80	19.31	1.47	0.39	26.98	12.84	5.46
4000	9.85	18.28	21.73	19.04	1.49	0.39	26.37	12.89	5.49
4200	9.71	18.46	22.09	19.02	1.53	0.37	26.46	12.87	5.46
4400	9.51	18.60	20.49	18.25	1.58	0.36	26.38	12.83	5.43
4600	9.42	18.77	20.12	17.79	1.61	0.35	26.05	12.90	5.39
4800	9.22	18.88	19.19	17.14	1.65	0.34	25.75	12.88	5.49
5000	9.15	19.14	19.11	17.55	1.70	0.33	25.46	12.65	5.58
5200	9.01	19.23	18.35	17.20	1.74	0.32	25.15	12.40	5.73
5400	8.73	19.40	17.56	16.39	1.80	0.31	24.38	12.20	5.87
5600	8.69	19.52	16.85	16.37	1.83	0.31	24.31	12.03	5.91
5800	8.61	19.70	16.70	16.35	1.88	0.30	24.07	12.07	5.96
6000	8.38	19.69	15.38	15.67	1.90	0.30	23.49	11.94	6.06
6200	8.10	19.96	15.30	15.73	2.01	0.28	23.30	11.57	6.03
6400	8.25	20.06	15.16	16.61	2.00	0.28	22.96	11.45	5.99
6600	8.21	20.44	15.34	17.00	2.09	0.27	22.23	11.67	6.05
6800	7.94	20.47	15.19	16.80	2.15	0.26	22.01	11.37	6.25
7000	8.08	20.94	15.23	18.36	2.23	0.24	22.01	11.26	6.41
7200	8.12	21.20	15.20	19.14	2.28	0.24	21.28	11.34	6.43
7600	7.92	21.07	14.36	18.76	2.28	0.23	20.57	10.76	6.68
8000	7.83	21.00	13.34	19.04	2.27	0.23	19.76	10.40	6.99

REV. X1

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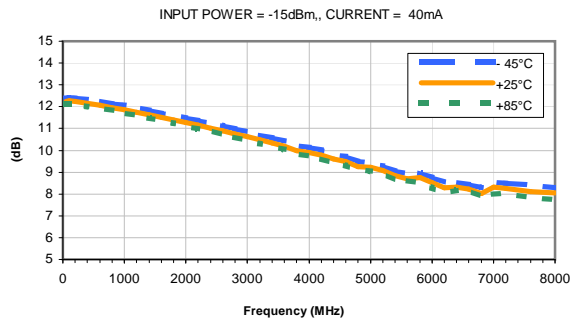


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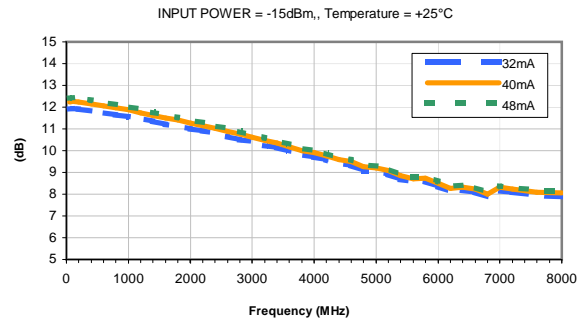


## Typical Performance Curves

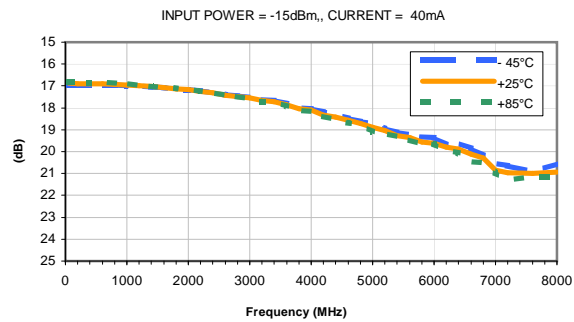
**GAIN vs. TEMPERATURE**



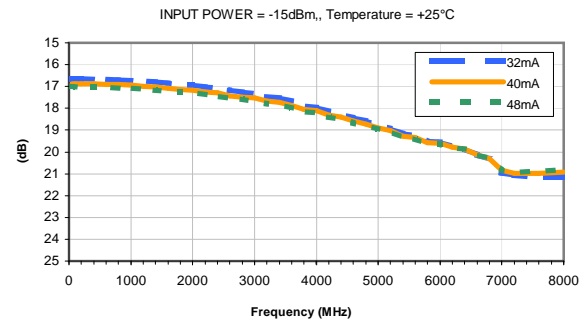
**GAIN vs. CURRENT**



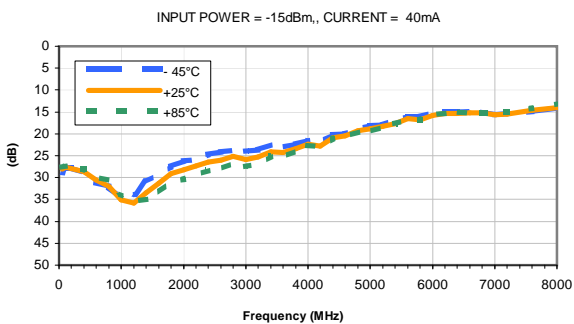
**ISOLATION vs. TEMPERATURE**



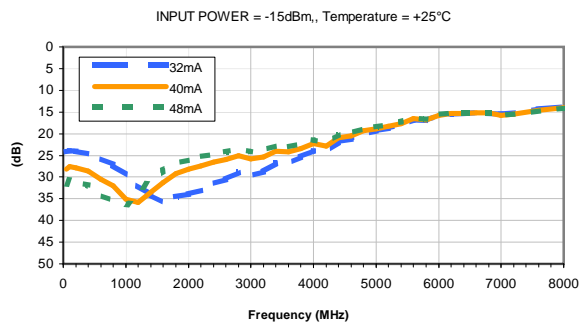
**ISOLATION vs. CURRENT**



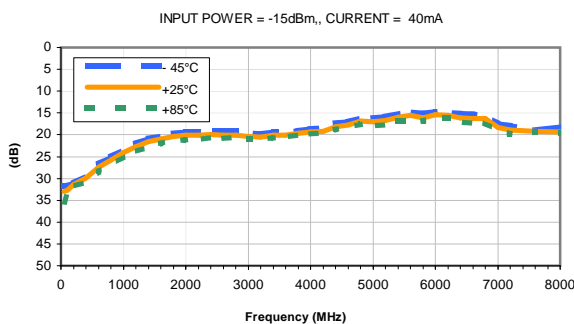
**INPUT RETURN LOSS vs. TEMPERATURE**



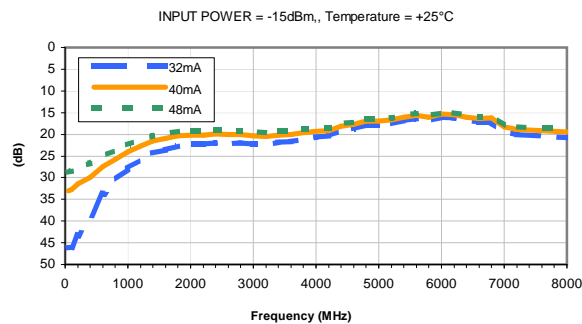
**INPUT RETURN LOSS vs. CURRENT**



**OUTPUT RETURN LOSS vs. TEMPERATURE**



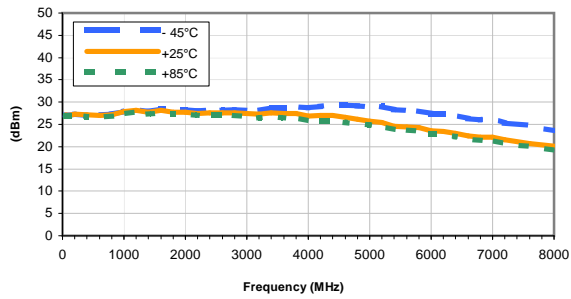
**OUTPUT RETURN LOSS vs. CURRENT**



## Typical Performance Curves

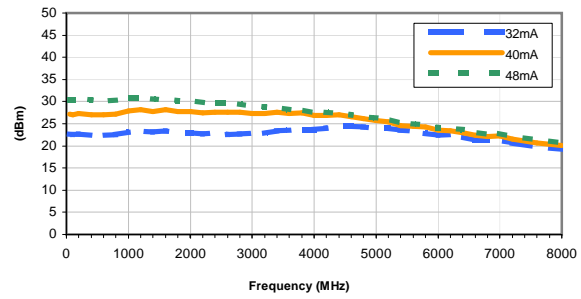
**OUTPUT IP3 vs. TEMPERATURE**

INPUT POWER = -15dBm, CURRENT = 40mA



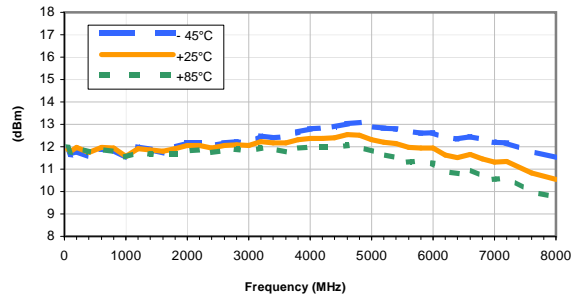
**OUTPUT IP3 vs. CURRENT**

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



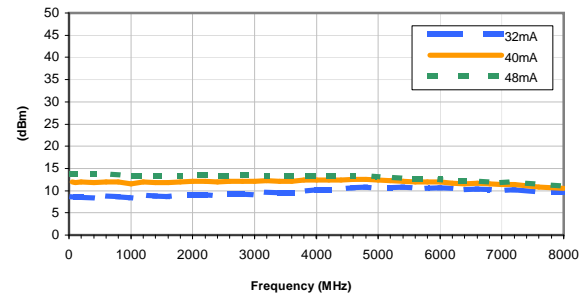
**OUTPUT POWER at 1dB Compression vs. TEMPERATURE**

CURRENT = 40mA



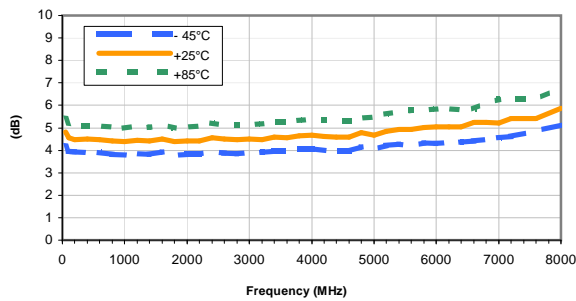
**OUTPUT POWER at 1dB Compression vs. CURRENT**

Temperature = +25°C



**Noise Figure vs. TEMPERATURE**

CURRENT = 40mA



**Noise Figure vs. CURRENT**

Temperature = +25°C

