

# MMIC Amplifier

# ERA-21SM

## 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 = 3.50V @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	14.66	18.86	39.58	32.42	1.12	0.62	28.75	12.28	3.32
100	14.69	18.89	41.22	31.61	1.12	0.62	28.72	12.46	3.44
200	14.63	18.89	37.68	30.57	1.12	0.61	28.85	12.36	3.29
400	14.50	18.83	33.45	28.09	1.12	0.61	28.33	12.13	3.37
600	14.35	18.81	30.60	25.84	1.13	0.60	28.10	12.37	3.34
800	14.18	18.76	28.90	24.14	1.14	0.59	28.17	12.01	3.46
1000	14.01	18.76	26.30	22.79	1.15	0.58	28.52	11.78	3.40
1200	13.85	18.76	24.44	21.62	1.16	0.57	28.51	11.78	3.48
1400	13.69	18.75	22.98	20.75	1.17	0.56	28.21	12.03	3.49
1600	13.52	18.79	21.63	19.98	1.18	0.55	28.23	11.65	3.52
1800	13.34	18.80	20.58	19.47	1.19	0.54	28.19	11.65	3.53
2000	13.18	18.81	19.90	19.22	1.21	0.53	27.85	11.88	3.45
2200	12.99	18.84	18.95	18.92	1.22	0.52	27.49	12.01	3.57
2400	12.81	18.86	18.20	18.77	1.24	0.51	27.25	11.75	3.58
2600	12.62	18.92	17.64	18.70	1.26	0.50	27.19	11.36	3.55
2800	12.42	18.92	16.77	18.51	1.27	0.49	27.00	11.53	3.57
3000	12.21	19.00	16.52	18.55	1.30	0.47	26.67	11.87	3.41
3200	12.01	19.06	15.69	18.39	1.32	0.46	26.35	11.60	3.44
3400	11.81	19.07	15.26	18.24	1.34	0.45	26.13	10.94	3.60
3600	11.58	19.15	14.86	17.93	1.37	0.44	25.82	11.17	3.67
3800	11.39	19.24	14.30	17.70	1.39	0.43	25.79	11.64	3.70
4000	11.20	19.27	13.67	17.11	1.41	0.42	25.28	11.39	3.67
4200	10.96	19.37	13.32	16.93	1.45	0.41	25.18	10.76	3.66
4400	10.77	19.43	12.70	16.51	1.47	0.40	25.20	10.93	3.77
4600	10.55	19.51	12.27	16.00	1.50	0.39	24.87	11.53	3.97
4800	10.38	19.59	11.71	15.69	1.52	0.39	24.58	11.20	3.99
5000	10.14	19.68	11.06	15.44	1.55	0.38	24.14	10.29	4.16
5200	9.90	19.72	10.85	15.21	1.59	0.37	24.14	10.15	4.08
5400	9.73	19.82	10.38	15.17	1.61	0.36	23.75	10.83	4.14
5600	9.49	19.90	9.93	14.97	1.64	0.35	23.28	10.65	4.20
5800	9.26	20.06	9.83	14.98	1.70	0.34	23.31	10.16	4.28
6000	9.08	20.11	9.49	15.21	1.72	0.33	23.27	9.54	4.20
6200	8.87	20.14	9.31	15.48	1.75	0.32	22.77	10.03	4.28
6400	8.76	20.21	9.28	15.99	1.78	0.31	22.62	10.35	4.54
6600	8.52	20.24	8.95	16.12	1.81	0.30	22.55	10.00	4.63
6800	8.39	20.37	8.99	16.57	1.86	0.29	22.26	9.14	4.75
7000	8.27	20.44	8.83	17.16	1.89	0.29	22.18	9.55	4.71
7200	8.14	20.49	8.71	17.58	1.92	0.28	21.91	9.78	4.76
7600	7.97	20.66	8.32	18.37	1.97	0.27	21.56	8.60	5.16
8000	7.91	21.02	7.94	19.15	2.03	0.26	20.85	9.06	5.29



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# ERA-21SM

## 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 = 3.43V @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	14.38	18.67	29.70	63.88	1.12	0.61	25.00	9.96	3.29
100	14.42	18.67	30.39	51.24	1.12	0.61	24.95	10.43	3.38
200	14.37	18.68	30.42	43.31	1.12	0.61	25.08	10.19	3.28
400	14.23	18.63	30.23	35.34	1.13	0.60	24.71	9.89	3.34
600	14.09	18.58	30.29	31.01	1.13	0.60	24.61	10.36	3.32
800	13.93	18.55	30.30	28.15	1.14	0.59	24.67	10.02	3.45
1000	13.76	18.55	27.75	25.98	1.15	0.58	25.13	9.93	3.38
1200	13.60	18.54	25.86	24.30	1.16	0.57	25.45	9.79	3.45
1400	13.47	18.53	24.18	23.07	1.17	0.56	25.17	10.17	3.46
1600	13.29	18.57	22.59	22.05	1.18	0.55	25.39	9.85	3.49
1800	13.12	18.58	21.44	21.33	1.20	0.54	25.61	9.91	3.48
2000	12.96	18.60	20.49	20.98	1.21	0.53	25.44	10.03	3.42
2200	12.79	18.62	19.46	20.58	1.22	0.52	25.11	10.24	3.50
2400	12.61	18.65	18.62	20.33	1.24	0.51	25.08	10.02	3.52
2600	12.41	18.69	17.96	20.23	1.26	0.50	25.28	9.79	3.53
2800	12.22	18.72	16.95	19.95	1.27	0.49	25.29	9.95	3.52
3000	12.02	18.80	16.64	19.90	1.30	0.47	24.98	10.36	3.33
3200	11.82	18.86	15.75	19.70	1.32	0.46	24.74	10.22	3.40
3400	11.63	18.89	15.27	19.46	1.34	0.45	24.85	9.84	3.55
3600	11.39	18.98	14.86	19.08	1.37	0.44	24.75	9.97	3.62
3800	11.21	19.06	14.24	18.77	1.40	0.43	24.57	10.35	3.63
4000	11.02	19.12	13.63	18.11	1.42	0.42	24.27	10.35	3.61
4200	10.79	19.23	13.23	17.84	1.45	0.40	24.24	9.88	3.61
4400	10.59	19.31	12.59	17.41	1.48	0.40	24.44	9.93	3.72
4600	10.38	19.38	12.16	16.86	1.51	0.39	24.12	10.48	3.88
4800	10.19	19.48	11.59	16.53	1.53	0.38	23.78	10.37	3.88
5000	9.96	19.58	10.96	16.25	1.56	0.37	23.49	9.61	4.06
5200	9.73	19.65	10.71	16.03	1.60	0.36	23.42	9.39	3.98
5400	9.55	19.74	10.25	16.02	1.62	0.35	23.08	10.04	4.03
5600	9.30	19.84	9.78	15.82	1.66	0.34	22.73	10.01	4.12
5800	9.08	19.98	9.67	15.87	1.71	0.33	22.68	9.54	4.20
6000	8.89	20.08	9.35	16.16	1.74	0.32	22.66	8.87	4.09
6200	8.69	20.12	9.15	16.48	1.78	0.31	22.29	9.47	4.17
6400	8.56	20.22	9.10	17.08	1.81	0.30	22.16	9.74	4.43
6600	8.33	20.27	8.78	17.26	1.85	0.29	22.07	9.35	4.55
6800	8.19	20.40	8.81	17.79	1.90	0.28	21.84	8.58	4.62
7000	8.06	20.48	8.63	18.50	1.93	0.27	21.74	8.96	4.57
7200	7.93	20.55	8.51	19.02	1.96	0.27	21.49	9.20	4.61
7600	7.76	20.77	8.11	19.97	2.02	0.26	21.23	8.02	5.00
8000	7.67	21.17	7.71	20.92	2.09	0.24	20.42	8.49	5.12



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# ERA-21SM

## 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 = 3.57V @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	14.81	18.99	41.00	28.39	1.12	0.62	31.49	13.62	3.37
100	14.86	19.03	42.49	27.80	1.12	0.62	31.49	13.61	3.49
200	14.79	19.03	39.95	27.17	1.12	0.61	31.59	13.67	3.33
400	14.67	18.96	32.71	25.48	1.12	0.61	30.81	13.47	3.40
600	14.49	18.93	29.22	23.72	1.13	0.60	30.34	13.56	3.35
800	14.32	18.89	27.33	22.42	1.14	0.59	30.21	13.07	3.51
1000	14.15	18.90	25.07	21.30	1.15	0.58	30.20	12.61	3.45
1200	13.99	18.89	23.40	20.32	1.16	0.57	29.85	12.81	3.52
1400	13.84	18.89	22.09	19.59	1.17	0.57	29.47	13.03	3.55
1600	13.66	18.90	20.94	18.96	1.18	0.56	29.18	12.45	3.58
1800	13.48	18.95	19.99	18.52	1.19	0.54	28.92	12.37	3.59
2000	13.32	18.95	19.37	18.34	1.21	0.53	28.34	12.78	3.52
2200	13.13	18.97	18.51	18.08	1.22	0.52	28.01	12.94	3.62
2400	12.94	18.99	17.89	17.96	1.24	0.51	27.74	12.40	3.63
2600	12.74	19.03	17.43	17.93	1.25	0.50	27.52	11.87	3.60
2800	12.55	19.05	16.57	17.77	1.27	0.49	27.19	12.06	3.64
3000	12.34	19.12	16.38	17.82	1.30	0.48	26.92	12.47	3.45
3200	12.13	19.17	15.58	17.72	1.32	0.46	26.62	12.04	3.52
3400	11.94	19.18	15.21	17.58	1.34	0.46	26.24	11.26	3.66
3600	11.70	19.26	14.87	17.31	1.37	0.44	25.88	11.62	3.77
3800	11.51	19.34	14.30	17.10	1.39	0.43	25.89	12.18	3.76
4000	11.33	19.37	13.69	16.58	1.41	0.43	25.44	11.76	3.74
4200	11.08	19.46	13.34	16.38	1.44	0.41	25.33	11.08	3.74
4400	10.90	19.52	12.77	16.02	1.47	0.41	25.32	11.33	3.87
4600	10.66	19.58	12.33	15.51	1.49	0.40	24.93	11.98	4.04
4800	10.49	19.64	11.77	15.24	1.52	0.39	24.57	11.54	4.11
5000	10.26	19.73	11.16	14.97	1.54	0.38	24.22	10.59	4.25
5200	10.02	19.78	10.90	14.73	1.58	0.37	24.14	10.41	4.19
5400	9.86	19.83	10.47	14.68	1.59	0.37	23.74	11.17	4.22
5600	9.61	19.94	10.00	14.45	1.63	0.36	23.27	10.97	4.33
5800	9.38	20.06	9.90	14.46	1.68	0.35	23.33	10.39	4.43
6000	9.22	20.13	9.61	14.64	1.71	0.34	23.27	9.84	4.34
6200	9.01	20.14	9.43	14.86	1.73	0.33	22.83	10.39	4.41
6400	8.89	20.20	9.40	15.30	1.76	0.32	22.65	10.66	4.68
6600	8.66	20.23	9.07	15.41	1.79	0.31	22.76	10.32	4.78
6800	8.53	20.31	9.13	15.76	1.83	0.30	22.38	9.52	4.89
7000	8.39	20.39	8.98	16.29	1.87	0.30	22.24	9.87	4.85
7200	8.27	20.41	8.86	16.66	1.89	0.29	21.98	10.12	4.91
7600	8.12	20.56	8.48	17.35	1.93	0.28	21.67	8.90	5.28
8000	8.06	20.89	8.11	18.04	1.98	0.27	20.82	9.41	5.45

# MMIC Amplifier

# ERA-21SM

## 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 = 3.68V @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	14.63	18.85	34.77	36.29	1.12	0.61	29.60	12.43	2.93
100	14.69	18.86	33.26	35.93	1.12	0.62	29.57	12.72	2.99
200	14.65	18.82	33.37	34.13	1.12	0.62	29.73	12.61	2.88
400	14.51	18.77	32.51	31.00	1.12	0.61	29.30	12.40	2.91
600	14.37	18.73	31.58	27.64	1.13	0.61	29.17	12.68	2.87
800	14.21	18.69	30.72	25.36	1.13	0.60	29.26	12.38	2.98
1000	14.06	18.68	27.59	23.75	1.14	0.59	29.70	12.26	2.92
1200	13.91	18.65	25.57	22.31	1.15	0.58	29.85	12.18	2.95
1400	13.76	18.67	23.79	21.24	1.16	0.57	29.51	12.43	2.99
1600	13.59	18.70	22.17	20.42	1.17	0.56	29.62	12.15	3.02
1800	13.44	18.68	20.78	19.66	1.18	0.56	29.67	12.18	3.02
2000	13.27	18.72	20.40	19.54	1.19	0.54	29.28	12.35	2.93
2200	13.09	18.73	19.35	19.26	1.21	0.53	28.90	12.48	3.00
2400	12.92	18.75	18.61	19.04	1.22	0.52	28.75	12.28	3.02
2600	12.74	18.78	17.87	18.93	1.24	0.51	28.77	12.10	3.03
2800	12.55	18.80	17.13	18.84	1.25	0.50	28.59	12.22	3.03
3000	12.34	18.89	16.74	18.80	1.28	0.49	28.30	12.50	2.87
3200	12.13	18.97	15.96	18.56	1.30	0.47	28.16	12.30	2.93
3400	11.98	18.92	15.44	18.48	1.31	0.47	27.99	11.90	3.01
3600	11.74	19.02	15.07	18.17	1.34	0.45	27.78	12.08	3.12
3800	11.54	19.13	14.47	17.84	1.37	0.44	27.78	12.38	3.07
4000	11.38	19.14	13.81	17.25	1.38	0.44	27.24	12.25	3.11
4200	11.10	19.31	13.64	16.90	1.43	0.42	27.38	11.82	3.05
4400	10.98	19.29	12.89	16.55	1.43	0.42	27.31	12.01	3.19
4600	10.70	19.38	12.37	15.86	1.47	0.41	27.15	12.47	3.31
4800	10.58	19.44	11.85	15.69	1.48	0.40	26.60	12.19	3.37
5000	10.36	19.51	11.13	15.28	1.50	0.39	26.44	11.49	3.53
5200	10.07	19.56	10.90	14.86	1.54	0.38	26.48	11.34	3.48
5400	9.96	19.60	10.35	14.92	1.55	0.38	25.93	11.89	3.46
5600	9.73	19.63	9.75	14.63	1.56	0.37	25.50	11.67	3.54
5800	9.54	19.86	9.82	14.86	1.63	0.36	25.49	11.24	3.60
6000	9.41	20.05	9.82	15.15	1.67	0.34	25.54	10.85	3.61
6200	9.17	19.96	9.44	15.18	1.68	0.34	25.18	11.24	3.60
6400	8.98	19.92	9.34	15.34	1.70	0.33	25.12	11.37	3.86
6600	8.79	19.94	8.94	15.59	1.71	0.32	25.07	11.12	3.85
6800	8.72	20.04	9.00	16.10	1.75	0.31	24.77	10.56	3.95
7000	8.60	20.26	9.12	16.72	1.82	0.30	24.86	10.81	3.94
7200	8.48	20.30	8.93	17.15	1.84	0.30	24.47	10.89	4.06
7600	8.26	20.37	8.27	17.72	1.85	0.29	23.97	9.89	4.34
8000	8.27	20.80	8.00	18.59	1.92	0.28	23.45	10.24	4.57

# MMIC Amplifier

# ERA-21SM

## 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 = 3.61V @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	14.40	18.60	28.55	44.51	1.12	0.62	25.55	9.86	2.90
100	14.45	18.67	28.39	44.92	1.12	0.62	25.49	10.43	2.93
200	14.41	18.65	28.51	43.02	1.12	0.61	25.67	10.16	2.84
400	14.28	18.59	28.78	39.32	1.12	0.61	25.37	9.78	2.90
600	14.14	18.53	29.71	33.37	1.13	0.60	25.32	10.41	2.86
800	14.00	18.49	30.91	29.42	1.14	0.60	25.40	10.06	2.97
1000	13.84	18.48	28.55	26.90	1.14	0.59	25.88	10.02	2.90
1200	13.69	18.48	26.93	24.86	1.15	0.58	26.27	9.83	2.93
1400	13.54	18.47	24.92	23.39	1.16	0.57	25.95	10.28	2.96
1600	13.38	18.50	23.09	22.28	1.17	0.56	26.29	9.94	2.99
1800	13.24	18.50	21.49	21.32	1.18	0.55	26.56	10.10	2.98
2000	13.08	18.53	20.98	21.12	1.20	0.54	26.29	10.17	2.88
2200	12.90	18.54	19.88	20.75	1.21	0.53	25.97	10.41	2.97
2400	12.73	18.57	18.94	20.46	1.22	0.52	25.94	10.18	2.98
2600	12.56	18.60	18.15	20.29	1.24	0.51	26.24	10.03	2.97
2800	12.37	18.64	17.32	20.13	1.25	0.50	26.32	10.18	2.98
3000	12.17	18.72	16.88	20.07	1.28	0.48	26.11	10.64	2.82
3200	11.97	18.80	16.07	19.73	1.30	0.47	25.90	10.55	2.87
3400	11.81	18.76	15.49	19.63	1.31	0.46	26.09	10.26	2.98
3600	11.58	18.87	15.04	19.24	1.34	0.45	26.06	10.41	3.06
3800	11.39	18.98	14.47	18.81	1.37	0.44	26.05	10.72	3.02
4000	11.22	18.99	13.76	18.14	1.38	0.43	25.61	10.82	3.04
4200	10.94	19.17	13.58	17.71	1.43	0.41	25.69	10.54	3.00
4400	10.80	19.17	12.80	17.34	1.44	0.41	25.96	10.56	3.10
4600	10.54	19.27	12.31	16.59	1.47	0.40	25.77	11.06	3.22
4800	10.43	19.34	11.75	16.41	1.49	0.39	25.42	10.98	3.30
5000	10.20	19.39	11.06	16.00	1.51	0.39	25.14	10.48	3.43
5200	9.91	19.46	10.83	15.57	1.55	0.38	25.20	10.35	3.40
5400	9.81	19.51	10.25	15.65	1.55	0.37	24.90	10.86	3.42
5600	9.57	19.58	9.64	15.37	1.57	0.36	24.44	10.81	3.46
5800	9.37	19.82	9.71	15.62	1.64	0.35	24.44	10.41	3.53
6000	9.23	20.02	9.67	15.96	1.69	0.33	24.44	10.01	3.47
6200	9.00	19.95	9.30	16.04	1.70	0.33	24.19	10.44	3.51
6400	8.81	19.90	9.20	16.23	1.72	0.32	24.08	10.60	3.76
6600	8.63	19.95	8.80	16.54	1.74	0.31	23.91	10.27	3.75
6800	8.54	20.07	8.83	17.16	1.77	0.30	23.78	9.72	3.86
7000	8.41	20.30	8.92	17.87	1.85	0.29	23.66	10.06	3.86
7200	8.30	20.36	8.74	18.36	1.87	0.28	23.50	10.15	3.93
7600	8.08	20.46	8.10	19.04	1.89	0.28	23.20	9.16	4.22
8000	8.08	20.92	7.80	20.04	1.96	0.26	22.56	9.51	4.41

# MMIC Amplifier

# ERA-21SM

## 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 = 3.75V @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	14.79	18.94	48.32	31.05	1.12	0.62	32.63	13.97	3.00
100	14.83	18.96	38.77	30.74	1.11	0.62	32.47	14.13	3.06
200	14.79	18.95	38.94	29.83	1.12	0.62	32.60	14.09	2.88
400	14.67	18.90	34.63	27.83	1.12	0.61	32.08	13.89	2.97
600	14.51	18.83	31.17	25.34	1.12	0.61	31.70	14.01	2.89
800	14.35	18.81	29.23	23.57	1.13	0.60	31.73	13.64	3.01
1000	14.19	18.80	26.50	22.24	1.14	0.59	31.92	13.38	2.95
1200	14.03	18.79	24.54	21.05	1.15	0.58	31.64	13.43	3.00
1400	13.89	18.78	22.93	20.15	1.16	0.58	31.26	13.64	3.02
1600	13.71	18.81	21.48	19.43	1.17	0.56	31.02	13.24	3.05
1800	13.56	18.83	20.19	18.76	1.18	0.56	30.68	13.22	3.06
2000	13.38	18.85	19.89	18.69	1.19	0.54	30.18	13.51	2.98
2200	13.22	18.83	18.95	18.45	1.20	0.54	29.92	13.61	3.08
2400	13.04	18.86	18.29	18.27	1.22	0.53	29.72	13.26	3.08
2600	12.86	18.89	17.62	18.17	1.23	0.51	29.51	12.90	3.08
2800	12.66	18.93	16.94	18.12	1.25	0.50	29.09	13.04	3.08
3000	12.45	19.00	16.62	18.13	1.28	0.49	29.00	13.35	2.92
3200	12.23	19.08	15.86	17.92	1.30	0.47	28.72	13.01	2.97
3400	12.08	19.02	15.36	17.84	1.31	0.47	28.51	12.37	3.08
3600	11.86	19.12	15.02	17.60	1.34	0.46	28.19	12.68	3.16
3800	11.64	19.21	14.47	17.30	1.36	0.44	28.12	13.15	3.14
4000	11.48	19.22	13.83	16.75	1.38	0.44	27.77	12.82	3.17
4200	11.20	19.38	13.63	16.43	1.43	0.42	27.59	12.26	3.09
4400	11.07	19.37	12.91	16.10	1.43	0.42	27.63	12.53	3.24
4600	10.81	19.46	12.41	15.43	1.46	0.41	27.29	13.06	3.36
4800	10.69	19.50	11.89	15.27	1.47	0.40	27.07	12.67	3.44
5000	10.47	19.56	11.18	14.85	1.50	0.40	26.64	11.85	3.59
5200	10.18	19.63	10.95	14.45	1.53	0.39	26.53	11.71	3.56
5400	10.07	19.64	10.42	14.47	1.54	0.38	26.06	12.33	3.52
5600	9.84	19.68	9.81	14.17	1.55	0.38	25.60	12.05	3.65
5800	9.64	19.91	9.90	14.36	1.62	0.36	25.81	11.61	3.71
6000	9.50	20.06	9.90	14.64	1.66	0.35	25.81	11.25	3.72
6200	9.27	19.97	9.54	14.64	1.67	0.34	25.42	11.65	3.69
6400	9.08	19.91	9.42	14.75	1.68	0.34	25.12	11.76	3.96
6600	8.90	19.92	9.03	14.97	1.70	0.33	25.26	11.54	3.97
6800	8.83	20.03	9.13	15.43	1.73	0.32	25.05	10.99	4.07
7000	8.71	20.23	9.21	16.00	1.79	0.31	24.97	11.24	4.07
7200	8.59	20.26	9.04	16.39	1.81	0.31	24.52	11.27	4.17
7600	8.39	20.31	8.42	16.86	1.83	0.30	24.35	10.31	4.52
8000	8.40	20.69	8.15	17.63	1.88	0.29	23.56	10.72	4.73

# MMIC Amplifier

# ERA-21SM

## 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> = 40mA, V<sub>d</sub> = 3.38V @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	14.60	18.83	38.84	32.43	1.12	0.61	28.43	12.18	3.66
100	14.63	18.87	43.91	31.24	1.12	0.61	28.39	12.23	3.80
200	14.57	18.87	37.01	30.16	1.12	0.61	28.41	12.15	3.65
400	14.43	18.82	33.53	27.65	1.13	0.60	27.86	11.89	3.71
600	14.26	18.79	30.09	25.61	1.14	0.59	27.48	12.07	3.71
800	14.10	18.76	28.70	24.16	1.14	0.59	27.43	11.66	3.85
1000	13.92	18.75	26.35	22.99	1.15	0.58	27.59	11.31	3.79
1200	13.75	18.77	24.54	21.92	1.17	0.57	27.42	11.39	3.87
1400	13.59	18.77	23.28	21.05	1.18	0.56	27.08	11.68	3.91
1600	13.41	18.78	21.79	20.34	1.19	0.55	26.94	11.19	3.94
1800	13.23	18.78	20.69	19.78	1.20	0.54	26.78	11.09	3.94
2000	13.07	18.81	19.79	19.45	1.22	0.53	26.31	11.41	3.88
2200	12.87	18.83	18.85	19.16	1.23	0.52	25.94	11.60	3.97
2400	12.69	18.87	18.20	19.01	1.25	0.50	25.70	11.16	4.01
2600	12.48	18.93	17.61	18.87	1.27	0.49	25.50	10.69	4.00
2800	12.28	18.95	16.67	18.59	1.29	0.48	25.18	10.84	4.01
3000	12.06	19.02	16.49	18.62	1.31	0.46	24.84	11.22	3.84
3200	11.84	19.11	15.68	18.35	1.34	0.45	24.58	10.83	3.90
3400	11.66	19.09	15.18	18.17	1.36	0.44	24.26	10.12	4.07
3600	11.39	19.22	14.84	17.85	1.40	0.43	23.87	10.36	4.14
3800	11.19	19.32	14.24	17.62	1.43	0.42	23.86	10.89	4.21
4000	11.00	19.34	13.59	17.09	1.44	0.41	23.36	10.54	4.14
4200	10.76	19.41	13.06	16.80	1.48	0.40	23.21	9.78	4.15
4400	10.55	19.51	12.55	16.50	1.51	0.39	23.18	9.97	4.29
4600	10.26	19.60	12.09	15.84	1.55	0.38	22.82	10.69	4.50
4800	10.14	19.67	11.63	15.84	1.57	0.37	22.42	10.32	4.54
5000	9.89	19.79	11.11	15.67	1.60	0.36	22.14	9.31	4.68
5200	9.62	19.82	10.87	15.39	1.64	0.35	22.05	9.06	4.58
5400	9.44	19.93	10.44	15.39	1.67	0.34	21.58	9.87	4.67
5600	9.20	19.91	9.80	15.18	1.68	0.34	21.15	9.78	4.80
5800	9.02	20.18	9.97	15.55	1.76	0.32	21.20	9.17	4.87
6000	8.85	20.38	9.62	15.92	1.81	0.31	21.03	8.40	4.72
6200	8.63	20.34	9.44	16.16	1.83	0.30	20.58	9.05	4.88
6400	8.38	20.31	9.25	16.16	1.87	0.30	20.43	9.45	5.14
6600	8.34	20.73	9.16	17.32	1.95	0.28	20.39	8.96	5.27
6800	8.23	20.72	8.97	18.04	1.96	0.27	20.06	8.03	5.36
7000	8.09	20.82	8.75	18.81	2.00	0.26	19.95	8.49	5.33
7200	7.91	20.82	8.71	19.20	2.03	0.26	19.79	8.81	5.35
7600	7.67	20.96	8.35	20.03	2.09	0.25	19.30	7.44	5.79
8000	7.54	21.35	8.00	21.04	2.18	0.23	18.55	8.02	5.88

# MMIC Amplifier

# ERA-21SM

## 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 = 3.31V @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	14.29	18.59	29.69	53.24	1.12	0.61	24.84	9.99	3.61
100	14.35	18.64	31.46	52.08	1.12	0.61	24.80	10.37	3.72
200	14.28	18.64	30.81	44.41	1.13	0.61	24.90	10.20	3.63
400	14.15	18.59	30.43	35.14	1.13	0.60	24.45	9.86	3.69
600	14.00	18.54	29.91	31.07	1.14	0.59	24.27	10.32	3.69
800	13.82	18.52	29.95	28.45	1.15	0.58	24.28	9.97	3.82
1000	13.65	18.51	27.58	26.54	1.16	0.57	24.66	9.81	3.74
1200	13.50	18.50	25.88	24.88	1.17	0.56	24.88	9.71	3.81
1400	13.35	18.54	24.38	23.65	1.18	0.55	24.54	10.07	3.87
1600	13.17	18.54	22.73	22.63	1.19	0.54	24.69	9.74	3.87
1800	13.00	18.55	21.55	21.87	1.20	0.53	24.77	9.75	3.87
2000	12.83	18.59	20.40	21.38	1.22	0.52	24.64	9.89	3.79
2200	12.66	18.60	19.34	20.97	1.23	0.51	24.28	10.10	3.89
2400	12.47	18.65	18.52	20.69	1.25	0.50	24.20	9.89	3.92
2600	12.25	18.70	17.83	20.49	1.27	0.49	24.23	9.49	3.92
2800	12.06	18.74	16.84	20.11	1.29	0.48	24.15	9.66	3.91
3000	11.86	18.82	16.54	20.09	1.32	0.46	23.81	10.12	3.74
3200	11.64	18.90	15.71	19.70	1.34	0.45	23.53	9.92	3.81
3400	11.45	18.91	15.17	19.50	1.36	0.44	23.48	9.33	3.97
3600	11.19	19.03	14.81	19.03	1.40	0.42	23.19	9.47	4.05
3800	11.01	19.13	14.20	18.76	1.43	0.41	23.09	9.96	4.09
4000	10.81	19.17	13.50	18.13	1.45	0.41	22.67	9.85	4.03
4200	10.56	19.24	12.97	17.80	1.48	0.40	22.59	9.18	4.05
4400	10.36	19.37	12.45	17.44	1.51	0.38	22.64	9.27	4.18
4600	10.07	19.45	12.00	16.74	1.55	0.37	22.35	9.95	4.38
4800	9.94	19.57	11.52	16.75	1.58	0.37	21.99	9.72	4.38
5000	9.70	19.68	10.96	16.57	1.61	0.36	21.66	8.81	4.56
5200	9.44	19.73	10.72	16.26	1.65	0.35	21.58	8.52	4.45
5400	9.25	19.81	10.30	16.28	1.68	0.34	21.20	9.29	4.55
5600	9.01	19.85	9.65	16.07	1.70	0.33	20.78	9.22	4.66
5800	8.83	20.15	9.80	16.50	1.79	0.31	20.81	8.70	4.71
6000	8.66	20.36	9.45	16.98	1.84	0.30	20.62	7.85	4.57
6200	8.44	20.33	9.27	17.28	1.86	0.29	20.32	8.52	4.71
6400	8.17	20.29	9.06	17.31	1.89	0.28	20.11	8.97	4.98
6600	8.13	20.74	8.96	18.62	1.99	0.27	20.08	8.45	5.11
6800	8.01	20.79	8.76	19.56	2.00	0.26	19.74	7.36	5.19
7000	7.87	20.87	8.54	20.50	2.04	0.25	19.71	7.96	5.15
7200	7.69	20.90	8.48	20.96	2.08	0.24	19.43	8.25	5.17
7600	7.43	21.07	8.12	22.01	2.15	0.23	19.05	6.76	5.65
8000	7.30	21.52	7.75	23.35	2.25	0.22	18.25	7.48	5.68

# MMIC Amplifier

# ERA-21SM

## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

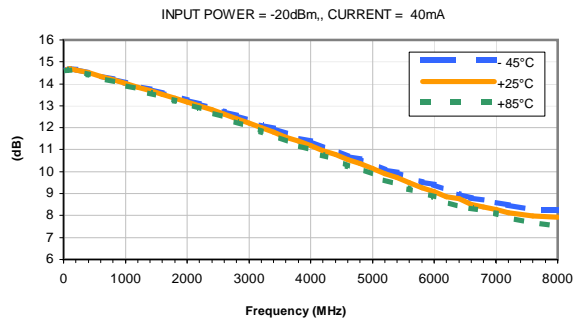
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Icc = 48mA, Vd = 3.44V @Temperature = +85degC

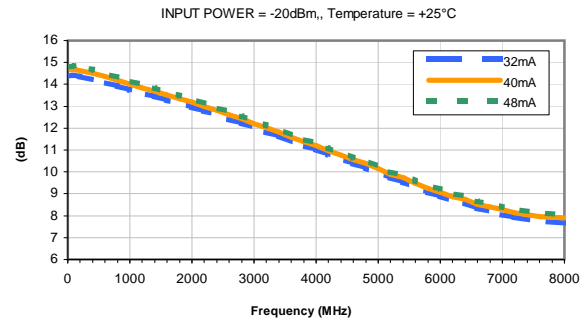
FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Delta			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Delta	(dBm)	(dBm)	(dB)
50	14.77	18.95	38.84	28.03	1.12	0.62	31.27	13.29	3.71
100	14.80	19.01	40.24	27.33	1.12	0.62	31.30	13.08	3.88
200	14.75	19.02	36.52	26.64	1.12	0.61	31.02	13.21	3.70
400	14.60	18.96	31.89	24.98	1.13	0.61	30.01	13.08	3.77
600	14.44	18.94	28.57	23.44	1.13	0.60	29.27	13.07	3.75
800	14.25	18.90	27.02	22.31	1.14	0.59	28.85	12.47	3.89
1000	14.08	18.90	25.10	21.40	1.15	0.58	28.56	11.94	3.85
1200	13.90	18.91	23.51	20.52	1.16	0.57	27.90	12.20	3.93
1400	13.74	18.91	22.31	19.83	1.17	0.56	27.51	12.42	3.97
1600	13.54	18.93	21.03	19.20	1.19	0.55	27.13	11.69	4.01
1800	13.37	18.94	20.07	18.75	1.20	0.54	26.86	11.54	4.02
2000	13.20	18.97	19.31	18.47	1.22	0.53	26.16	12.05	3.94
2200	13.01	18.97	18.51	18.24	1.23	0.52	25.80	12.24	4.05
2400	12.80	19.01	17.86	18.11	1.25	0.50	25.50	11.57	4.07
2600	12.61	19.06	17.39	18.03	1.27	0.49	25.20	10.98	4.07
2800	12.40	19.09	16.50	17.81	1.29	0.48	24.77	11.24	4.08
3000	12.18	19.15	16.37	17.86	1.31	0.47	24.51	11.57	3.91
3200	11.95	19.24	15.59	17.63	1.34	0.45	24.21	11.04	3.98
3400	11.76	19.22	15.11	17.50	1.36	0.45	23.90	10.27	4.14
3600	11.51	19.34	14.79	17.19	1.39	0.43	23.43	10.60	4.24
3800	11.30	19.42	14.28	17.01	1.42	0.42	23.41	11.22	4.27
4000	11.11	19.45	13.60	16.51	1.44	0.41	22.99	10.77	4.23
4200	10.87	19.51	13.11	16.25	1.47	0.40	22.81	9.97	4.27
4400	10.66	19.60	12.60	15.97	1.50	0.39	22.74	10.27	4.37
4600	10.38	19.69	12.14	15.36	1.54	0.38	22.42	10.97	4.61
4800	10.23	19.76	11.69	15.35	1.56	0.38	22.05	10.52	4.64
5000	10.01	19.85	11.18	15.17	1.60	0.37	21.73	9.50	4.81
5200	9.74	19.87	10.94	14.87	1.63	0.36	21.62	9.24	4.70
5400	9.55	19.96	10.53	14.86	1.66	0.35	21.18	10.14	4.80
5600	9.32	19.98	9.88	14.62	1.68	0.35	20.80	9.98	4.90
5800	9.14	20.22	10.07	14.96	1.75	0.33	20.84	9.38	4.99
6000	8.98	20.40	9.73	15.30	1.80	0.32	20.73	8.54	4.87
6200	8.75	20.34	9.54	15.48	1.82	0.31	20.33	9.27	4.96
6400	8.49	20.28	9.35	15.46	1.84	0.30	20.13	9.68	5.27
6600	8.49	20.71	9.31	16.52	1.93	0.29	20.10	9.19	5.43
6800	8.37	20.70	9.13	17.11	1.94	0.28	19.69	8.23	5.49
7000	8.23	20.76	8.90	17.77	1.96	0.27	19.70	8.77	5.50
7200	8.06	20.76	8.87	18.12	2.00	0.27	19.43	9.06	5.52
7600	7.82	20.88	8.53	18.85	2.05	0.26	18.98	7.68	5.95
8000	7.70	21.23	8.15	19.62	2.13	0.25	18.27	8.28	6.07

## Typical Performance Curves

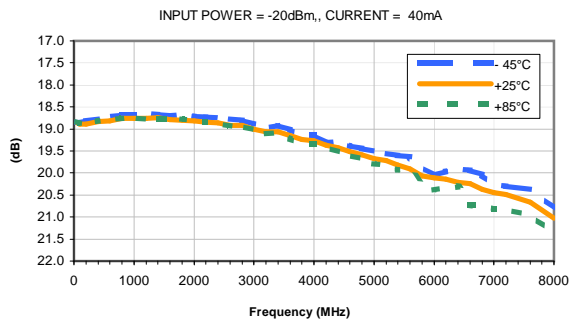
### GAIN vs. TEMPERATURE



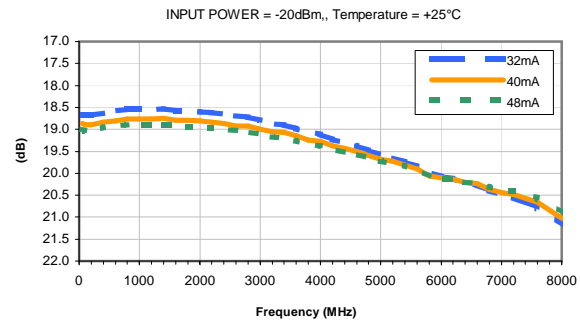
### GAIN vs. CURRENT



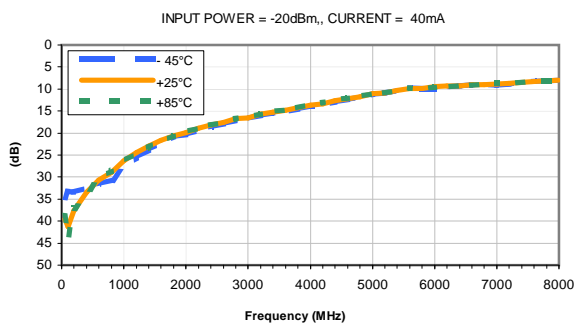
### ISOLATION vs. TEMPERATURE



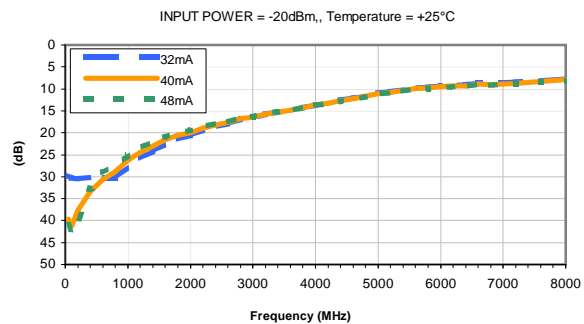
### ISOLATION vs. CURRENT



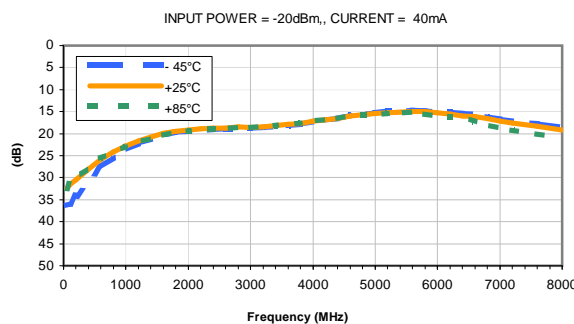
### INPUT RETURN LOSS vs. TEMPERATURE



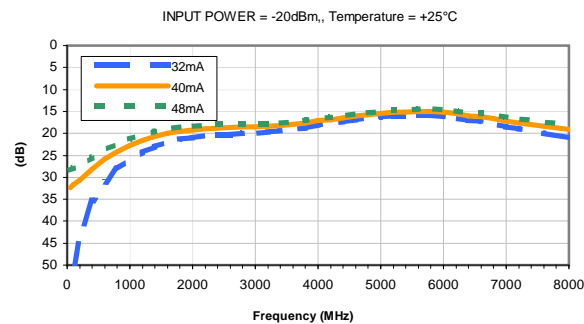
### INPUT RETURN LOSS vs. CURRENT



### OUTPUT RETURN LOSS vs. TEMPERATURE

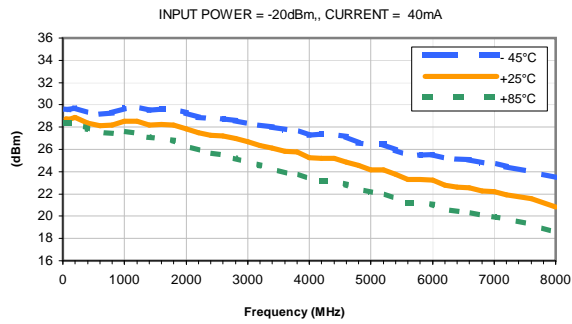


### OUTPUT RETURN LOSS vs. CURRENT

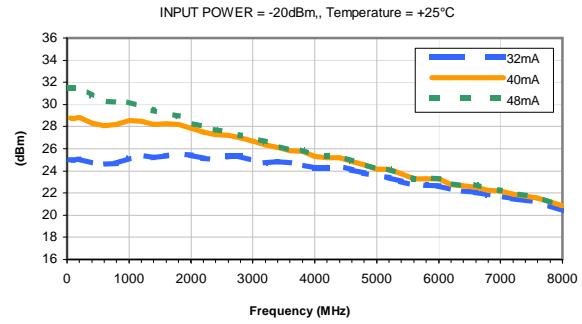


## Typical Performance Curves

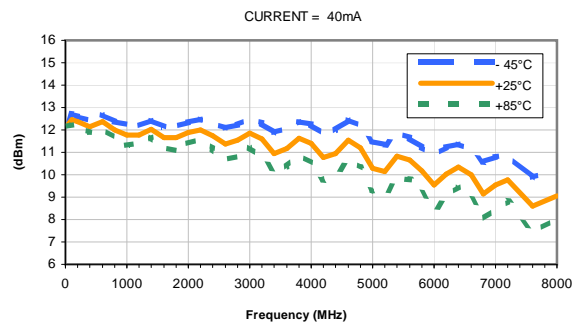
OUTPUT IP-3 vs. TEMPERATURE



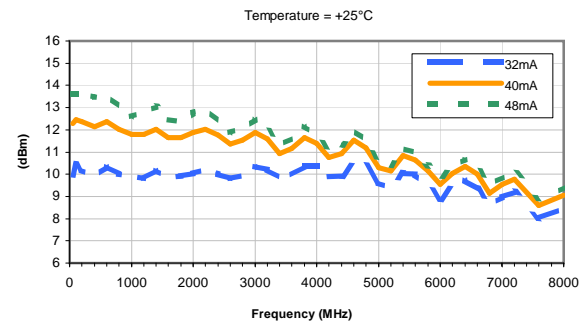
OUTPUT IP-3 vs. CURRENT



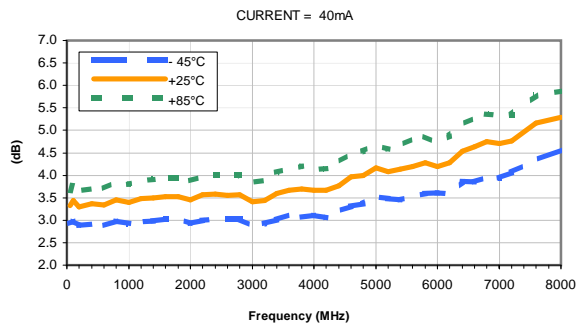
OUTPUT POWER at 1dB Compression vs. TEMPERATURE



OUTPUT POWER at 1dB Compression vs. CURRENT



Noise Figure vs. TEMPERATURE



Noise Figure vs. CURRENT

