

# MMIC Amplifier

# MAR-8A+

## 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: I<sub>cc</sub>=36mA; V<sub>cc</sub>=3.97V@Temp.=+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	31.43	34.52	15.52	12.46	1.04	0.74	26.36	12.85	2.13
60	31.50	34.53	15.95	12.54	1.04	0.74	26.45	12.91	2.17
80	31.37	34.43	15.47	12.61	1.04	0.74	26.70	12.84	2.20
100	31.34	34.46	15.08	12.65	1.04	0.74	26.46	12.80	2.26
120	31.23	34.26	16.14	12.68	1.04	0.74	26.22	12.72	2.27
140	31.12	34.40	15.51	12.71	1.05	0.72	25.93	12.64	2.25
160	30.87	34.30	16.55	12.75	1.05	0.71	25.69	12.63	2.31
180	30.83	34.21	15.57	12.83	1.05	0.71	25.74	12.55	2.28
200	30.66	34.15	16.03	12.87	1.06	0.70	25.98	12.65	2.28
220	30.51	34.09	16.32	12.98	1.06	0.69	26.13	12.74	2.36
240	30.37	33.95	16.36	13.01	1.06	0.69	25.95	12.72	2.36
260	30.17	33.96	16.06	13.10	1.07	0.67	26.00	12.64	2.41
280	29.96	33.80	15.82	13.16	1.07	0.67	26.02	12.56	2.46
300	29.82	33.75	16.13	13.19	1.07	0.66	25.79	12.38	2.55
320	29.63	33.62	15.92	13.26	1.08	0.66	25.69	12.49	2.51
340	29.44	33.52	16.23	13.33	1.08	0.65	25.67	12.60	2.54
360	29.25	33.39	16.19	13.40	1.08	0.64	25.60	12.59	2.61
380	29.07	33.24	16.23	13.45	1.08	0.64	25.60	12.60	2.62
400	28.89	33.16	16.64	13.55	1.09	0.63	25.53	12.55	2.63
420	28.71	32.95	16.47	13.60	1.08	0.63	25.43	12.54	2.64
440	28.47	32.82	16.47	13.67	1.09	0.62	25.39	12.63	2.63
460	28.32	32.70	16.56	13.76	1.09	0.62	25.59	12.62	2.71
480	28.15	32.54	16.43	13.82	1.09	0.62	25.55	12.58	2.71
500	27.96	32.40	16.78	13.91	1.09	0.61	25.68	12.63	2.76
520	27.78	32.24	16.20	13.90	1.09	0.61	25.79	12.67	2.73
540	27.58	32.01	16.37	13.96	1.09	0.61	25.85	12.69	2.76
560	27.43	31.89	16.42	14.04	1.09	0.60	25.81	12.68	2.82
580	27.24	31.74	16.74	14.04	1.09	0.60	25.82	12.68	2.79
600	27.10	31.56	16.50	14.11	1.09	0.60	25.94	12.72	2.81
620	26.88	31.40	16.32	14.12	1.09	0.59	25.97	12.74	2.81
640	26.72	31.25	16.61	14.19	1.09	0.59	25.91	12.71	2.78
660	26.58	31.07	16.70	14.16	1.09	0.59	26.06	12.68	2.85
680	26.39	30.85	16.78	14.22	1.08	0.60	26.13	12.75	2.84
700	26.20	30.73	16.42	14.22	1.08	0.59	26.19	12.77	2.83
750	25.82	30.29	16.63	14.37	1.08	0.59	26.04	12.82	2.81
800	25.42	29.88	16.83	14.31	1.08	0.59	25.90	12.76	2.88
850	25.04	29.50	16.78	14.30	1.07	0.59	25.76	12.82	2.86
900	24.65	29.08	16.80	14.32	1.07	0.58	25.35	12.73	2.84
940	24.29	28.71	17.07	14.27	1.07	0.58	25.52	12.81	2.92
1000	23.95	28.33	16.83	14.17	1.06	0.58	25.65	12.78	2.87

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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=29mA; Vcc=3.87V@Temp.=+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	30.34	33.78	12.12	9.83	1.04	0.75	24.75	11.10	2.14
60	30.47	33.87	12.82	9.88	1.04	0.75	24.92	11.17	2.15
80	30.33	33.96	12.37	9.95	1.05	0.73	25.19	11.10	2.17
100	30.33	33.84	12.33	10.01	1.04	0.74	24.87	11.03	2.24
120	30.24	33.71	12.87	10.07	1.04	0.74	24.64	10.77	2.23
140	30.14	33.72	12.89	10.12	1.04	0.73	24.35	10.63	2.22
160	29.95	33.68	13.71	10.14	1.05	0.71	24.09	10.57	2.28
180	29.90	33.60	12.95	10.19	1.04	0.72	24.05	10.48	2.24
200	29.74	33.52	13.13	10.29	1.05	0.71	24.27	10.66	2.27
220	29.62	33.53	13.50	10.35	1.05	0.69	24.43	10.82	2.31
240	29.48	33.44	13.51	10.38	1.05	0.69	24.21	10.85	2.33
260	29.32	33.29	13.35	10.49	1.05	0.68	24.27	10.62	2.38
280	29.15	33.24	13.37	10.56	1.05	0.67	24.22	10.41	2.47
300	29.05	33.13	13.71	10.59	1.05	0.67	23.87	10.22	2.51
320	28.87	33.03	13.75	10.69	1.06	0.66	23.82	10.49	2.50
340	28.71	32.96	13.97	10.78	1.06	0.65	23.70	10.55	2.53
360	28.55	32.82	13.89	10.88	1.06	0.65	23.63	10.58	2.57
380	28.38	32.69	13.94	10.95	1.06	0.64	23.63	10.65	2.58
400	28.21	32.58	14.26	11.06	1.06	0.63	23.59	10.57	2.59
420	28.06	32.41	14.27	11.13	1.06	0.63	23.45	10.44	2.62
440	27.86	32.27	14.35	11.21	1.06	0.63	23.41	10.52	2.60
460	27.73	32.17	14.47	11.33	1.06	0.62	23.62	10.52	2.69
480	27.58	32.02	14.47	11.39	1.06	0.62	23.62	10.47	2.69
500	27.41	31.90	14.75	11.49	1.07	0.61	23.75	10.58	2.72
520	27.25	31.75	14.34	11.54	1.06	0.61	23.90	10.62	2.73
540	27.06	31.56	14.55	11.65	1.06	0.61	24.01	10.77	2.71
560	26.94	31.41	14.72	11.78	1.06	0.61	23.96	10.57	2.73
580	26.77	31.25	14.95	11.82	1.06	0.60	23.99	10.65	2.77
600	26.65	31.11	14.78	11.89	1.06	0.60	24.18	10.81	2.79
620	26.44	30.93	14.73	11.96	1.06	0.60	24.24	10.73	2.79
640	26.31	30.81	14.93	12.08	1.06	0.60	24.15	10.70	2.77
660	26.16	30.63	15.12	12.10	1.06	0.60	24.26	10.70	2.78
680	26.00	30.43	15.17	12.21	1.06	0.60	24.41	10.67	2.81
700	25.85	30.31	15.00	12.26	1.06	0.60	24.63	10.79	2.80
750	25.48	29.92	15.21	12.41	1.05	0.59	24.71	11.05	2.80
800	25.12	29.50	15.39	12.50	1.05	0.59	24.50	10.77	2.81
850	24.75	29.14	15.48	12.65	1.05	0.59	24.62	11.05	2.86
900	24.38	28.74	15.55	12.74	1.04	0.59	24.41	11.24	2.84
940	24.07	28.37	15.78	12.77	1.04	0.59	24.41	11.07	2.89
1000	23.73	28.03	15.70	12.88	1.04	0.59	24.81	11.17	2.84

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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=43mA; Vcc=4.05V@Temp.=+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	32.14	34.94	18.00	14.96	1.04	0.75	27.84	13.78	2.16
60	32.18	34.77	19.49	15.04	1.03	0.76	27.96	13.75	2.17
80	32.03	34.91	18.34	15.08	1.04	0.74	28.19	13.69	2.22
100	32.01	34.73	17.44	15.24	1.04	0.75	27.92	13.68	2.29
120	31.86	34.85	18.61	15.27	1.05	0.73	27.70	13.70	2.32
140	31.74	34.87	18.22	15.27	1.05	0.72	27.44	13.82	2.29
160	31.47	34.69	19.59	15.25	1.06	0.71	27.24	13.86	2.31
180	31.44	34.62	17.74	15.35	1.06	0.71	27.31	13.74	2.29
200	31.25	34.56	17.98	15.39	1.06	0.70	27.55	13.62	2.29
220	31.06	34.44	19.01	15.51	1.06	0.69	27.65	13.62	2.38
240	30.90	34.36	18.33	15.49	1.07	0.69	27.49	13.59	2.39
260	30.70	34.27	18.22	15.57	1.07	0.68	27.51	13.69	2.43
280	30.48	34.17	17.86	15.58	1.07	0.67	27.64	13.84	2.49
300	30.32	34.14	18.05	15.53	1.08	0.66	27.48	13.86	2.58
320	30.11	33.97	17.86	15.57	1.08	0.66	27.39	13.76	2.55
340	29.91	33.87	18.09	15.65	1.09	0.65	27.33	13.66	2.55
360	29.71	33.74	18.06	15.69	1.09	0.64	27.23	13.54	2.64
380	29.51	33.59	17.76	15.67	1.09	0.64	27.18	13.56	2.64
400	29.29	33.46	18.08	15.75	1.09	0.63	27.07	13.66	2.65
420	29.10	33.30	17.92	15.73	1.09	0.63	26.96	13.70	2.67
440	28.87	33.13	17.86	15.72	1.10	0.62	26.93	13.68	2.67
460	28.69	32.99	17.90	15.77	1.10	0.62	27.08	13.65	2.72
480	28.51	32.82	17.70	15.82	1.10	0.62	27.01	13.60	2.75
500	28.30	32.68	18.03	15.84	1.10	0.61	27.08	13.58	2.77
520	28.12	32.52	17.34	15.81	1.10	0.61	27.11	13.55	2.78
540	27.88	32.32	17.70	15.74	1.10	0.60	27.11	13.51	2.79
560	27.72	32.18	17.61	15.79	1.10	0.60	27.04	13.52	2.86
580	27.54	32.00	17.90	15.70	1.10	0.60	27.02	13.51	2.83
600	27.38	31.82	17.51	15.74	1.10	0.60	27.10	13.52	2.83
620	27.15	31.65	17.39	15.70	1.10	0.60	27.05	13.55	2.85
640	27.00	31.48	17.50	15.72	1.10	0.60	27.01	13.57	2.82
660	26.84	31.30	17.69	15.64	1.10	0.60	27.16	13.57	2.88
680	26.62	31.12	17.78	15.67	1.10	0.59	27.15	13.56	2.86
700	26.45	30.96	17.57	15.59	1.10	0.59	27.06	13.51	2.83
750	26.04	30.51	17.52	15.63	1.09	0.59	26.79	13.32	2.86
800	25.62	30.08	17.81	15.47	1.09	0.59	26.68	13.54	2.89
850	25.24	29.67	17.80	15.39	1.08	0.59	26.34	13.35	2.92
900	24.83	29.27	17.72	15.25	1.08	0.59	25.85	13.12	2.87
940	24.45	28.87	18.10	15.10	1.08	0.59	26.13	13.41	2.94
1000	24.11	28.47	17.76	14.98	1.07	0.59	26.05	13.26	2.93

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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=36mA; Vcc=3.95V@Temp.= -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	31.88	34.86	17.33	14.04	1.05	0.74	25.74	13.09	1.76
60	31.94	34.75	17.40	14.13	1.04	0.75	25.72	13.14	1.79
80	31.79	34.60	17.53	14.05	1.04	0.75	25.82	13.05	1.81
100	31.77	34.66	16.77	14.21	1.04	0.74	25.61	13.01	1.90
120	31.64	34.72	17.67	14.25	1.05	0.73	25.50	12.89	1.88
140	31.55	34.55	17.61	14.32	1.05	0.73	25.31	12.84	1.86
160	31.30	34.53	19.02	14.34	1.05	0.71	25.21	12.82	1.91
180	31.26	34.33	17.58	14.43	1.05	0.72	25.33	12.75	1.89
200	31.08	34.32	17.35	14.48	1.05	0.71	25.62	12.91	1.97
220	30.91	34.27	18.50	14.58	1.06	0.70	25.85	12.97	1.94
240	30.77	34.13	18.11	14.55	1.06	0.70	25.72	12.87	1.95
260	30.58	34.07	17.64	14.65	1.06	0.69	25.74	12.90	2.01
280	30.38	34.01	17.58	14.69	1.07	0.68	25.75	12.77	2.05
300	30.22	33.87	18.09	14.67	1.07	0.67	25.61	12.62	2.09
320	30.05	33.78	17.59	14.74	1.07	0.67	25.62	12.78	2.07
340	29.86	33.65	18.21	14.83	1.07	0.66	25.64	12.88	2.09
360	29.67	33.55	18.04	14.89	1.08	0.65	25.62	12.83	2.17
380	29.49	33.38	17.84	14.93	1.08	0.65	25.62	12.92	2.18
400	29.28	33.20	18.60	15.03	1.08	0.65	25.57	12.87	2.18
420	29.11	33.08	18.15	15.04	1.08	0.64	25.50	12.89	2.19
440	28.89	32.94	18.11	15.10	1.08	0.64	25.48	12.89	2.20
460	28.72	32.80	18.18	15.21	1.08	0.63	25.67	12.92	2.24
480	28.54	32.64	18.07	15.26	1.08	0.63	25.66	12.89	2.28
500	28.37	32.48	18.44	15.34	1.09	0.63	25.79	12.95	2.29
520	28.20	32.34	17.71	15.34	1.08	0.63	25.94	12.99	2.29
540	27.96	32.12	17.87	15.31	1.08	0.62	25.96	13.01	2.27
560	27.82	31.98	17.88	15.39	1.08	0.62	25.93	13.00	2.32
580	27.65	31.80	18.22	15.32	1.08	0.62	25.97	12.97	2.34
600	27.51	31.60	18.03	15.37	1.08	0.63	26.11	13.08	2.33
620	27.28	31.45	17.86	15.38	1.08	0.62	26.11	13.07	2.31
640	27.13	31.28	18.23	15.45	1.08	0.62	26.06	13.00	2.29
660	26.97	31.12	18.29	15.43	1.08	0.62	26.22	13.02	2.35
680	26.77	30.93	18.39	15.49	1.08	0.62	26.32	13.07	2.33
700	26.61	30.75	17.98	15.45	1.08	0.62	26.39	13.11	2.31
750	26.22	30.37	18.05	15.44	1.07	0.61	26.33	13.24	2.34
800	25.82	29.89	18.27	15.32	1.07	0.62	26.24	13.11	2.40
850	25.44	29.51	18.32	15.31	1.07	0.62	26.16	13.25	2.36
900	25.05	29.08	18.31	15.25	1.06	0.62	25.82	13.25	2.33
940	24.71	28.71	18.58	15.10	1.06	0.62	25.99	13.23	2.40
1000	24.37	28.34	18.37	15.02	1.05	0.62	26.17	13.22	2.37

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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=29mA; Vcc=3.84V@Temp.= -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	30.97	34.29	13.77	11.23	1.05	0.74	23.99	11.38	1.74
60	31.06	34.17	14.08	11.34	1.04	0.75	24.02	11.46	1.75
80	30.90	34.10	14.19	11.34	1.04	0.74	24.17	11.33	1.78
100	30.88	34.03	13.91	11.43	1.04	0.75	23.92	11.20	1.84
120	30.78	34.11	14.76	11.46	1.05	0.73	23.78	11.00	1.88
140	30.70	33.99	14.45	11.52	1.04	0.73	23.55	10.71	1.86
160	30.49	33.97	15.24	11.54	1.05	0.71	23.37	10.74	1.88
180	30.45	33.91	14.47	11.62	1.05	0.72	23.41	10.57	1.85
200	30.30	33.80	14.76	11.68	1.05	0.71	23.70	10.78	1.87
220	30.16	33.74	15.25	11.78	1.05	0.70	23.92	11.05	1.92
240	30.03	33.67	15.45	11.80	1.05	0.69	23.76	11.03	1.91
260	29.84	33.58	15.11	11.90	1.05	0.68	23.77	10.90	1.95
280	29.69	33.50	14.95	11.95	1.06	0.68	23.70	10.72	2.03
300	29.56	33.41	15.46	11.95	1.06	0.67	23.47	10.49	2.11
320	29.38	33.28	15.15	12.07	1.06	0.67	23.44	10.68	2.09
340	29.22	33.16	15.68	12.17	1.06	0.66	23.47	10.83	2.10
360	29.06	33.04	15.45	12.28	1.06	0.66	23.47	10.88	2.18
380	28.89	32.93	15.64	12.32	1.06	0.65	23.48	10.95	2.16
400	28.72	32.76	16.07	12.46	1.06	0.65	23.45	10.85	2.14
420	28.55	32.65	15.92	12.49	1.07	0.64	23.35	10.80	2.15
440	28.35	32.51	16.06	12.60	1.07	0.64	23.35	10.84	2.21
460	28.21	32.37	16.18	12.73	1.07	0.63	23.56	10.86	2.23
480	28.06	32.23	16.17	12.80	1.07	0.63	23.57	10.93	2.27
500	27.90	32.07	16.47	12.90	1.07	0.63	23.73	10.93	2.25
520	27.74	31.92	15.87	12.94	1.07	0.63	23.87	10.98	2.25
540	27.52	31.74	15.98	12.97	1.07	0.62	24.01	11.08	2.26
560	27.40	31.58	16.21	13.06	1.07	0.63	23.97	11.07	2.29
580	27.23	31.41	16.47	13.08	1.06	0.62	23.99	10.99	2.31
600	27.10	31.25	16.33	13.15	1.06	0.62	24.19	11.11	2.31
620	26.89	31.08	16.35	13.19	1.06	0.62	24.26	11.09	2.33
640	26.75	30.93	16.61	13.31	1.06	0.62	24.19	11.03	2.27
660	26.62	30.76	16.69	13.35	1.06	0.62	24.29	11.01	2.33
680	26.42	30.60	16.84	13.45	1.06	0.62	24.45	11.12	2.33
700	26.28	30.43	16.58	13.46	1.06	0.62	24.66	11.17	2.32
750	25.92	30.04	16.56	13.63	1.06	0.62	24.84	11.39	2.31
800	25.54	29.62	16.86	13.65	1.05	0.61	24.62	11.16	2.34
850	25.17	29.25	17.02	13.77	1.05	0.61	24.85	11.39	2.35
900	24.80	28.85	17.03	13.82	1.05	0.61	24.71	11.59	2.33
940	24.48	28.46	17.21	13.82	1.04	0.62	24.67	11.44	2.38
1000	24.16	28.11	17.06	13.85	1.04	0.61	25.13	11.56	2.35

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# MMIC Amplifier

# MAR-8A+

## 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=43mA; Vcc=4.02V@Temp.= -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	32.55	35.22	19.79	17.05	1.04	0.75	27.35	14.18	1.78
60	32.57	35.25	20.73	17.11	1.04	0.75	27.27	14.19	1.78
80	32.42	35.13	20.81	17.12	1.04	0.74	27.29	14.14	1.84
100	32.38	35.10	20.82	17.24	1.04	0.74	27.11	14.11	1.94
120	32.24	35.04	21.20	17.24	1.05	0.74	27.02	14.12	1.92
140	32.12	35.01	20.10	17.30	1.05	0.73	26.89	14.07	1.85
160	31.83	34.92	23.03	17.29	1.06	0.71	26.85	14.07	1.95
180	31.80	34.83	20.50	17.35	1.05	0.72	26.99	14.02	1.89
200	31.61	34.73	19.99	17.35	1.06	0.71	27.28	14.06	2.00
220	31.42	34.70	21.39	17.44	1.06	0.70	27.45	14.10	1.96
240	31.25	34.62	20.21	17.36	1.07	0.69	27.35	14.06	1.97
260	31.05	34.52	20.16	17.40	1.07	0.68	27.35	14.08	2.01
280	30.85	34.38	19.60	17.41	1.07	0.68	27.49	14.09	2.05
300	30.68	34.26	19.83	17.33	1.08	0.67	27.43	14.06	2.13
320	30.48	34.16	19.54	17.35	1.08	0.67	27.42	14.14	2.11
340	30.28	34.02	19.92	17.38	1.08	0.66	27.39	14.11	2.14
360	30.06	33.88	19.71	17.40	1.08	0.65	27.30	14.04	2.20
380	29.87	33.75	19.36	17.35	1.09	0.65	27.25	14.11	2.20
400	29.64	33.56	20.02	17.42	1.09	0.64	27.17	14.14	2.22
420	29.46	33.39	19.80	17.35	1.09	0.64	27.08	14.16	2.23
440	29.22	33.25	19.57	17.37	1.09	0.64	27.06	14.21	2.26
460	29.06	33.11	19.68	17.41	1.09	0.63	27.19	14.16	2.26
480	28.87	32.96	19.39	17.43	1.09	0.63	27.12	14.15	2.30
500	28.68	32.76	19.70	17.45	1.09	0.63	27.19	14.18	2.31
520	28.50	32.58	18.72	17.35	1.09	0.63	27.23	14.16	2.29
540	28.26	32.40	19.31	17.27	1.09	0.62	27.24	14.14	2.29
560	28.11	32.21	19.25	17.27	1.09	0.63	27.19	14.13	2.34
580	27.93	32.05	19.36	17.11	1.09	0.62	27.20	14.14	2.34
600	27.76	31.86	18.99	17.09	1.09	0.62	27.27	14.17	2.35
620	27.54	31.69	18.98	17.04	1.09	0.62	27.22	14.16	2.36
640	27.37	31.51	19.18	17.03	1.09	0.62	27.21	14.17	2.33
660	27.20	31.29	19.06	16.94	1.09	0.62	27.35	14.20	2.38
680	27.01	31.12	19.41	16.97	1.09	0.62	27.39	14.22	2.37
700	26.85	30.97	18.97	16.84	1.08	0.62	27.31	14.18	2.34
750	26.43	30.55	19.05	16.74	1.08	0.62	27.04	14.07	2.36
800	26.01	30.10	19.23	16.48	1.08	0.62	27.05	14.21	2.41
850	25.61	29.68	19.31	16.32	1.07	0.62	26.78	14.11	2.38
900	25.21	29.25	19.23	16.13	1.07	0.62	26.35	13.88	2.37
940	24.86	28.87	19.45	15.90	1.07	0.62	26.65	14.15	2.43
1000	24.50	28.49	19.34	15.74	1.06	0.62	26.60	14.00	2.39

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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=36mA; Vcc=3.91V@Temp.=+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	30.75	33.98	13.16	10.46	1.04	0.75	26.80	12.53	2.54
60	30.82	34.05	13.80	10.55	1.04	0.75	26.91	12.57	2.56
80	30.69	34.12	13.50	10.66	1.05	0.74	27.14	12.52	2.59
100	30.66	34.00	12.90	10.77	1.04	0.74	26.83	12.47	2.65
120	30.55	33.87	13.93	10.83	1.04	0.74	26.54	12.48	2.66
140	30.44	34.00	13.32	10.86	1.05	0.72	26.26	12.54	2.67
160	30.23	33.93	14.10	10.88	1.05	0.70	26.02	12.48	2.68
180	30.17	33.84	13.45	10.97	1.05	0.71	26.00	12.44	2.67
200	30.02	33.75	13.62	11.05	1.05	0.70	26.19	12.45	2.68
220	29.86	33.73	14.09	11.12	1.06	0.69	26.33	12.42	2.76
240	29.72	33.63	14.31	11.15	1.06	0.68	26.16	12.40	2.75
260	29.52	33.61	14.08	11.25	1.07	0.67	26.26	12.40	2.84
280	29.33	33.50	13.76	11.29	1.07	0.66	26.29	12.34	2.89
300	29.18	33.45	14.07	11.35	1.07	0.65	25.98	12.26	2.97
320	29.01	33.27	13.80	11.43	1.07	0.65	25.82	12.31	2.94
340	28.83	33.21	14.53	11.51	1.08	0.64	25.74	12.31	2.95
360	28.66	33.09	14.24	11.61	1.08	0.63	25.66	12.28	3.05
380	28.48	32.98	14.18	11.68	1.08	0.63	25.61	12.28	3.02
400	28.30	32.89	14.62	11.77	1.08	0.61	25.54	12.27	3.05
420	28.11	32.73	14.55	11.84	1.08	0.61	25.45	12.36	3.06
440	27.89	32.57	14.59	11.91	1.09	0.61	25.41	12.29	3.06
460	27.74	32.47	14.67	12.01	1.09	0.60	25.59	12.31	3.12
480	27.57	32.32	14.69	12.10	1.09	0.60	25.56	12.23	3.16
500	27.38	32.17	14.91	12.21	1.09	0.59	25.65	12.30	3.20
520	27.21	32.00	14.41	12.24	1.09	0.59	25.74	12.29	3.17
540	27.00	31.85	14.53	12.33	1.09	0.58	25.82	12.26	3.18
560	26.85	31.70	14.62	12.43	1.09	0.58	25.75	12.27	3.25
580	26.69	31.55	14.84	12.44	1.09	0.58	25.73	12.27	3.24
600	26.54	31.39	14.75	12.53	1.09	0.58	25.86	12.23	3.24
620	26.32	31.20	14.71	12.57	1.09	0.57	25.85	12.26	3.24
640	26.19	31.06	14.77	12.67	1.09	0.57	25.80	12.28	3.24
660	26.04	30.88	14.95	12.67	1.08	0.57	25.94	12.23	3.29
680	25.86	30.71	15.06	12.76	1.08	0.57	25.99	12.27	3.31
700	25.67	30.58	14.87	12.79	1.08	0.56	26.02	12.27	3.26
750	25.32	30.17	14.93	12.91	1.08	0.56	25.83	12.23	3.28
800	24.91	29.74	15.14	12.98	1.07	0.56	25.67	12.27	3.33
850	24.54	29.37	15.20	13.09	1.07	0.56	25.45	12.19	3.32
900	24.15	28.97	15.13	13.13	1.07	0.55	24.99	12.05	3.34
940	23.79	28.58	15.41	13.15	1.07	0.55	25.17	12.22	3.37
1000	23.44	28.22	15.27	13.16	1.06	0.55	25.21	12.11	3.36

# MMIC Amplifier

# MAR-8A+

## 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=29mA; Vcc=3.81V@Temp.=+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	29.62	33.72	10.65	8.51	1.05	0.73	25.51	10.96	2.53
60	29.76	33.68	11.13	8.57	1.04	0.74	25.62	11.02	2.55
80	29.63	33.57	11.30	8.62	1.05	0.74	25.91	10.90	2.57
100	29.64	33.55	11.04	8.72	1.04	0.74	25.59	10.94	2.64
120	29.57	33.46	11.62	8.76	1.04	0.73	25.28	10.71	2.64
140	29.46	33.36	11.40	8.82	1.04	0.73	24.97	10.51	2.65
160	29.27	33.38	11.99	8.85	1.05	0.71	24.66	10.52	2.65
180	29.21	33.34	11.48	8.93	1.05	0.71	24.59	10.43	2.62
200	29.08	33.26	11.59	8.97	1.05	0.70	24.74	10.46	2.66
220	28.96	33.13	11.98	9.07	1.05	0.69	24.88	10.66	2.74
240	28.82	33.13	11.88	9.08	1.05	0.68	24.65	10.63	2.74
260	28.66	33.00	11.75	9.18	1.05	0.68	24.77	10.59	2.82
280	28.49	33.01	11.80	9.25	1.05	0.66	24.75	10.29	2.85
300	28.38	32.86	12.12	9.30	1.05	0.66	24.33	10.07	2.94
320	28.22	32.76	12.06	9.38	1.05	0.65	24.10	10.34	2.93
340	28.07	32.66	12.51	9.49	1.06	0.64	23.98	10.38	2.94
360	27.91	32.53	12.43	9.58	1.05	0.64	23.87	10.35	3.00
380	27.74	32.45	12.56	9.65	1.06	0.63	23.84	10.44	2.99
400	27.58	32.29	12.81	9.77	1.06	0.62	23.78	10.40	3.01
420	27.44	32.19	12.70	9.86	1.06	0.62	23.65	10.23	3.02
440	27.24	32.05	12.97	9.93	1.06	0.61	23.59	10.31	3.05
460	27.11	31.93	12.96	10.03	1.06	0.61	23.83	10.34	3.14
480	26.96	31.78	13.00	10.11	1.06	0.60	23.80	10.28	3.13
500	26.81	31.64	13.27	10.23	1.06	0.60	23.89	10.32	3.15
520	26.62	31.56	12.88	10.28	1.06	0.59	24.03	10.30	3.18
540	26.45	31.36	13.05	10.30	1.06	0.59	24.14	10.43	3.19
560	26.32	31.23	13.23	10.41	1.06	0.59	24.07	10.42	3.24
580	26.19	31.07	13.43	10.47	1.06	0.58	24.10	10.30	3.23
600	26.04	30.92	13.28	10.58	1.06	0.58	24.28	10.52	3.22
620	25.85	30.77	13.29	10.64	1.06	0.58	24.35	10.49	3.23
640	25.73	30.61	13.50	10.75	1.05	0.58	24.26	10.38	3.22
660	25.56	30.45	13.55	10.79	1.05	0.57	24.34	10.43	3.25
680	25.41	30.29	13.75	10.89	1.05	0.57	24.48	10.48	3.28
700	25.26	30.15	13.57	10.96	1.05	0.57	24.66	10.56	3.23
750	24.90	29.78	13.56	11.25	1.05	0.56	24.68	10.72	3.27
800	24.54	29.35	13.85	11.33	1.04	0.56	24.47	10.55	3.31
850	24.17	28.97	13.98	11.53	1.04	0.56	24.46	10.72	3.33
900	23.82	28.60	13.92	11.68	1.04	0.55	24.19	10.92	3.32
940	23.49	28.23	14.23	11.78	1.04	0.55	24.21	10.83	3.34
1000	23.17	27.87	14.09	11.87	1.03	0.55	24.50	10.89	3.33

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# MMIC Amplifier

# MAR-8A+

## 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=43mA; Vcc=3.99V@Temp.=+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	31.52	34.41	15.29	12.53	1.04	0.76	28.14	13.11	2.58
60	31.57	34.48	16.13	12.61	1.04	0.75	28.21	13.12	2.60
80	31.44	34.46	15.53	12.67	1.04	0.74	28.39	13.08	2.62
100	31.38	34.42	15.02	12.84	1.04	0.74	28.09	13.05	2.70
120	31.27	34.39	16.20	12.89	1.05	0.73	27.83	13.11	2.72
140	31.14	34.34	15.57	12.92	1.05	0.73	27.54	13.24	2.69
160	30.89	34.27	16.67	12.96	1.05	0.71	27.34	13.28	2.70
180	30.84	34.26	15.40	13.04	1.06	0.71	27.37	13.13	2.70
200	30.66	34.22	15.72	13.09	1.06	0.70	27.58	12.92	2.69
220	30.47	34.14	16.32	13.20	1.07	0.68	27.67	12.84	2.77
240	30.32	34.06	16.11	13.20	1.07	0.68	27.49	12.77	2.78
260	30.13	34.02	15.58	13.28	1.07	0.67	27.58	12.88	2.85
280	29.93	33.92	15.72	13.30	1.08	0.66	27.70	13.05	2.92
300	29.77	33.85	15.81	13.31	1.08	0.65	27.51	13.07	2.97
320	29.55	33.72	15.60	13.39	1.08	0.64	27.34	12.94	2.95
340	29.36	33.60	15.99	13.48	1.09	0.64	27.26	12.81	2.98
360	29.16	33.54	15.82	13.56	1.09	0.62	27.11	12.71	3.05
380	28.96	33.40	15.78	13.58	1.10	0.62	27.06	12.77	3.06
400	28.76	33.23	16.25	13.67	1.10	0.61	26.96	12.87	3.09
420	28.58	33.11	16.10	13.72	1.10	0.61	26.84	12.86	3.08
440	28.35	32.98	15.93	13.77	1.10	0.60	26.80	12.86	3.10
460	28.18	32.80	16.03	13.82	1.10	0.60	26.95	12.81	3.16
480	27.99	32.68	15.94	13.90	1.10	0.59	26.85	12.81	3.19
500	27.79	32.50	16.16	13.98	1.11	0.59	26.92	12.76	3.22
520	27.60	32.37	15.56	13.99	1.10	0.59	26.95	12.72	3.22
540	27.40	32.20	15.76	13.99	1.10	0.58	26.94	12.72	3.23
560	27.22	32.01	15.84	14.04	1.10	0.58	26.88	12.71	3.29
580	27.03	31.85	15.99	14.02	1.10	0.58	26.87	12.69	3.26
600	26.88	31.69	15.78	14.09	1.10	0.58	26.89	12.68	3.28
620	26.66	31.52	15.74	14.10	1.10	0.57	26.85	12.71	3.28
640	26.50	31.35	15.81	14.16	1.10	0.57	26.79	12.75	3.26
660	26.33	31.16	15.92	14.12	1.10	0.57	26.91	12.77	3.32
680	26.13	30.98	16.09	14.17	1.10	0.57	26.91	12.76	3.32
700	25.99	30.86	15.85	14.18	1.10	0.57	26.83	12.71	3.29
750	25.57	30.41	15.92	14.26	1.10	0.56	26.49	12.57	3.29
800	25.13	29.99	16.05	14.15	1.09	0.56	26.36	12.73	3.38
850	24.75	29.59	16.09	14.21	1.09	0.56	25.99	12.54	3.37
900	24.35	29.19	16.01	14.17	1.09	0.55	25.47	12.31	3.35
940	23.98	28.81	16.30	14.11	1.08	0.55	25.69	12.57	3.38
1000	23.62	28.42	16.07	14.05	1.08	0.55	25.64	12.43	3.38

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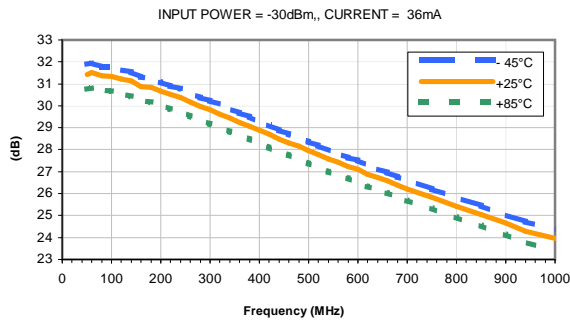


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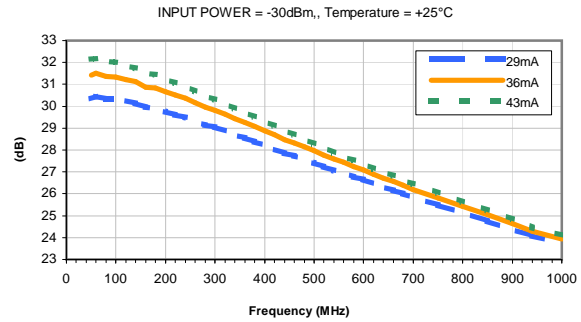


## Typical Performance Curves

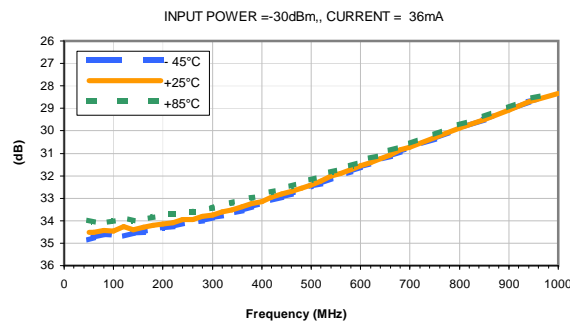
**GAIN vs. TEMPERATURE**



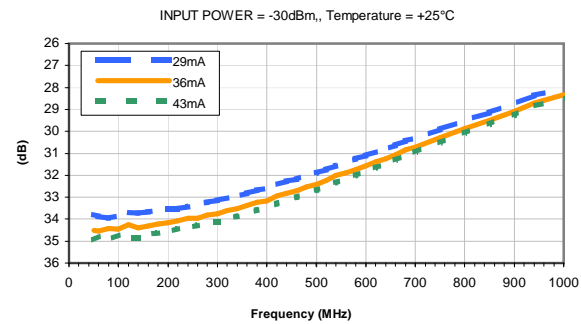
**GAIN vs. CURRENT**



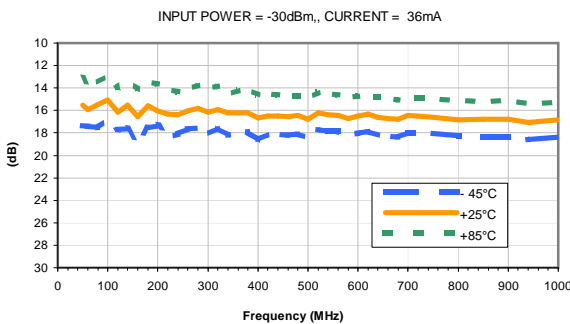
**ISOLATION vs. TEMPERATURE**



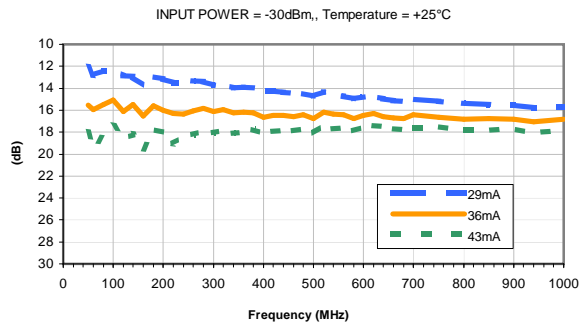
**ISOLATION vs. CURRENT**



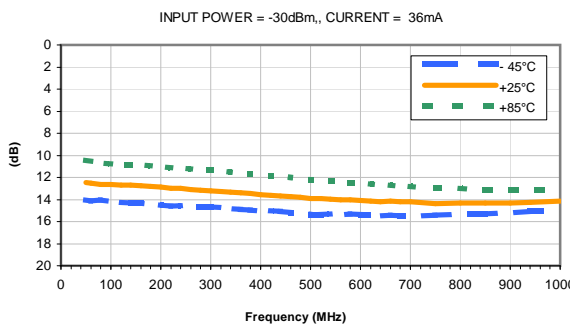
**INPUT RETURN LOSS vs. TEMPERATURE**



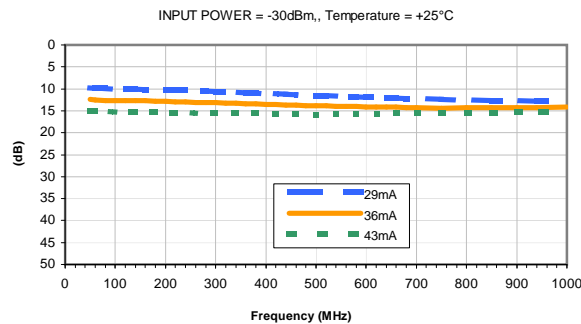
**INPUT RETURN LOSS vs. CURRENT**



**OUTPUT RETURN LOSS vs. TEMPERATURE**



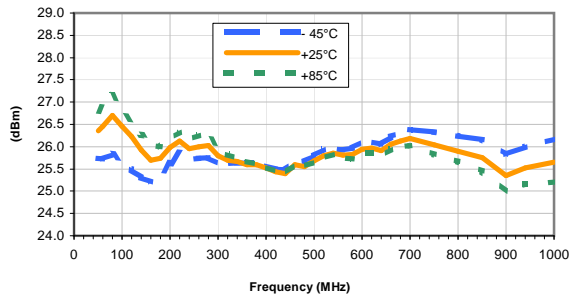
**OUTPUT RETURN LOSS vs. CURRENT**



## Typical Performance Curves

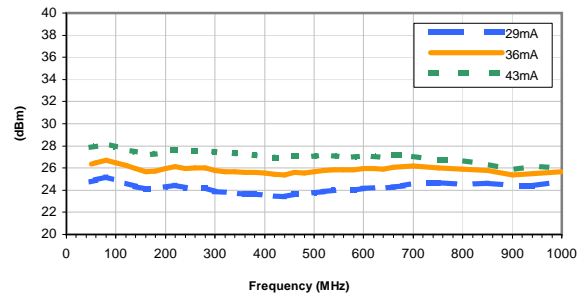
OUTPUT IP3 vs. TEMPERATURE

INPUT POWER = -30dBm, CURRENT = 36mA



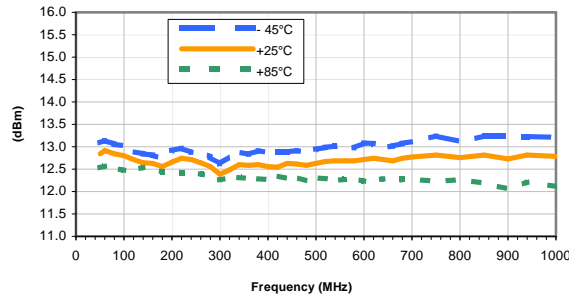
OUTPUT IP-3 vs. CURRENT

INPUT POWER = -30dBm, Temperature = +25°C



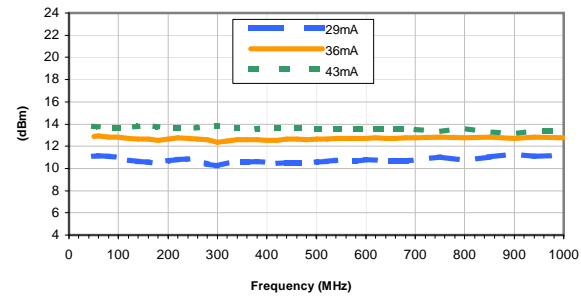
OUTPUT POWER at 1dB Compression vs. TEMPERATURE

CURRENT = 36mA



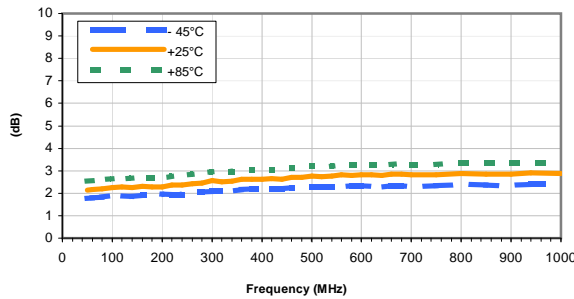
OUTPUT POWER at 1dB Compression vs. CURRENT

Temperature = +25°C



Noise Figure vs. TEMPERATURE

CURRENT = 36mA



Noise Figure vs. CURRENT

Temperature = +25°C

