

Low Noise Amplifier

ZX60-06203ALN+

Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.00V, Id = 103.49mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(GHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
4.0	14.87	56.14	3.83	5.77	24.64	1.04	15.08	5.89	3.22
4.5	19.10	60.72	5.22	6.33	32.20	1.00	18.98	8.77	2.66
5.0	21.12	57.57	8.19	7.01	22.67	0.92	21.18	10.81	2.37
5.5	21.73	56.08	12.51	7.67	20.50	0.87	22.58	12.02	2.23
6.0	21.66	55.73	15.55	8.28	20.97	0.87	23.60	12.90	2.15
6.5	21.36	56.08	14.78	8.91	22.95	0.90	24.48	13.68	2.09
7.0	21.05	56.49	13.45	9.65	25.21	0.93	25.72	14.43	2.07
7.5	20.80	56.86	12.74	10.51	27.39	0.96	26.14	15.00	1.93
8.0	20.65	57.34	12.61	11.50	30.00	0.98	25.80	14.78	1.88
8.5	20.56	57.09	12.72	12.55	29.96	0.99	26.69	15.37	1.82
9.0	20.50	56.44	12.74	13.47	28.35	1.01	27.01	15.59	1.86
9.5	20.48	55.62	12.66	14.09	26.00	1.01	27.25	15.79	1.87
10.0	20.48	54.51	12.66	14.44	22.96	1.01	27.13	15.83	1.90
10.5	20.53	53.19	13.00	14.77	19.77	1.01	27.31	16.15	1.88
11.0	20.64	51.65	13.82	15.46	16.57	1.01	27.80	16.14	1.91
12.0	20.98	48.88	14.54	18.70	11.85	1.02	27.70	16.18	2.00
12.5	21.09	47.87	12.70	22.68	10.32	1.04	27.07	15.81	2.02
13.0	21.05	47.09	10.55	28.78	9.16	1.08	27.39	16.01	2.13
13.5	20.92	46.32	8.91	23.05	8.10	1.12	27.03	15.63	2.19
14.0	20.75	45.54	7.86	17.42	7.17	1.14	26.49	15.40	2.39
14.5	20.63	44.62	7.35	14.09	6.28	1.13	26.86	15.34	2.44
15.0	20.60	43.58	7.35	12.24	5.52	1.10	26.18	15.05	2.44
15.5	20.69	42.30	8.03	11.61	4.86	1.05	25.71	14.77	2.57
16.0	20.84	40.95	9.59	12.25	4.37	1.02	25.70	14.68	2.48
16.5	20.91	39.70	12.38	14.72	4.05	1.00	25.59	14.73	2.56
17.0	20.71	38.69	15.75	20.44	3.88	1.00	25.80	14.83	2.48
18.0	19.35	37.36	14.35	21.28	3.88	1.01	26.51	15.26	2.45
18.5	18.56	36.78	14.69	15.94	3.91	0.99	26.97	15.67	2.53
19.0	17.75	36.31	16.24	13.27	3.99	0.96	27.21	15.66	2.72
19.5	17.00	35.82	18.93	11.64	4.04	0.94	27.16	15.73	2.72
20.0	16.32	35.45	20.48	10.41	4.11	0.91	27.42	15.74	2.86
20.5	15.67	35.12	17.01	9.44	4.15	0.89	27.19	15.55	3.01
21.0	14.95	34.77	12.85	8.65	4.14	0.88	27.99	15.66	3.10
21.5	14.14	34.60	9.81	8.00	4.15	0.90	27.42	16.02	3.50
22.0	13.22	34.51	7.66	7.55	4.17	0.93	26.83	15.63	3.81

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Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.00V, Id = 112.60mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(GHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
4.0	16.36	55.34	3.45	5.53	17.20	1.05	17.33	7.33	2.47
4.5	20.75	59.67	4.88	6.03	22.22	1.00	21.15	10.21	1.94
5.0	22.85	56.85	8.18	6.74	16.81	0.91	23.41	12.25	1.69
5.5	23.44	55.39	13.33	7.52	15.61	0.86	24.77	13.49	1.59
6.0	23.31	55.14	17.05	8.25	16.33	0.86	25.67	14.31	1.40
6.5	22.94	55.37	15.01	8.95	17.70	0.90	26.48	15.07	1.45
7.0	22.55	56.00	12.92	9.62	19.91	0.94	27.67	15.65	1.45
7.5	22.23	56.47	11.86	10.37	21.85	0.97	27.82	16.18	1.29
8.0	22.05	57.19	11.49	11.24	24.54	0.99	27.67	16.09	1.20
8.5	21.95	57.17	11.45	12.21	25.18	1.01	28.32	16.54	1.19
9.0	21.88	56.83	11.48	13.13	24.73	1.02	28.58	16.71	1.19
9.5	21.84	56.10	11.42	13.75	22.97	1.03	28.79	16.86	1.21
10.0	21.82	55.15	11.37	13.97	20.69	1.03	28.71	16.95	1.25
10.5	21.85	53.83	11.63	14.09	17.82	1.02	28.69	17.19	1.29
11.0	21.97	52.22	12.51	14.64	14.87	1.02	29.38	17.07	1.24
12.0	22.40	49.17	13.56	17.69	10.29	1.02	29.35	17.18	1.29
12.5	22.56	48.10	11.87	21.71	8.83	1.05	29.08	17.10	1.33
13.0	22.55	47.25	9.73	29.12	7.70	1.10	29.34	17.21	1.38
13.5	22.45	46.46	8.13	23.29	6.72	1.14	29.07	17.02	1.42
14.0	22.32	45.68	7.16	17.71	5.90	1.16	28.87	16.91	1.53
14.5	22.26	44.74	6.73	14.68	5.15	1.16	29.10	16.78	1.52
15.0	22.33	43.62	6.77	12.95	4.47	1.13	28.55	16.61	1.60
15.5	22.54	42.17	7.51	12.39	3.86	1.08	28.04	16.42	1.72
16.0	22.77	40.74	9.10	12.74	3.43	1.03	27.95	16.35	1.61
16.5	22.90	39.42	11.92	14.41	3.14	0.99	27.84	16.34	1.67
17.0	22.73	38.30	16.46	18.25	2.99	0.98	27.87	16.38	1.61
18.0	21.42	36.64	15.01	21.90	2.88	0.99	28.24	16.61	1.61
18.5	20.52	36.06	14.03	15.75	2.90	0.98	28.55	16.90	1.76
19.0	19.59	35.63	14.71	12.80	2.98	0.96	29.08	16.94	1.86
19.5	18.78	35.11	17.11	11.18	3.02	0.93	29.28	17.20	1.82
20.0	18.07	34.76	21.24	10.04	3.10	0.89	29.28	17.15	1.94
20.5	17.46	34.43	20.53	9.35	3.17	0.87	29.50	17.16	2.03
21.0	16.79	34.01	14.91	8.75	3.17	0.86	30.05	17.10	2.10
21.5	16.01	33.80	10.98	8.04	3.18	0.86	29.86	17.54	2.51
22.0	15.08	33.70	8.24	7.40	3.19	0.89	29.70	17.74	2.69

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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: Vd = 5.00V, Id = 97.02mA @ Temperature = +85°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(GHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
4.0	13.55	56.83	4.07	5.91	32.64	1.04	13.54	4.74	3.86
4.5	17.70	61.45	5.45	6.42	42.41	0.99	17.54	7.62	3.26
5.0	19.69	58.07	8.29	7.04	28.45	0.92	19.77	9.69	2.87
5.5	20.33	56.56	12.14	7.67	25.31	0.88	21.14	10.97	2.74
6.0	20.32	56.30	14.88	8.26	25.98	0.88	22.18	11.90	2.62
6.5	20.08	56.46	14.79	8.90	27.81	0.90	23.06	12.71	2.59
7.0	19.81	57.14	13.87	9.65	31.44	0.93	24.21	13.45	2.56
7.5	19.61	57.38	13.57	10.58	33.76	0.95	24.67	14.03	2.44
8.0	19.49	57.22	13.69	11.71	34.38	0.97	24.32	13.84	2.34
8.5	19.41	56.72	13.90	12.90	33.40	0.99	25.22	14.47	2.35
9.0	19.36	56.06	13.81	13.88	31.47	1.00	25.51	14.71	2.42
9.5	19.34	55.14	13.51	14.37	28.43	1.01	25.73	14.91	2.40
10.0	19.34	54.04	13.36	14.51	25.04	1.01	25.68	14.95	2.47
10.5	19.40	52.63	13.76	14.64	21.27	1.00	25.78	15.25	2.47
11.0	19.51	51.09	14.83	15.31	17.85	1.00	26.13	15.26	2.47
12.0	19.80	48.63	15.52	19.23	13.29	1.01	26.01	15.28	2.59
12.5	19.84	47.79	13.14	24.52	11.88	1.04	25.39	14.86	2.65
13.0	19.74	47.10	10.87	29.07	10.72	1.08	25.63	15.01	2.76
13.5	19.56	46.28	9.25	20.84	9.49	1.11	25.22	14.55	2.87
14.0	19.36	45.48	8.24	16.06	8.42	1.12	24.81	14.25	3.03
14.5	19.21	44.59	7.77	13.31	7.44	1.11	25.03	14.17	3.10
15.0	19.16	43.59	7.80	11.81	6.59	1.08	24.42	13.83	3.17
15.5	19.21	42.36	8.49	11.42	5.86	1.04	23.98	13.55	3.30
16.0	19.29	41.13	9.98	12.21	5.34	1.02	23.98	13.46	3.35
16.5	19.28	39.96	12.34	14.63	4.99	1.01	23.93	13.54	3.31
17.0	19.03	39.06	14.77	19.73	4.84	1.01	24.26	13.69	3.16
18.0	17.70	37.97	13.81	22.26	4.98	1.02	24.89	14.19	3.22
18.5	16.98	37.38	14.61	16.27	5.00	1.00	25.31	14.58	3.38
19.0	16.22	36.90	16.46	13.32	5.07	0.97	25.49	14.54	3.52
19.5	15.49	36.43	18.64	11.45	5.12	0.94	25.38	14.46	3.52
20.0	14.81	36.09	18.13	10.13	5.18	0.91	25.47	14.47	3.67
20.5	14.16	35.75	14.81	9.21	5.19	0.90	25.20	14.19	3.82
21.0	13.44	35.39	11.64	8.56	5.14	0.90	25.99	14.45	3.94
21.5	12.66	35.19	9.26	8.08	5.15	0.92	25.46	14.56	4.34
22.0	11.81	35.05	7.49	7.80	5.17	0.96	24.84	14.13	4.66