

HD29224

1 – 500 MHz Low Noise Amplifier

Features

- Frequency Range: 1 - 500MHz
- Gain: 30dB min, 32dB Typ.
- P_{1dB} : +13dBm
- IP3: +25dBm
- Noise Figure: 2.0dB
- Reverse Voltage Protected
- Input Limiter Protected
- SMA Connector



Description

HD29224 is a 30dB gain wideband Low Noise Amplifier operates with frequency range from 1 to 500MHz (usable from 300KHz to 850MHz)

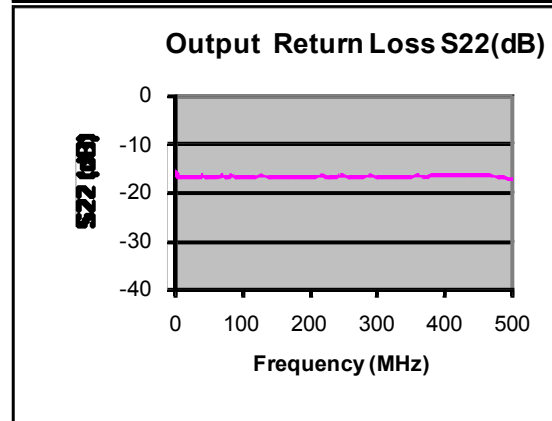
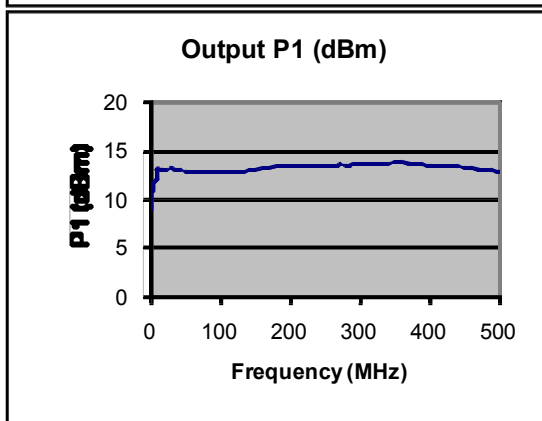
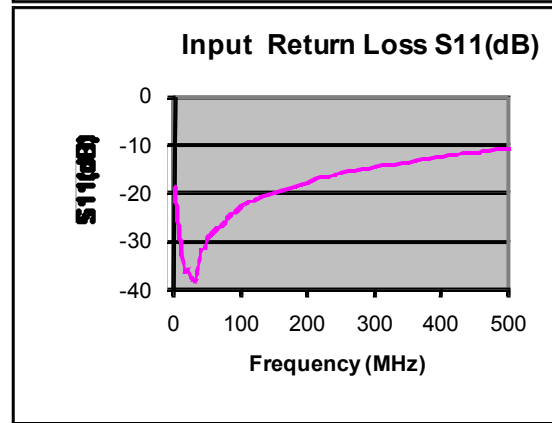
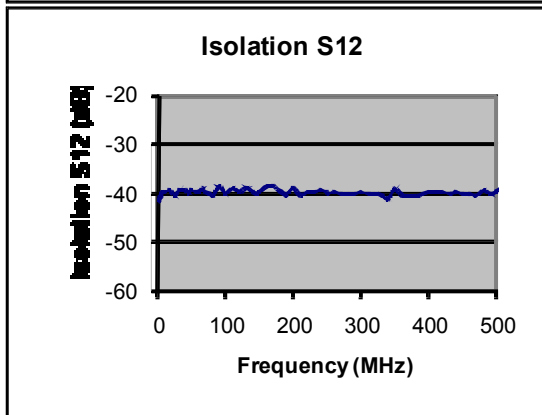
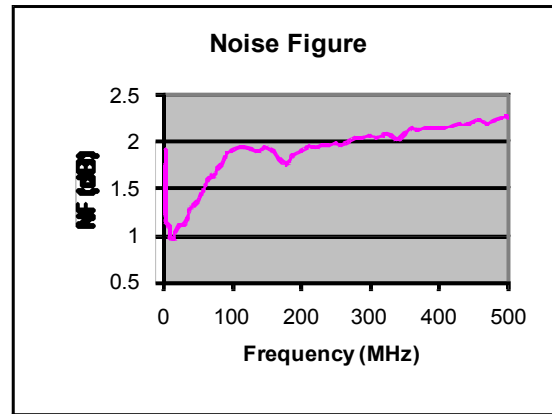
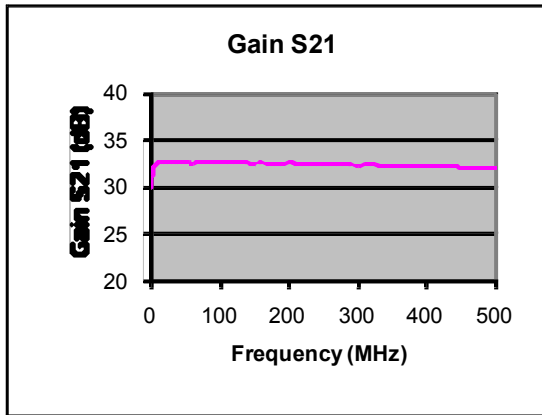
Electrical Specifications @ +25°C, $Z_{in} = Z_{out} = 50 \Omega$, $V_{cc} = +15V$

Parameter	Unit	Minimum	Typical	Maximum
Frequency Range	MHz	1		500
Gain $f = 1\text{MHz}$	dB	30	30.5	
$f = 10\text{MHz}$	dB	30	32.5	
$f = 50\text{MHz}$	dB	30	32.8	
$f = 100\text{MHz}$	dB	30	32.7	
$f = 250\text{MHz}$	dB	30	32.5	
$f = 500\text{MHz}$	dB	30	32.2	
Gain Flatness	dB		± 1.0	
P_{1dB}	dBm		+13	
IP3	dBm		+25	
Noise Figure	dB		2.0	
Reverse Isolation	dB		-40	
Input Return Loss	dB		-16	
Output Return Loss	dB		-16	
DC Power Supply	V	11	15	30
Supply Current	mA		40	

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Typical Performance @ +25°C



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Freq(MHz)	NF (dB)	S21 (dB)	S12 (dB)	S11(dB)	S22(dB)	P _{1dB} (dBm)
0.3	1.749	30.07	-41.77	-18.54	-15.79	+8.91
0.4	1.707	30.12	-41.72	-18.84	-15.76	+8.92
0.5	1.698	30.17	-41.67	-18.74	-15.77	+8.95
0.6	1.679	30.23	-41.62	-18.84	-15.78	+9.02
0.7	1.608	30.28	-41.56	-19.00	-15.79	+9.10
0.8	1.592	30.33	-41.51	-19.16	-15.79	+9.22
0.9	1.503	30.38	-41.46	-19.34	-15.80	+9.33
1.0	1.453	30.43	-41.41	-19.52	-15.81	+9.46
1.5	1.337	30.69	-41.16	-20.36	-15.85	+10.00
2.0	1.304	30.93	-40.92	-21.08	-15.63	+10.45
2.5	1.248	31.17	-40.69	-21.80	-15.80	+10.81
3.0	1.225	31.40	-40.46	-22.51	-16.00	+11.11
3.5	1.162	31.63	-40.23	-23.20	-16.23	+11.31
4.0	1.93	31.85	-40.02	-23.84	-16.48	+11.49
4.5	1.154	32.06	-39.80	-24.55	-16.63	+11.63
5.0	1.146	32.27	-39.60	-25.35	-16.63	+11.74
5.5	1.138	32.41	-39.47	-26.14	-16.61	+11.82
6.0	1.136	32.43	-39.47	-26.84	-16.56	+11.90
6.5	1.125	32.46	-39.47	-27.52	-16.59	+11.95
7.0	1.121	32.49	-39.46	-28.12	-16.65	+12.00
7.5	1.115	32.52	-39.46	-28.71	-16.68	+12.04
8.0	1.105	32.55	-39.46	-29.26	-16.62	+12.08
8.5	1.108	32.58	-39.45	-29.68	-16.59	+12.11
9.0	1.109	32.61	-39.45	-29.86	-16.61	+12.14
9.5	1.020	32.63	-39.45	-30.44	-16.63	+12.16
10	0.984	32.66	-39.44	-31.73	-16.65	+13.19
15	0.965	32.75	-39.03	-36.18	-16.78	+13.11
20	1.052	32.70	-39.42	-35.79	-16.61	+13.15
25	1.105	32.71	-40.25	-37.69	-16.61	+13.15
30	1.119	32.81	-39.17	-38.14	-16.65	+13.18
35	1.184	32.78	-39.12	-35.92	-16.86	+13.15
40	1.282	32.72	-39.37	-31.91	-16.56	+13.09
45	1.312	32.79	-39.76	-31.22	-16.62	+13.04
50	1.372	32.79	-39.07	-29.43	-16.69	+12.94
55	1.445	32.79	-39.72	-28.66	-16.60	+12.93
60	1.487	32.63	-39.45	-27.70	-16.66	+12.92

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65	1.598	32.77	-39.02	-27.18	-16.78	+12.92
70	1.640	32.73	-39.78	-26.66	-16.53	+12.93
75	1.629	32.75	-40.17	-25.81	-16.58	+12.95
Freq(MHz)	NF (dB)	S21 (dB)	S12 (dB)	S11(dB)	S22(dB)	P _{1dB} (dBm)
80	1.708	32.66	-40.37	-25.08	-16.62	+12.94
85	1.765	32.72	-39.61	-24.15	-16.53	+12.91
90	1.834	32.75	-38.53	-24.00	-16.79	+12.89
95	1.874	32.70	-39.07	-23.57	-16.60	+12.87
100	1.909	32.75	-39.89	-22.73	-16.57	+12.85
110	1.941	32.69	-38.91	-21.85	-16.65	+12.85
120	1.935	32.69	-39.60	-21.46	-16.81	+12.81
130	1.917	32.68	-38.90	-20.79	-16.49	+12.83
140	1.908	32.68	-39.68	-20.18	-16.73	+12.98
150	1.938	32.63	-39.72	-19.77	-16.63	+13.09
160	1.904	32.66	-38.45	-19.43	-16.86	+13.23
170	1.823	32.61	-38.46	-19.03	-16.66	+13.35
180	1.771	32.61	-39.51	-18.50	-16.65	+13.43
190	1.860	32.51	-40.09	-18.13	-16.65	+13.46
200	1.899	32.65	-38.76	-17.56	-16.62	+13.49
210	1.950	32.61	-40.28	-17.03	-16.58	+13.55
220	1.945	32.49	-39.74	-16.55	-16.52	+13.50
230	1.958	32.58	-39.63	-16.39	-16.83	+13.46
240	1.967	32.56	-39.32	-15.96	-16.57	+13.45
250	1.988	32.55	-39.77	-15.74	-16.53	+13.48
260	1.968	32.47	-39.65	-15.37	-16.61	+13.48
270	2.001	32.44	-40.14	-15.18	-16.56	+13.57
280	2.047	32.48	-39.88	-14.86	-16.57	+13.55
290	2.042	32.57	-40.02	-14.66	-16.48	+13.65
300	2.065	32.42	-39.41	-14.43	-16.62	+13.68
310	2.046	32.44	-39.98	-14.17	-16.60	+13.75
320	2.078	32.47	-40.03	-13.98	-16.58	+13.72
330	2.059	32.43	-40.23	-13.84	-16.69	+13.71
340	2.027	32.33	-40.97	-13.61	-16.75	+13.73
350	2.084	32.41	-39.01	-13.43	-16.67	+13.78
360	2.142	32.38	-40.26	-13.11	-16.50	+13.78
370	2.136	32.31	-40.27	-12.81	-16.63	+13.74
380	2.159	32.35	-40.37	-12.64	-16.34	+13.68
390	2.149	32.33	-40.14	-12.48	-16.29	+13.62
400	2.143	32.28	-39.78	-12.32	-16.33	+13.51

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410	2.147	32.29	-39.69	-12.03	-16.33	+13.50
420	2.171	32.27	-39.41	-11.84	-16.25	+13.50
430	2.183	32.27	-39.82	-11.74	-16.39	+13.46
440	2.185	32.22	-39.60	-11.58	-16.32	+13.42
450	2.223	32.20	-39.96	-11.40	-16.39	+13.37
Freq(MHz)	NF (dB)	S21 (dB)	S12 (dB)	S11(dB)	S22(dB)	P _{1dB} (dBm)
460	2.238	32.09	-39.97	-11.27	-16.32	+13.27
470	2.202	32.12	-40.30	-11.03	-16.36	+13.12
480	2.244	32.09	-39.12	-10.88	-16.75	+13.00
490	2.265	32.20	-39.98	-10.84	-16.91	+12.98
500	2.267	32.16	-39.47	-10.90	-17.15	+12.96
510	2.219	32.23	-38.42	-10.78	-17.16	+13.00
520	2.290	32.22	-37.99	-10.78	-17.30	+13.06
530	2.269	32.24	-39.72	-10.70	-17.28	+13.09
540	2.320	32.23	-39.87	-10.70	-16.95	+13.09
550	2.311	32.21	-38.43	-10.53	-16.82	+13.08
560	2.309	32.28	-39.03	-10.47	-16.63	+13.13
570	2.344	32.24	-38.32	-10.41	-16.59	+13.08
580	2.339	32.25	-38.16	-10.30	-16.36	+13.02
590	2.348	32.24	-38.71	-10.27	-16.40	+13.00
600	2.331	32.21	-37.84	-10.20	-16.15	+12.91
610	2.369	32.18	-37.61	-10.24	-16.08	+12.81
620	2.361	32.21	-38.12	-10.10	-15.88	+12.72
630	2.390	32.23	-37.40	-9.97	-16.04	+12.70
640	2.378	32.24	-37.41	-9.90	-15.89	+12.58
650	2.424	32.18	-38.10	-9.80	-15.83	+12.52
660	2.419	32.10	-38.10	-9.72	-15.70	+12.50
670	2.414	32.09	-37.56	-9.70	-15.91	+12.44
680	2.377	32.08	-37.75	-9.56	-15.58	+12.41
690	2.434	32.12	-37.56	-9.54	-15.58	+12.43
700	2.451	32.02	-37.68	-9.44	-15.57	+12.50
710	2.393	32.07	-37.68	-9.38	-15.49	+12.46
720	2.398	32.02	-36.78	-9.38	-15.39	+12.38
730	2.393	32.06	-36.81	-9.38	-15.22	+12.21
740	2.419	32.03	-36.59	-9.39	-15.38	+12.05
750	2.419	32.07	-37.09	-9.48	-15.26	+11.88
760	2.425	32.03	-37.35	-9.60	-15.31	+11.73
770	2.405	32.02	-36.43	-9.60	-15.16	+11.57
780	2.421	31.98	-36.97	-9.49	-14.83	+11.45

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790	2.411	32.02	-36.85	-9.48	-15.18	+11.37
800	2.397	31.98	-36.28	-9.59	-15.12	+11.36
810	2.405	31.98	-36.37	-9.53	-14.76	+11.35
820	2.372	31.92	-36.02	-9.55	-14.88	+11.40
830	2.356	31.90	-36.03	-9.66	-14.72	+11.39
840	2.389	31.91	-35.81	-9.74	-14.61	+11.35
850	2.434	31.86	-35.44	-9.86	-14.66	+11.26

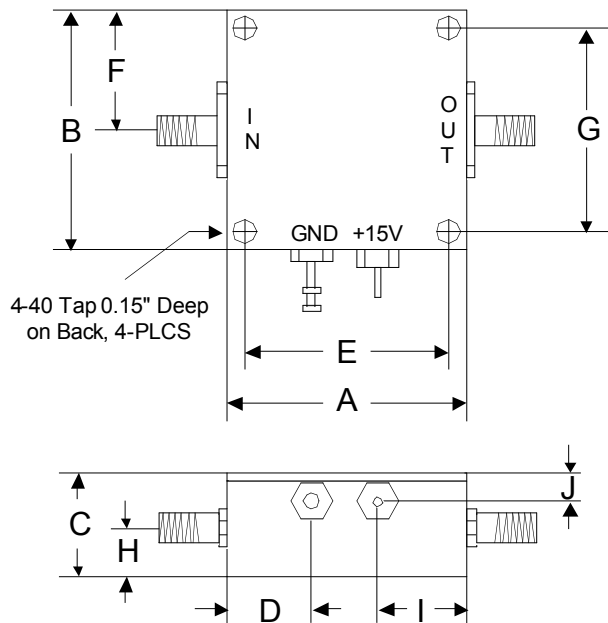
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Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+13dBm
Supply Voltage	+35V
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +125 °C

Outline



	A	B	C	D	E	F	G	H	I	J
Inch	1.250	1.250	0.563	0.450	1.000	0.625	1.000	0.250	0.500	0.187
mm	31.75	31.75	14.29	11.43	25.40	15.88	25.40	6.35	12.70	4.76