



2225-K Martin Avenue, Santa Clara, CA 95050 (408) 492-1400
FAX (408) 492-1500

AP2048 200 to 2000 MHz TO-8 Cascadable Amplifier

AP2048

High Dynamic Range (1 MHz band)	+ 121.5 dBm
High Output Power	+ 23.5 dBm
High Third Order I.P.	+ 39.0 dBm
Low Noise Figure	4.8 dB
High Performance Thin Film	
Standard Size TO-8	

Specifications

Parameter	Typical	Guaranteed*	
		0 to 50 °C	- 55 to 85 °C
Frequency (Min.)	100-2200 MHz	200-2000 MHz	200-2000 MHz
Small Signal Gain (Min.)	9.0 dB	8.0 dB	7.5 dB
Gain Flatness (Max.)	± 0.4 dB	± 0.5 dB	± 0.8 dB
Noise Figure (Max.)	4.8 dB	5.5 dB	6.0 dB
SWR (Max.) - Input/Output	< 1.5:1	2.0:1	2.0:1
Power Output @ 1dB comp. (Min.)	+ 23.5 dBm	+ 23.0 dBm	+ 22.5 dBm
DC Current (Max.)	150.0 mA	158.0 mA	162.0 mA

*Measured in a 50-ohm system at +15 Vdc unless otherwise specified.

Intermodulation Performance

AP2048

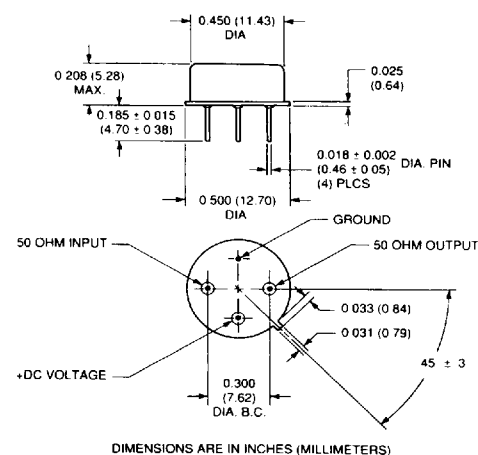
Second Order Harmonic Intercept Point	+ 56 dBm
Second Order Two Tone Intercept Point	+ 50 dBm
Third Order Two Tone Intercept Point	+ 39 dBm

Absolute Maximum Ratings

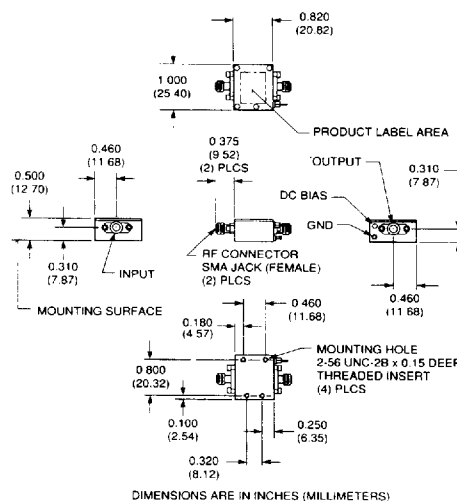
Ambient Operating Temperature	-55 to 100° C
Storage Temperature	-62 to 125° C
Maximum Case Temperature	+85° C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+17 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 μ sec Max.)	0.5 Watt
Q Series Burn-in Temperature	+85° C

Outline Drawings

TO-8 Package for Amplifiers



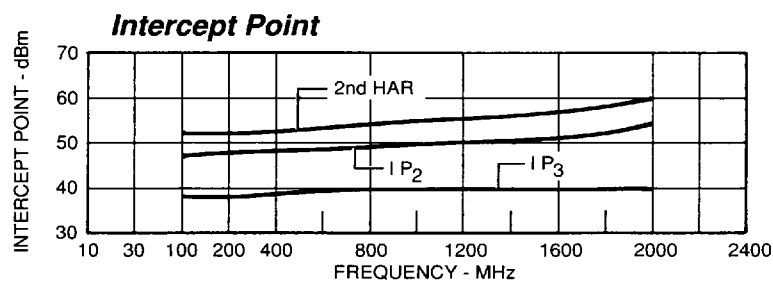
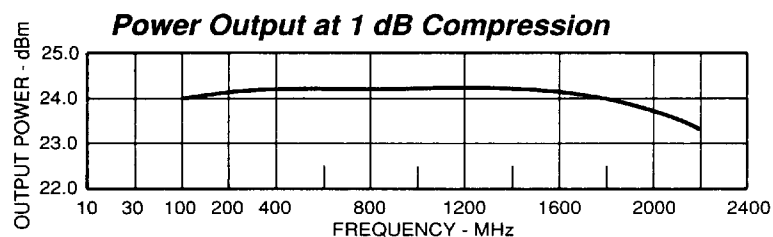
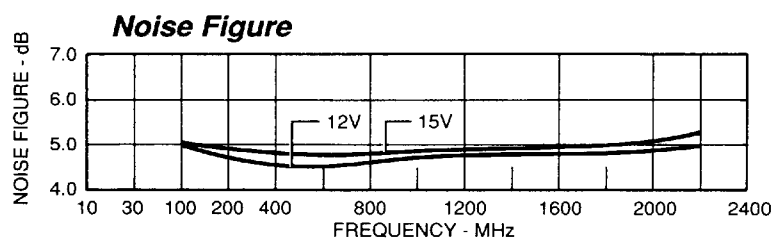
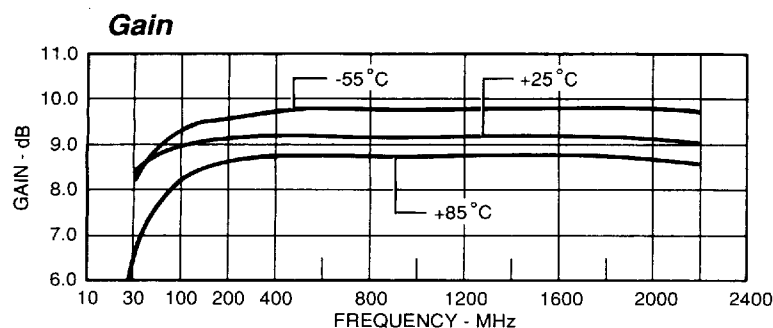
Amplifier Case - connectorized



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AP2048

Typical Performance at 25 °C



Typical Automatic Test Data

B-74-13-51

MODEL: AP2048 Vcc=+15V Icc= 148.26 mA

FREQUENCY MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
100.0	1.72	1.20	9.0	.399	-17.5
200.0	1.64	1.15	9.1	.399	-17.6
400.0	1.59	1.13	9.1	.312	-17.7
600.0	1.54	1.12	9.2	.294	-17.7
800.0	1.49	1.11	9.1	.283	-17.7
1000.0	1.46	1.09	9.1	.285	-17.7
1200.0	1.40	1.08	9.2	.289	-17.7
1400.0	1.33	1.09	9.2	.296	-17.7
1600.0	1.26	1.09	9.2	.300	-17.6
1800.0	1.22	1.11	9.2	.312	-17.7
2000.0	1.32	1.14	9.2	.332	-17.8
2200.0	1.65	1.17	9.0	.350	-18.1

LINEAR S-PARAMETERS

MODEL: AP2048 Vcc=+15V Icc= 148.26 mA

FREQ. MHZ	S11 MAG ANG	S21 MAG ANG	S12 MAG ANG	S22 MAG ANG
100	.27 -24.4	2.81 179.0	.134 -9	.09 -131.9
200	.24 -29.5	2.84 164.7	.131 -13	.07 -174.6
400	.23 -48.7	2.87 142.4	.130 -23	.06 143.8
600	.21 -67.7	2.87 121.4	.131 -34	.06 111.9
800	.20 -90.1	2.85 100.8	.131 -45	.05 93.4
1000	.19 -111.1	2.86 80.4	.130 -57	.04 78.3
1200	.17 -133.3	2.87 59.5	.130 -70	.04 69.9
1400	.14 -158.6	2.87 38.3	.131 -82	.04 64.9
1600	.12 168.1	2.88 16.7	.131 -96	.04 56.4
1800	.10 119.5	2.89 -5.8	.130 -110	.05 36.5
2000	.14 58.0	2.87 -29.9	.128 -126	.06 10.1
2200	.25 12.3	2.81 -55.0	.124 -142	.08 -24.9
2400	.39 -23.4	2.60 -82.0	.116 -161	.10 -63.3

MODEL: AP2048 Vcc=+12V Icc= 132.00 mA

FREQUENCY MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
100.0	1.70	1.27	9.0	.392	-17.9
200.0	1.64	1.25	9.0	.392	-18.1
400.0	1.60	1.23	9.1	.309	-18.1
600.0	1.56	1.22	9.1	.290	-18.0
800.0	1.51	1.21	9.0	.283	-17.9
1000.0	1.48	1.19	9.1	.283	-17.9
1200.0	1.42	1.18	9.1	.287	-17.8
1400.0	1.36	1.18	9.1	.295	-17.6
1600.0	1.29	1.18	9.1	.298	-17.5
1800.0	1.23	1.21	9.2	.313	-17.4
2000.0	1.29	1.25	9.2	.335	-17.3
2200.0	1.59	1.30	9.0	.348	-17.5

LINEAR S-PARAMETERS

MODEL: AP2048 Vcc=+12V Icc= 132.00 mA

FREQ. MHZ	S11 MAG ANG	S21 MAG ANG	S12 MAG ANG	S22 MAG ANG
100	.26 -22.6	2.81 178.0	.127 -9	.12 -151.0
200	.24 -28.1	2.83 164.2	.125 -12	.11 176.5
400	.23 -46.5	2.84 142.0	.125 -22	.10 142.1
600	.22 -65.3	2.84 121.2	.126 -32	.10 118.5
800	.20 -86.6	2.83 101.0	.127 -43	.10 100.7
1000	.19 -107.5	2.84 80.7	.127 -54	.09 85.0
1200	.17 -128.4	2.86 59.9	.129 -66	.08 71.6
1400	.15 -151.3	2.85 38.8	.132 -79	.08 60.5
1600	.13 178.4	2.87 17.0	.134 -92	.08 47.8
1800	.10 133.8	2.89 -5.0	.135 -106	.09 29.7
2000	.13 70.6	2.89 -29.3	.136 -123	.11 6.7
2200	.23 19.2	2.82 -54.3	.133 -139	.13 -22.4
2400	.38 -19.5	2.59 -82.0	.126 -159	.15 -56.4

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