



AP4048 AR4048 1000 TO 4000 MHz TO-8 & TO-8B CASCADABLE AMPLIFIERS

Typical Values	AP4048/AR4048
High Output Level	+24.0 dBm
High Third Order I.P.	+35 dBm
High Reverse Isolation	38 dB
High Performance Thin Film Available in Surface Mount	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50° C	-55 to +85° C
Frequency (Min.)	700-4100 MHz	1000-4000 MHz	1000-4000 MHz
Small Signal Gain (Min.)	16.8 dB	16.0 [^] dB	15.5 [^] dB
Gain Flatness (Max.)	±0.3 dB	±0.6 dB	±0.7 dB
Noise Figure (Max.)	<4.0 dB	4.5 dB	5.0 dB
SWR (Max.)	Input/Output <1.6:1	1.9:1	2.0:1
Power Output (Min.) @ 1dB comp.	+24.0 dBm	+23.0 dBm	+22.5 dBm
Reverse Isolation	38 dB	—	—
DC Current (Max.)	225 mA	235 mA	245 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
[^] 0.5 dB less above 3700 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25° C; 2500 MHz	+12 Volts	+15 Volts
Second Order Harmonic Intercept Point	+57 dBm	+58 dBm
Second Order Two Tone Intercept Point	+51 dBm	+52 dBm
Third Order Two Tone Intercept Point	+34 dBm	+35 dBm

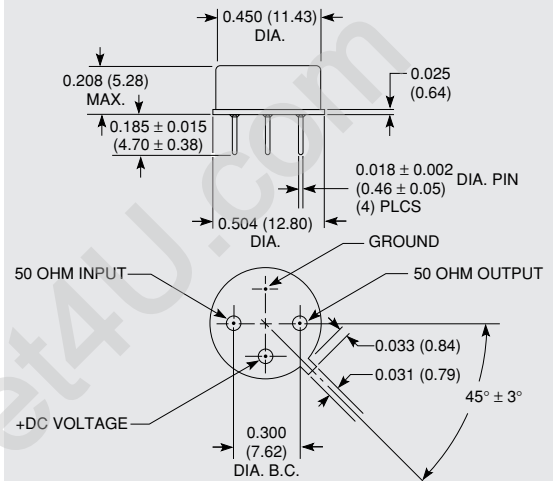
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to 125° C
Maximum Case Temperature	+125° C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+20 dBm
Maximum Short Term Input Power (1 Minute Max.)	200 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+105° C
Thermal Resistance ¹ (θjc)	+12° C/Watt
Junction Temperature Rise Above Case (Tjc)	+42.1° C

¹ Thermal resistance is based on total power dissipation.

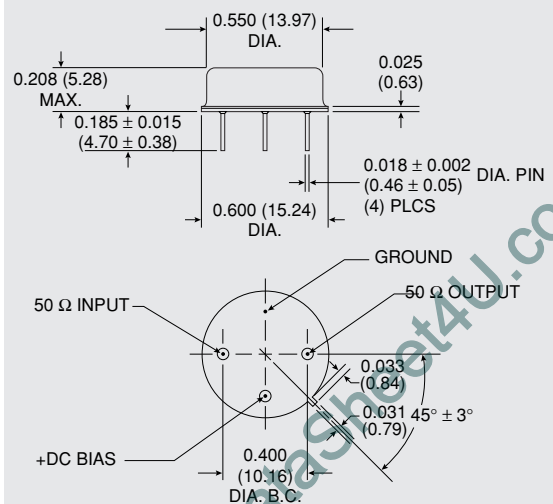
AP4048

TO-8 Package for Amplifiers



AR4048

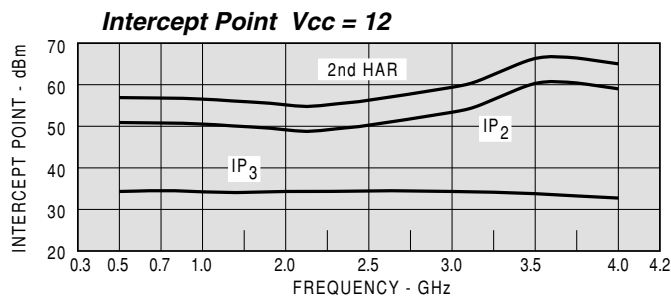
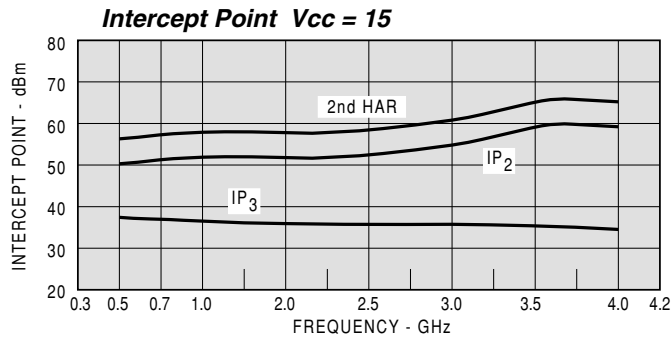
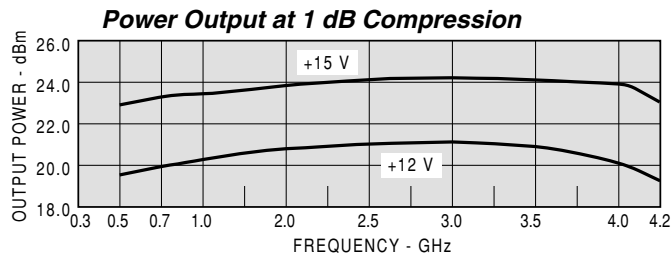
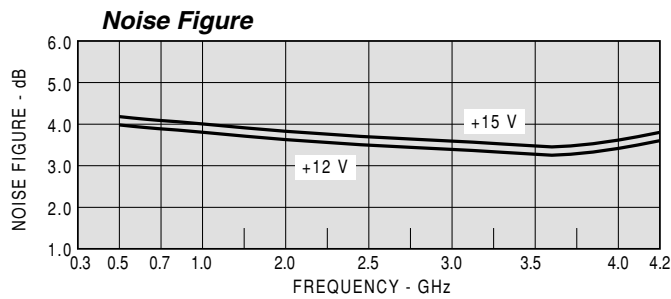
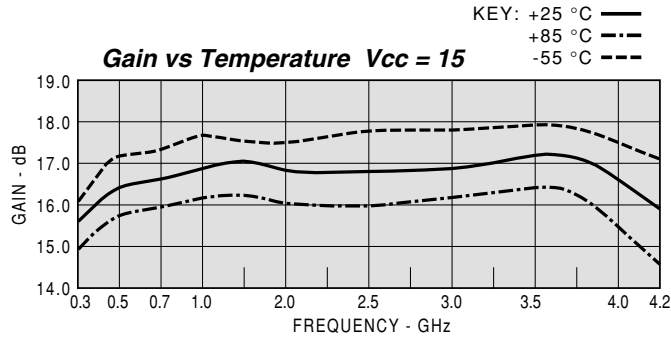
TO-8B Package for Amplifiers



DIMENSIONS ARE IN INCHES (MILLIMETERS)



TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

Model: AR4048			Vcc= +15V			lcc = 226.20
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REVI/ISO
MHZ	IN	OUT	DB	DEG	NSEC	DB
300	2.29	1.46	15.42	43	1.50	-39.2
500	1.54	1.31	16.35	-13	0.65	-36.9
700	1.32	1.34	16.65	-50	0.48	-36.9
1000	1.20	1.39	16.89	-95	0.41	-37.2
1200	1.18	1.39	16.99	-124	0.39	-37.8
1400	1.21	1.38	16.95	-151	0.38	-37.8
1600	1.18	1.34	16.89	-178	0.37	-38.2
1800	1.17	1.31	16.82	156	0.36	-39.2
2000	1.23	1.23	16.82	132	0.35	-39.8
2200	1.22	1.18	16.75	106	0.35	-40.0
2400	1.22	1.16	16.71	81	0.35	-40.2
2600	1.16	1.15	16.77	56	0.35	-39.5
2800	1.16	1.14	16.89	31	0.35	-39.4
3000	1.33	1.15	16.94	5	0.36	-38.6
3200	1.49	1.15	17.04	-23	0.39	-38.0
3400	1.59	1.14	17.00	-51	0.39	-37.0
3600	1.71	1.17	16.95	-80	0.40	-36.9
3800	1.59	1.27	16.73	-110	0.43	-36.8
4000	1.55	1.42	16.30	-141	0.42	-36.4
4200	1.43	1.67	15.50	-175	0.47	-37.8

LINEAR S-PARAMETERS

Model: AR4048		Vcc= +15V						lcc= 226.20	
FREQ	S11	S21		S12		S22			
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
300	0.39	-92.6	5.90	42.7	0.011	34.3	0.19	144.5	
500	0.21	-114.0	6.57	-13.0	0.014	3.3	0.13	146.9	
700	0.14	-124.9	6.80	-49.8	0.014	-16.8	0.15	141.2	
1000	0.09	-144.6	6.99	-95.5	0.014	-38.6	0.16	121.1	
1200	0.08	-137.0	7.07	-123.9	0.013	-53.1	0.16	102.3	
1400	0.10	-128.4	7.04	-151.1	0.013	-71.0	0.16	79.8	
1600	0.08	-139.8	6.99	-177.5	0.012	-87.9	0.15	60.1	
1800	0.08	-148.4	6.93	-156.5	0.011	-108.2	0.14	39.1	
2000	0.10	-149.0	6.93	131.5	0.010	-122.7	0.10	15.5	
2200	0.10	-153.7	6.88	106.3	0.010	-139.6	0.08	-21.7	
2400	0.10	-130.9	6.84	80.9	0.010	-156.4	0.07	-55.5	
2600	0.08	-144.0	6.90	55.9	0.011	-170.0	0.07	-87.5	
2800	0.07	-134.9	6.99	30.8	0.011	177.4	0.07	-116.3	
3000	0.14	-139.7	7.03	5.0	0.012	167.3	0.07	-129.3	
3200	0.20	-144.5	7.11	-22.9	0.013	157.6	0.07	-144.9	
3400	0.23	-139.2	7.08	-51.0	0.014	149.2	0.06	-144.4	
3600	0.26	-152.9	7.04	-79.5	0.014	138.2	0.08	-116.9	
3800	0.23	-163.1	6.87	-110.4	0.014	128.3	0.12	-108.4	
4000	0.21	-169.5	6.53	-140.7	0.015	121.8	0.17	-110.7	
4200	0.18	-153.7	5.96	-174.7	0.013	115.4	0.25	-119.8	
4400	0.17	-159.0	5.29	153.3	0.012	114.4	0.30	-133.2	