

AR4019

10 TO 4000 MHz TO-8B CASCADABLE AMPLIFIER

Typical Values

Ultra Broad Bandwidth	10-4000 MHz
High Output Level	+21.8 dBm
Medium Gain	16.0 dB
High Third Order I.P.	+34 dBm
High Performance Thin Film	
TO-8B Package	

AR4019

10-4000 MHz
+21.8 dBm
16.0 dB
+34 dBm

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	0.01-4.2 GHz	0.01-4.0 GHz	0.01-4.0 GHz
Small Signal Gain (Min.)	16.0 dB	15.0 dB	14.5 dB
Gain Flatness (Max.)			
10-100 MHz	±0.7 dB	±0.8 dB	±1.0 dB
100-4000 MHz	±0.4 dB	±0.6 dB	±0.8 dB
Noise Figure (Max.)			
200-4000 MHz	5.0 dB	6.5 dB	7.0 dB
SWR (Max.)	Input/Output	1.6:1†	1.8:1†
Power Output (Min.)			
@ 1dB comp.	+21.8 dBm	+19.0 [^] dBm	+18.5 [^] dBm
Reverse Isolation	31.0 dB	—	—
DC Current (Max.)	200 mA	210 mA	220 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
[^] 0.5 dB lower above 3500 MHz. † 0.2 higher below 20 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 2000 MHz

Second Order Harmonic Intercept Point	+61 dBm
Second Order Two Tone Intercept Point	+55 dBm
Third Order Two Tone Intercept Point	+34 dBm

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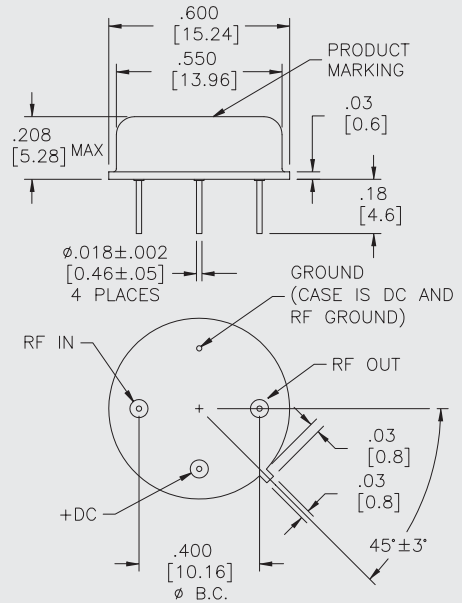
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+110 °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 μsec Max.)	0.5 Watt
Burn-in Temperature	+85 °C
Thermal Resistance¹ (θjc)	+18 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+55.3 °C

¹ Thermal resistance is based on total power dissipation.

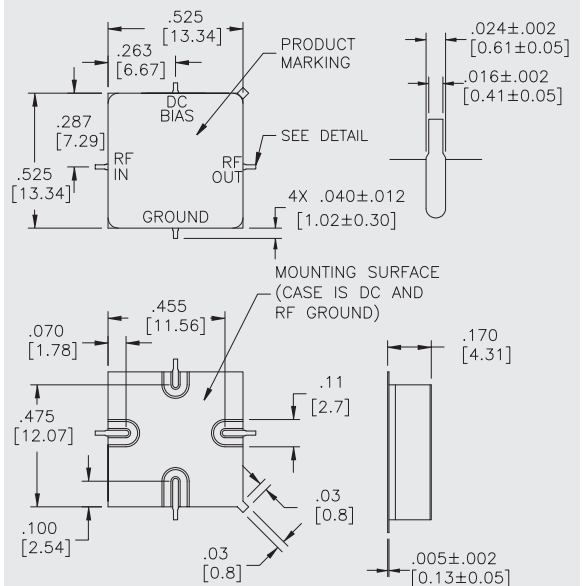
AR4019

TO-8B Package for Amplifiers



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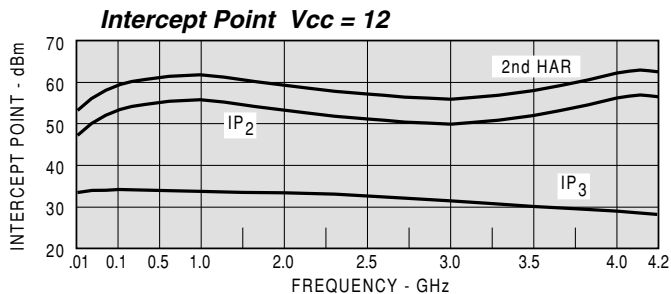
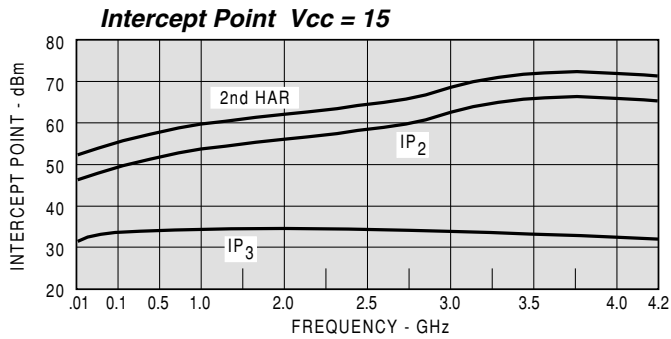
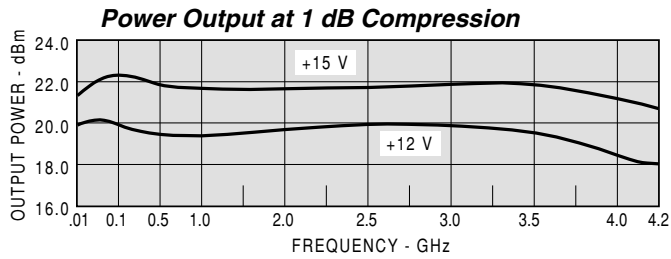
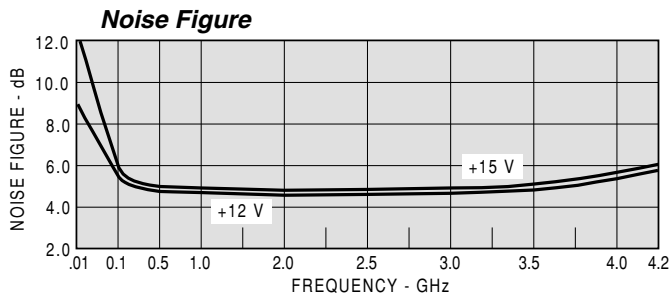
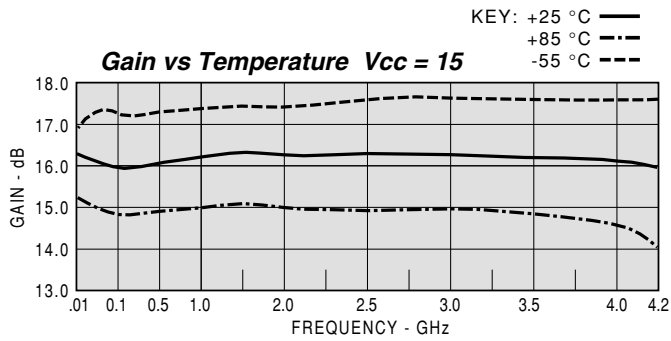
SMT0-8B Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



MODEL: AR4019				Vcc = +15V		Icc = 195.39 mA	
FREQ. MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB		
10	1.65	1.69	16.3				
50	1.06	1.13	16.2				
100	1.02	1.10	16.0	0.568	-31.6		
400	1.03	1.06	16.1	0.303	-31.4		
700	1.07	1.08	16.1	0.294	-31.3		
1000	1.10	1.12	16.2	0.286	-31.6		
1300	1.14	1.16	16.3	0.291	-31.7		
1600	1.15	1.21	16.3	0.300	-32.1		
1900	1.17	1.23	16.3	0.295	-32.1		
2200	1.18	1.26	16.3	0.294	-32.0		
2500	1.21	1.28	16.3	0.308	-32.1		
2800	1.28	1.32	16.1	0.295	-31.8		
3100	1.32	1.34	16.2	0.305	-31.2		
3400	1.33	1.31	16.3	0.315	-30.8		
3700	1.28	1.22	16.3	0.336	-30.6		
4000	1.32	1.06	16.2	0.364	-30.9		
4200	1.45	1.11	16.1	0.381	-30.9		

MODEL: AR4019				LINEAR S-PARAMETERS				Icc = 195.39 mA	
FREQ. MHZ	S11		S21		S12		S22		
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
10	0.24	-93.1	6.57	60.1	0.026	60	0.26	117.9	
50	0.03	-87.4	6.43	3.9	0.026	9	0.06	139.2	
100	0.01	-84.4	6.34	-6.3	0.026	2	0.05	136.7	
400	0.01	63.7	6.38	-39.1	0.027	-19	0.03	131.0	
700	0.03	46.0	6.40	-70.9	0.027	-36	0.04	127.0	
1000	0.05	32.6	6.45	-101.7	0.026	-52	0.06	111.6	
1300	0.07	19.4	6.55	-133.2	0.026	-70	0.07	87.6	
1600	0.07	0.8	5.56	-165.5	0.025	-91	0.09	59.0	
1900	0.08	-17.3	6.53	162.6	0.025	-108	0.10	29.8	
2200	0.08	-45.2	6.54	130.8	0.025	-128	0.11	-8.9	
2500	0.09	-68.2	6.52	97.5	0.025	-150	0.12	-43.7	
2800	0.12	-85.0	6.40	65.8	0.026	-169	0.14	-76.0	
3100	0.14	-98.3	6.49	32.8	0.028	170	0.14	-103.9	
3400	0.14	-102.2	6.51	-1.3	0.029	151	0.14	-126.6	
3700	0.12	-99.2	6.55	-37.6	0.029	130	0.10	-149.6	
4000	0.14	-75.4	6.49	-76.8	0.029	110	0.03	-164.8	
4200	0.18	-72.8	6.37	-104.3	0.029	97	0.05	-26.1	

MODEL: AR4019				Vcc = +12V		Icc = 189.50 mA	
FREQ. MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB		
10	1.61	1.70	16.2		-32.4		
50	1.07	1.16	16.0		-32.5		
100	1.03	1.13	15.9	0.560	-32.3		
400	1.03	1.09	16.0	0.302	-32.1		
700	1.07	1.12	16.0	0.291	-32.1		
1000	1.10	1.16	16.1	0.285	-32.2		
1300	1.14	1.21	16.2	0.289	-32.2		
1600	1.15	1.26	16.3	0.299	-32.6		
1900	1.16	1.29	16.2	0.293	-32.4		
2200	1.19	1.32	16.3	0.293	-32.1		
2500	1.22	1.34	16.3	0.308	-32.0		
2800	1.29	1.38	16.1	0.298	-31.4		
3100	1.32	1.41	16.2	0.302	-30.9		
3400	1.28	1.42	16.3	0.317	-30.2		
3700	1.22	1.36	16.5	0.340	-30.0		
4000	1.25	1.21	16.4	0.373	-29.7		
4200	1.46	1.11	16.2	0.395	-29.8		