

AC271 10 to 250 MHz AC273 TO-8 Cascadable Amplifiers

(Typical Values)

	AC271	AC273
Low Noise Figure	1.5 dB	2.4 dB
Medium Output Level	+ 14.0 dBm	+ 20.5 dBm
High Third Order I.P.	+ 30.0 dBm	+ 36.0 dBm
High Efficiency		
Standard Size TO-8		

Specifications

Parameter		Typical	Guaranteed*	
			0 to 50°C	- 55 to 85°C
Frequency (Min.)	AC271 AC273	5-300 MHz 30-300 MHz	10-250 MHz 30-250 MHz	10-250 MHz 30-250 MHz
Small Signal Gain (Min.)		8.0 dB	7.5† dB	7.0† dB
Gain Flatness (Max.)		± 0.3 dB	± 0.5 dB	± 0.7 dB
Noise Figure (Max.)	AC271 AC273	1.5 dB 2.4 dB	1.8 dB 3.0 dB	2.3 dB 3.5 dB
SWR (Max.) Input/Output	AC271 AC273	< 1.5:1 < 1.5:1	1.7:1 2.0:1	2.0:1 2.0:1
Power Output @ 1dB comp. (Min.)	AC271 AC273	+ 14.0 dBm + 20.5 dBm	+ 13.0^ dBm + 20.0^ dBm	+ 12.5^ dBm + 19.5^ dBm
DC Current (Max.)	AC271 AC273	14.5 mA 37.0 mA	15.5 mA 40.0 mA	18.5 mA 42.0 mA

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

†AC271 is 1.0 dB less below 30 MHz, the AC273 is 1.5 dB less. ^1.0 dBm less below 30 MHz.

Intermodulation Performance

(Typical at 25 °C)

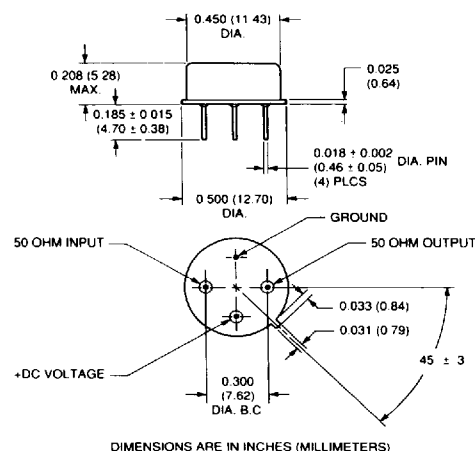
	AC271	AC273
Second Order Harmonic Intercept Point	+ 55 dBm	+ 56 dBm
Second Order Two Tone Intercept Point	+ 49 dBm	+ 50 dBm
Third Order Two Tone Intercept Point	+ 30 dBm	+ 36 dBm

Absolute Maximum Ratings

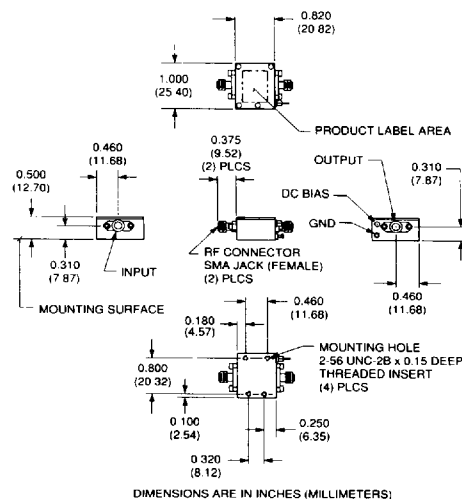
Ambient Operating Temperature	-55 to 100 °C
Storage Temperature	-62 to 125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Q Series Burn-in Temperature	+125 °C

Outline Drawings

TO-8 Package for Amplifiers



Amplifier Case - connectorized



AC271/AC273

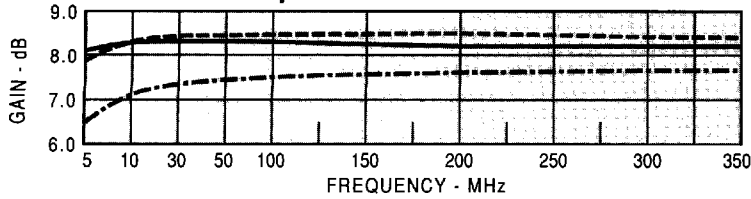
Typical Performance

KEY: +25 °C —

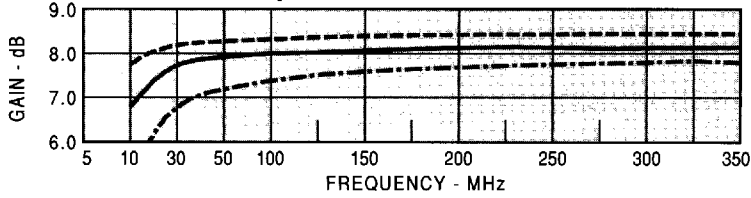
+85 °C - - -

-55 °C ---

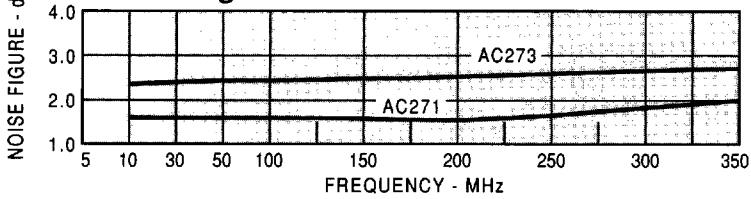
Gain vs Temperature - AC271



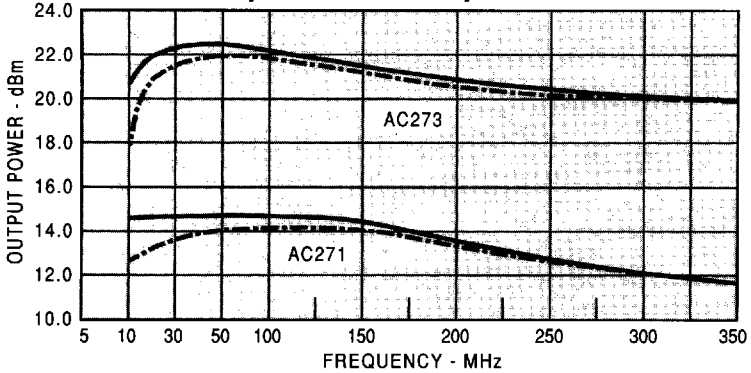
Gain vs Temperature - AC273



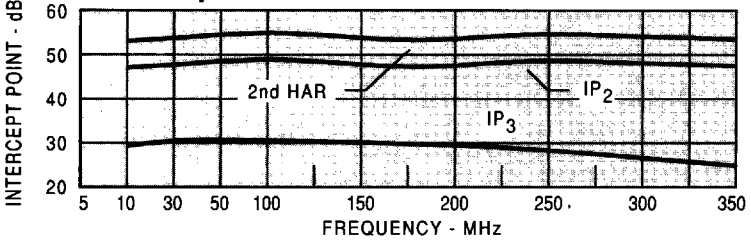
Noise Figure



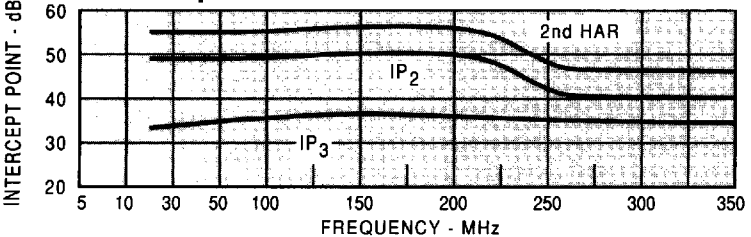
Power Output at 1 dB Compression



Intercept Point - AC271



Intercept Point - AC273



Typical Automatic Test Data

MODEL:AC271

Vcc=15V Icc= 13.95 mA

FREQUENCY MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
5.0	1.24	1.26	7.7		-11.3
10.0	1.17	1.17	8.0		-11.1
20.0	1.13	1.13	8.2		-11.0
50.0	1.14	1.13	8.2	.736	-11.1
100.0	1.22	1.19	8.1	.553	-11.2
150.0	1.33	1.26	8.1	.502	-11.3
200.0	1.45	1.37	8.1	.522	-11.5
250.0	1.62	1.49	8.1	.524	-11.7
300.0	1.84	1.66	8.1	.548	-12.0

LINEAR S-PARAMETERS

MODEL:AC271

Vcc=15V Icc= 13.95 mA

FREQ.	S11	S21	S12	S22
MHZ	MAG ANG	MAG ANG	MAG ANG	MAG ANG
5	.11 156.4	2.43 13.6	.271 13	.12 162.0
10	.08 159.2	2.52 6.0	.278 6	.08 158.5
20	.06 174.2	2.56 .4	.282 0	.06 171.9
50	.07 -156.6	2.56 -7.6	.280 -8	.06 -164.2
100	.10 -144.4	2.55 -17.6	.276 -17	.09 -142.3
150	.14 -144.5	2.54 -26.7	.271 -26	.11 -140.4
200	.19 -148.5	2.54 -36.2	.266 -35	.16 -140.4
250	.24 -155.7	2.53 -45.6	.260 -44	.20 -142.9
300	.30 -164.0	2.53 -55.3	.250 -54	.25 -149.4
350	.35 -174.1	2.50 -65.5	.238 -64	.31 -155.7

MODEL:AC271

Vcc=12V Icc= 10.87 mA

FREQUENCY MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
5.0	1.21	1.24	7.6		-11.4
10.0	1.14	1.15	8.0		-11.2
20.0	1.10	1.11	8.1		-11.0
50.0	1.13	1.12	8.1	.752	-11.1
100.0	1.21	1.19	8.0	.562	-11.2
150.0	1.32	1.27	8.0	.517	-11.4
200.0	1.45	1.41	8.0	.544	-11.6
250.0	1.63	1.54	8.0	.537	-11.8
300.0	1.84	1.73	7.9	.552	-12.2

MODEL:AC273

Vcc=15V Icc= 37.15 mA

FREQUENCY MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
5.0	4.73	4.88	4.4		-14.1
10.0	2.45	2.56	6.9		-12.1
20.0	1.66	1.71	7.7		-11.3
50.0	1.29	1.30	8.0		-11.0
100.0	1.23	1.18	8.0	.712	-11.0
150.0	1.32	1.17	8.1	.572	-11.1
200.0	1.46	1.22	8.2	.539	-11.2
250.0	1.52	1.31	8.1	.574	-11.4
300.0	1.86	1.44	8.1	.560	-11.7

LINEAR S-PARAMETERS

MODEL:AC273

Vcc=15V Icc= 37.15 mA

FREQ.	S11	S21	S12	S22
MHZ	MAG ANG	MAG ANG	MAG ANG	MAG ANG
5	.65 149.6	1.66 52.9	.198 54	.66 157.6
10	.42 134.0	2.18 29.6	.249 30	.44 137.4
20	.25 131.3	2.41 13.7	.272 14	.26 129.7
50	.13 146.5	2.50 -1.8	.282 -2	.13 136.5
100	.10 -179.0	2.53 -14.6	.293 -15	.08 159.3
150	.14 -164.5	2.54 -24.9	.280 -25	.08 -177.1
200	.19 -164.3	2.56 -34.5	.275 -36	.10 -160.2
250	.24 -166.5	2.55 -44.9	.269 -46	.13 -153.3
300	.30 -173.1	2.55 -55.1	.261 -56	.18 -153.1
350	.36 177.6	2.55 -65.7	.250 -67	.23 -157.7

MODEL:AC273

Vcc=12V Icc= 28.68 mA

FREQUENCY MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
5.0	2.78	2.89	6.2		-12.5
10.0	1.79	1.85	7.4		-11.5
20.0	1.43	1.45	7.8		-11.1
50.0	1.24	1.23	8.0		-10.9
100.0	1.24	1.18	8.1	.658	-11.0
150.0	1.36	1.20	8.1	.563	-11.1
200.0	1.50	1.26	8.1	.542	-11.3
250.0	1.68	1.37	8.1	.584	-11.5
300.0	1.93	1.52	8.1	.562	-11.8



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