

AC271 AC273

10 TO 250 MHz 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 Package		

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to 85 °C
Frequency (Min.)	5-300 MHz	10-250 MHz [~]	10-250 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 2.4 dB	AC271 1.5 dB AC273 3.0 dB	AC271 2.3 dB AC273 3.5 dB
SWR (Max.)	Input/ Output		
	AC271 <1.5:1	AC271 1.8:1 AC273 2.0:1	AC271 2.0:1 AC273 2.0:1
Power Output (Min.) @ 1dB comp.	AC271 +14.0 dBm AC273 +20.5 dBm	AC271 +13.0 [^] dBm AC273 +20.0 dBm	AC271 +12.5 [^] dBm AC273 +19.5 dBm
Reverse Isolation	11.0 dB	—	—
DC Current (Max.)	AC271 14.5 mA AC273 37.0 mA	AC271 15.5 mA AC273 40.0 mA	AC271 18.5 mA AC273 42.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified. [^]1.0 dBm less below 30 MHz
†AC271 is 1.0 dB less below 30 MHz. [~]AC273 guaranteed only between 30-250 MHz

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 100 MHz	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

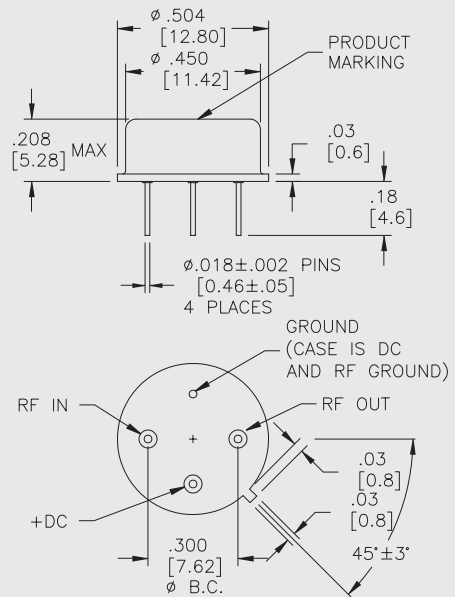
ABSOLUTE MAXIMUM RATINGS

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
Burn-in Temperature (AC271/AC273)	+125 °C/+105 °C
Thermal Resistance ¹ (θjc; AC271)	+31 °C/Watt
Thermal Resistance ¹ (θjc; AC273)	+51 °C/Watt
Junction Temperature Rise Above Case (Tjc; AC271)	+7.1 °C
Junction Temperature Rise Above Case (Tjc; AC273)	+30.5 °C

¹ Thermal resistance is based on total power dissipation.

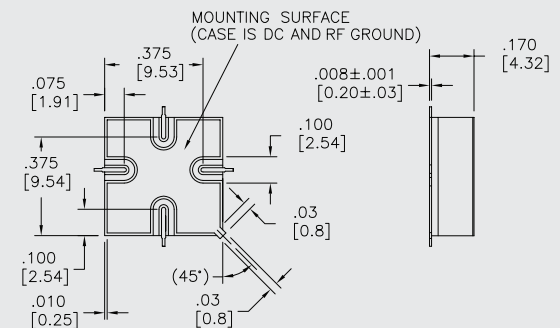
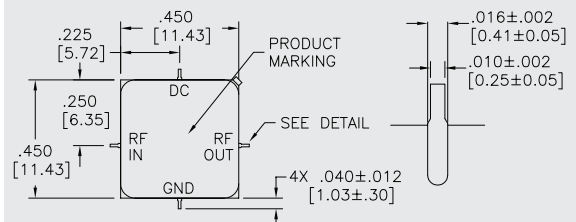
AC271/AC273

TO-8 Package for Amplifiers



AS271/AS273

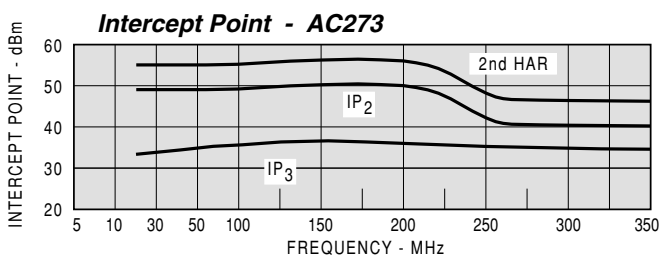
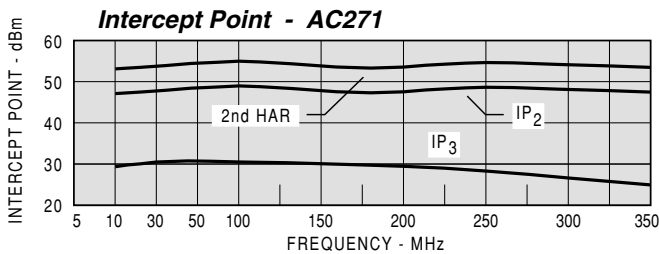
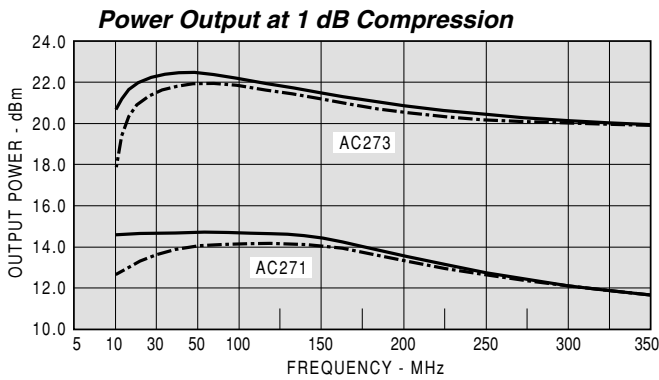
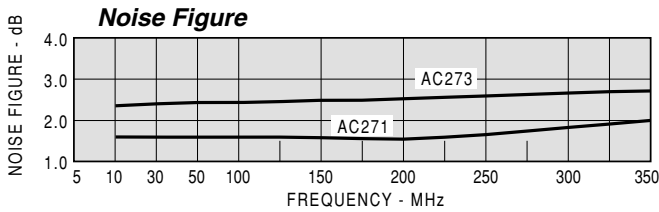
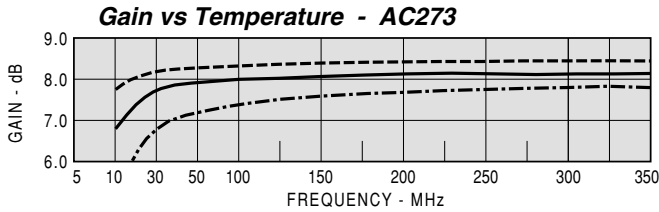
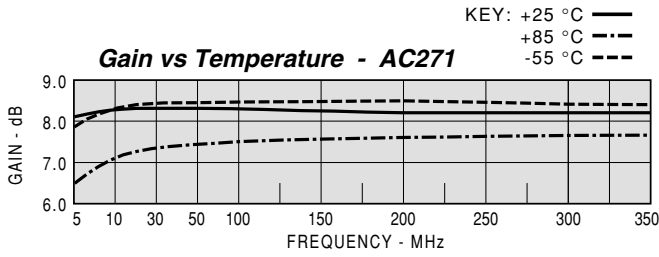
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC271 Vcc=+15V Icc=13.95

FREQ (MHZ)	SWR IN	SWR OUT	GAIN (DB)	DELAY (NSEC)	REV/ISO (DB)
5	1.24	1.26	7.7		-11.3
10	1.17	1.17	8.0		-11.1
20	1.13	1.13	8.2		-11.0
50	1.14	1.13	8.2	0.736	-11.1
100	1.22	1.19	8.1	0.553	-11.2
150	1.33	1.26	8.1	0.502	-11.3
200	1.45	1.37	8.1	0.522	-11.5
250	1.62	1.49	8.1	0.524	-11.7
300	1.84	1.66	8.1	0.548	-12.0

Model: AC271 Vcc=+15V Icc=13.95

LINEAR S-PARAMETERS

FREQ (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.11	156.4	2.43	13.6	0.271	13.0	0.12	162.0
10	0.08	159.2	2.52	6.0	0.278	6.0	0.08	158.5
20	0.06	174.2	2.56	0.4	0.282	0.0	0.06	171.9
50	0.07	-156.6	2.56	-7.6	0.280	-8.0	0.06	-164.2
100	0.10	-144.4	2.55	-17.6	0.276	-17.0	0.09	-142.3
150	0.14	-144.5	2.54	-26.7	0.271	-26.0	0.11	-140.4
200	0.19	-148.5	2.54	-36.2	0.266	-35.0	0.16	-140.4
250	0.24	-155.7	2.53	-45.6	0.260	-44.0	0.20	-142.9
300	0.30	-164.0	2.53	-55.3	0.250	-54.0	0.25	-149.4
350	0.35	-174.1	2.50	-65.5	0.238	-64.0	0.31	-155.7

Model: AC271 Vcc=+12V Icc=10.87

FREQ (MHZ)	SWR IN	SWR OUT	GAIN (DB)	DELAY (NSEC)	REV/ISO (DB)
5	1.21	1.24	7.6		-11.4
10	1.14	1.15	8.0		-11.2
20	1.10	1.11	8.1		-11.0
50	1.13	1.12	8.1	0.752	-11.1
100	1.21	1.19	8.0	0.562	-11.2
150	1.32	1.27	8.0	0.517	-11.4
200	1.45	1.41	8.0	0.544	-11.6
250	1.63	1.54	8.0	0.537	-11.8
300	1.84	1.73	7.9	0.552	-12.2

Model: AC273 Vcc=+15V Icc=37.15

FREQ (MHZ)	SWR IN	SWR OUT	GAIN (DB)	DELAY (NSEC)	REV/ISO (DB)
5	4.73	4.88	4.4		-14.1
10	2.45	2.56	6.8		-12.1
20	1.66	1.71	7.7		-11.3
50	1.29	1.30	8.0		-11.0
100	1.23	1.18	8.0	0.712	-11.0
150	1.32	1.17	8.1	0.572	-11.1
200	1.46	1.22	8.2	0.539	-11.2
250	1.62	1.31	8.1	0.574	-11.4
300	1.86	1.44	8.1	0.560	-11.7

Model: AC273 Vcc=+15V Icc=37.15

LINEAR S-PARAMETERS

FREQ (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.65	149.6	1.66	52.9	0.198	54.0	0.66	157.6
10	0.42	134.0	2.18	29.6	0.249	30.0	0.44	137.4
20	0.25	131.3	2.41	13.7	0.272	14.0	0.26	129.7
50	0.13	-146.5	2.50	-1.8	0.282	-2.0	0.13	-136.5
100	0.10	-179.0	2.53	-14.6	0.283	-15.0	0.08	-159.3
150	0.14	-164.5	2.54	-24.9	0.280	-25.0	0.08	-177.1
200	0.19	-164.3	2.56	-34.5	0.275	-36.0	0.10	-160.2
250	0.24	-166.5	2.55	-44.9	0.269	-46.0	0.13	-153.3
300	0.30	-173.1	2.55	-55.1	0.261	-56.0	0.18	-153.1
350	0.36	-177.6	2.55	-65.7	0.250	-67.0	0.23	-157.7

Model: AC273 Vcc=+12V Icc=28.68

FREQ (MHZ)	SWR IN	SWR OUT	GAIN (DB)	DELAY (NSEC)	REV/ISO (DB)
5	2.78	2.89	6.2		-12.5
10	1.79	1.85	7.4		-11.5
20	1.43	1.45	7.8		-11.1
50	1.24	1.23	8.0		-10.9
100	1.24	1.18	8.1	0.658	-11.0
150	1.36	1.20	8.1	0.563	-11.1
200	1.50	1.26	8.1	0.542	-11.3
250	1.68	1.37	8.1	0.584	-11.5
300	1.93	1.52	8.1	0.562	-11.8