TELEDYNE COUGAR
A Teledyne Technologies Company

AC2017 1 TO 2000 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC2017
Extended Bandwidth	**1-2000 MHz**
High Output Level	**+15.0 dBm**
High Third Order I.P.	**+30.0 dBm**

High Performance Thin Film
Standard Size TO-8

SPECIFICATIONS*

Parameter	Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)	**1-2100 MHz**	**1-2000 MHz**	**1-2000 MHz**
Small Signal Gain (Min.)	9.0 dB	8.0 dB	7.5† dB
Gain Flatness (Max.)	±0.3 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.)	6.5 dB	8.0 dB	8.5 dB
SWR (Max.) Input/Output	1.6:1	1.8:1^	2.0:1
Power Output (Min.) @ 1dB comp.	+15.0 dBm	+14.0 dBm	+13.5 dBm
DC Current (Max.)	47.0 mA	50.0 mA	53.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
† 2.0 dB less below 2 MHz. ^ 1.9:1 below 2 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC2017
Second Order Harmonic Intercept Point	+49 dBm
Second Order Two Tone Intercept Point	+43 dBm
Third Order Two Tone Intercept Point	+30 dBm

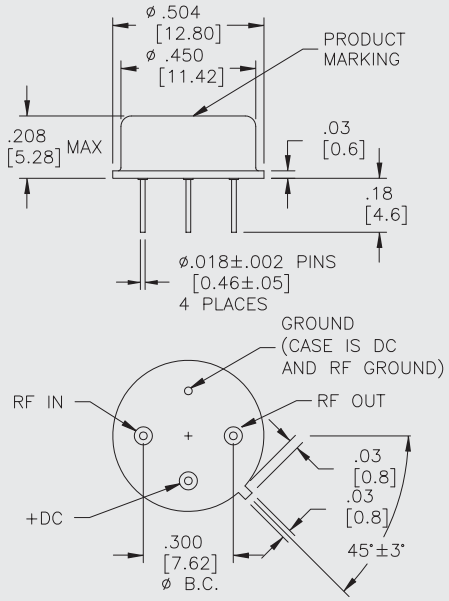
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 Volts
Maximum Continuous RF Input Power	+10 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3µsec Max.)	0.5 Watt
Burn-in Temperature	+105 °C
Thermal Resistance[1] (θjc)	+38 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+28.7 °C

[1] Thermal resistance is based on total power dissipation.

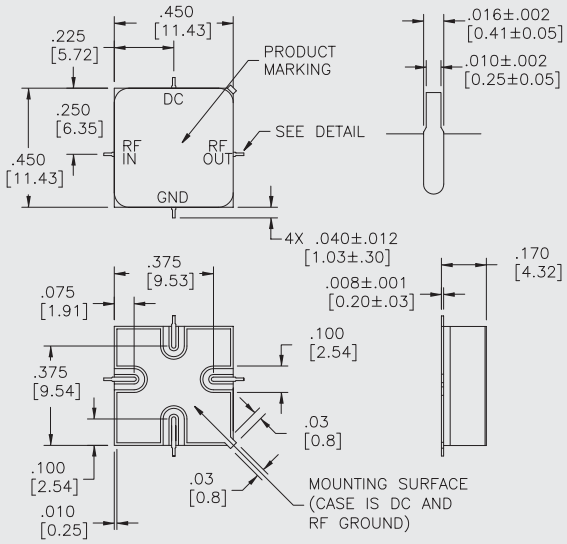
AC2017

TO-8 Package for Amplifiers



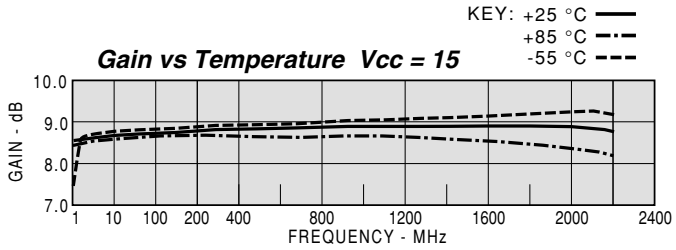
AS2017

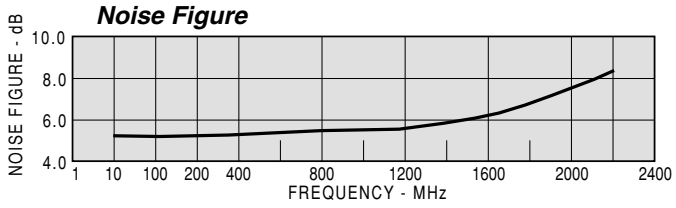
SMTO-8 Package for Amplifiers

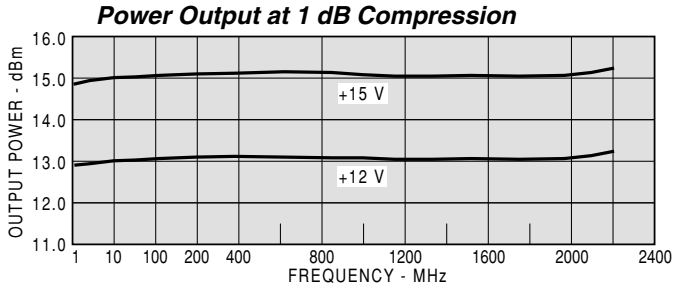


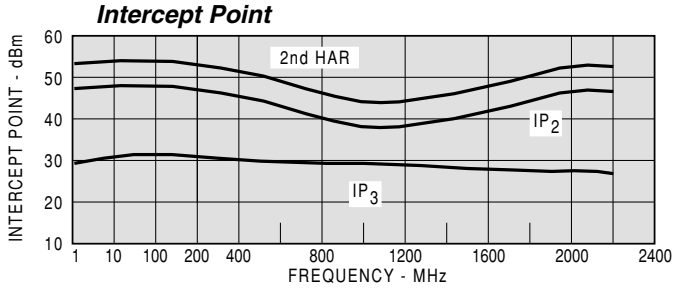
DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE









TYPICAL AUTOMATIC TEST DATA

MODEL: AC2017 Vcc = +15V Icc = 47.45 mA

FREQ. MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
1	1.74	1.65	8.3		-15.7
5	1.14	1.19	9.0		-14.9
10	1.09	1.16	9.0		-14.8
50	1.07	1.15	9.1	0.530	-14.9
200	1.08	1.14	8.9	0.323	-14.9
400	1.07	1.09	9.0	0.329	-14.8
600	1.07	1.01	9.1	0.328	-14.7
800	1.13	1.08	9.1	0.337	-14.6
1000	1.24	1.20	9.1	0.340	-14.6
1200	1.39	1.36	9.0	0.350	-14.5
1400	1.53	1.53	9.1	0.345	-14.5
1600	1.63	1.67	8.9	0.348	-14.6
1800	1.60	1.71	8.9	0.363	-14.3
2000	1.48	1.59	8.8	0.391	-13.9

LINEAR S-PARAMETERS

MODEL: AC2017 Vcc = +15V Icc = 47.45 mA

FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.27	-81.5	2.51	-147.1	0.164	38	0.25	-175.3
5	0.06	-117.5	2.82	-173.9	0.180	8	0.09	167.0
10	0.04	-138.0	2.83	-178.0	0.182	3	0.07	171.0
50	0.03	-169.7	2.84	174.4	0.181	-2	0.07	173.1
200	0.04	-166.9	2.80	156.8	0.180	-12	0.06	148.8
400	0.03	-164.8	2.82	133.2	0.182	-24	0.04	123.7
600	0.03	-137.7	2.84	109.6	0.185	-37	0.01	89.9
800	0.06	-116.9	2.84	85.4	0.186	-50	0.04	-98.8
1000	0.11	-125.3	2.84	60.9	0.186	-64	0.09	-121.5
1200	0.16	-141.4	2.83	35.7	0.186	-78	0.15	-143.6
1400	0.21	-162.7	2.84	10.9	0.188	-92	0.21	-166.6
1600	0.24	170.1	2.77	-14.0	0.187	-106	0.25	171.1
1800	0.23	133.6	2.78	-40.4	0.192	-121	0.26	148.2
2000	0.19	72.0	2.76	-68.4	0.201	-137	0.23	125.3
2200	0.28	-14.8	2.64	-103.2	0.205	-158	0.14	110.7

MODEL: AC2017 Vcc = +12V Icc = 37.60 mA

FREQUENCY MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
1	1.67	1.54	8.4		-15.5
5	1.13	1.17	8.9		-14.8
10	1.09	1.14	9.0		-14.7
50	1.06	1.14	9.0	0.518	-14.8
200	1.07	1.12	8.9	0.326	-14.9
400	1.08	1.07	8.9	0.329	-14.7
600	1.08	1.02	9.0	0.332	-14.6
800	1.14	1.10	9.0	0.336	-14.6
1000	1.26	1.22	9.0	0.340	-14.4
1200	1.41	1.37	8.9	0.351	-14.4
1400	1.54	1.54	9.0	0.350	-14.3
1600	1.63	1.66	8.8	0.351	-14.2
1800	1.60	1.69	8.9	0.373	-13.9
2000	1.51	1.54	8.8	0.399	-13.4

LINEAR S-PARAMETERS

MODEL: AC2017 Vcc = +12V Icc = 37.60 mA

FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.25	-83.2	2.62	-149.3	0.157	36	0.21	-171.8
5	0.06	-117.4	2.80	-174.3	0.182	7	0.08	168.9
10	0.04	-138.2	2.81	-178.2	0.183	3	0.07	172.7
50	0.03	-166.6	2.82	174.3	0.182	-3	0.07	175.3
200	0.04	-157.7	2.79	156.7	0.181	-12	0.06	152.5
400	0.04	-154.4	2.80	132.9	0.184	-24	0.03	137.7
600	0.04	-134.4	2.82	109.2	0.186	-36	0.01	-154.9
800	0.07	-123.9	2.82	84.8	0.187	-49	0.05	-120.2
1000	0.12	-130.9	2.82	60.4	0.189	-63	0.10	-134.2
1200	0.17	-145.9	2.80	35.1	0.190	-77	0.16	-153.0
1400	0.21	-166.5	2.81	10.1	0.194	-91	0.21	-174.5
1600	0.24	166.1	2.76	-15.1	0.194	-104	0.25	163.2
1800	0.23	127.0	2.77	-41.9	0.202	-119	0.26	139.6
2000	0.20	60.5	2.75	-71	0.215	-137	0.21	115.0
2200	0.32	-22.9	2.58	-106.5	0.216	-158	0.11	96.4