TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC1012
AC1015

0.3 TO 1000 MHz
TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC1012	AC1015
Extended Bandwidth	0.1 to 1000 MHz	0.1 to 1000 MHz
Low Noise Figure	3.2 dB	3.4 dB
Medium Output Level	+9.0 dBm	+9.0 dBm
Medium Third Order I.P.	+21.0 dBm	+21.0 dBm

High Performance Thin Film
Standard Size TO-8 Package

SPECIFICATIONS*

Parameter		Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)		0.1-1100 MHz	0.3-1000 MHz	0.3-1000 MHz
Small Signal Gain (Min.)	AC1012	16.0 dB	15.0 dB	14.5 dB
	AC1015	15.0 dB	14.0 dB	13.5 dB
Gain Flatness (Max.)		±0.25 dB	±0.7 dB	±0.8 dB
Noise Figure (Max.)	AC1012	< 3.2 dB	3.7 dB	4.2 dB
	AC1015	< 3.4 dB	4.0 dB	4.5 dB
SWR (Max.)	Input/Output	< 1.5:1	1.7:1	2.0:1
Power Output (Min.) @ 1dB comp.		+9.0 dBm	+7.0 dBm	+7.0 dBm
Reverse Isolation		20.0 dB	—	—
DC Current (Max.)		24.0 mA	26.0 mA	28.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C

Second Order Harmonic Intercept Point	+39 dBm
Second Order Two Tone Intercept Point	+33 dBm
Third Order Two Tone Intercept Point	+21 dBm

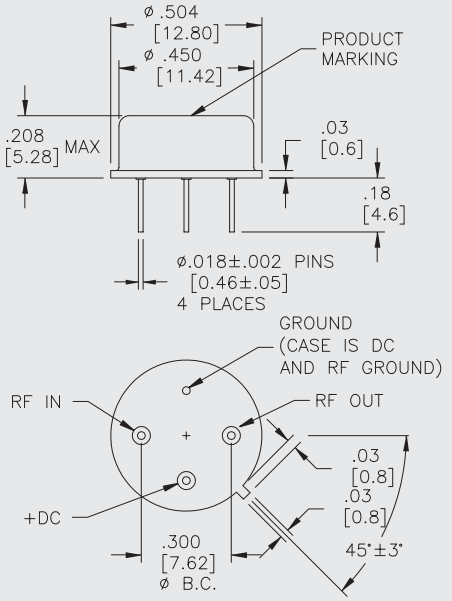
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature (AC1012/AC1015)	+125 °C
Thermal Resistance[1] (θjc; AC1012)	+59 °C/Watt
Thermal Resistance[1] (θjc; AC1015)	+59 °C/Watt
Junction Temperature Rise Above Case (Tjc; AC1012)	+23.0 °C
Junction Temperature Rise Above Case (Tjc; AC1015)	+23.0 °C

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

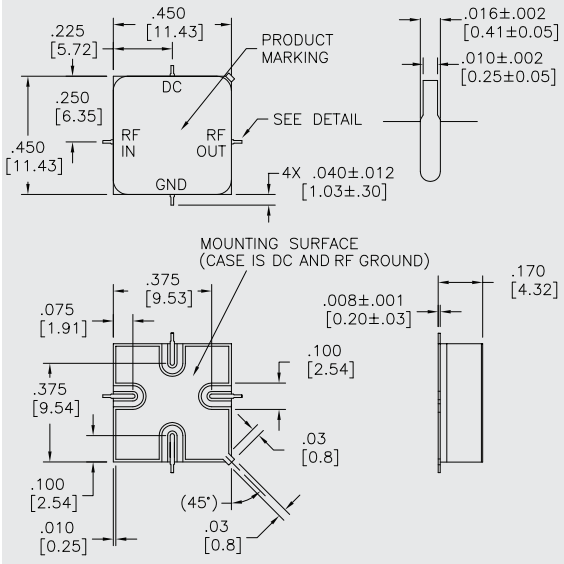
AC1012/AC1015

TO-8 Package for Amplifiers



AS1012/AS1015

SMTO-8 Package for Amplifiers



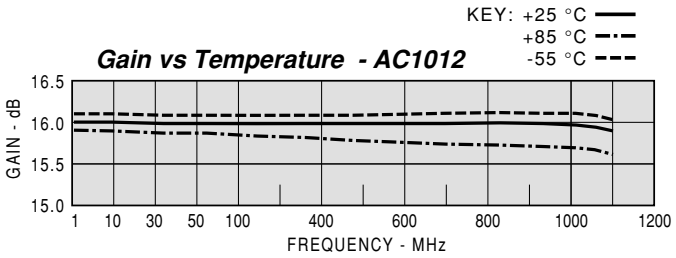
If DC is present on RF input/output, this model requires additional external blocking capacitors.

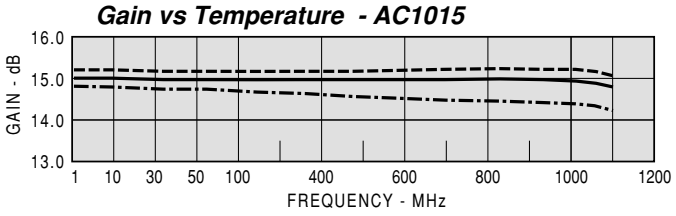
DIMENSIONS ARE IN INCHES [MILLIMETERS]

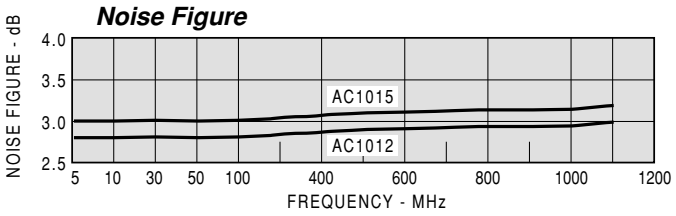
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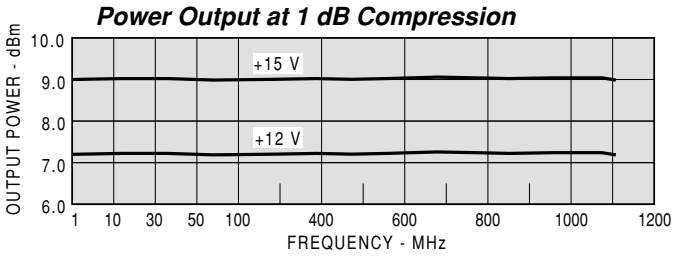
AC1012/AC1015

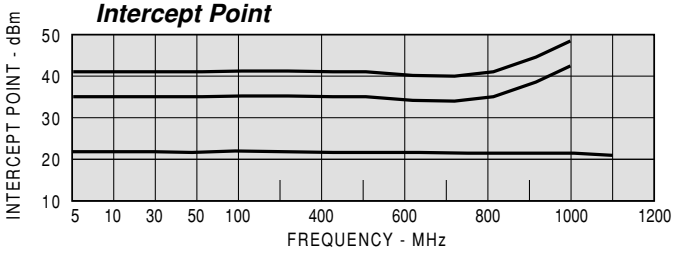
TYPICAL PERFORMANCE











TYPICAL AUTOMATIC TEST DATA

Model: AC1012 Vcc=+15V Icc=24.87

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
0.3	1.35	1.49	16.2		-20.4
1	1.24	1.41	16.0		-20.5
10	1.23	1.39	16.0	0.989	-20.4
50	1.20	1.38	15.9	0.419	-20.5
100	1.20	1.37	15.8	0.388	-20.5
200	1.21	1.34	15.8	0.398	-20.6
300	1.22	1.30	15.8	0.389	-20.7
400	1.24	1.24	15.8	0.380	-20.8
500	1.25	1.18	15.8	0.407	-20.7
600	1.28	1.12	15.9	0.411	-20.7
700	1.30	1.06	15.9	0.412	-21.0
800	1.33	1.10	15.9	0.432	-21.0
900	1.36	1.21	15.8	0.445	-20.9
1000	1.41	1.36	15.8	0.457	-21.2
1100	1.42	1.52	15.6	0.448	-21.2

LINEAR S-PARAMETERS

Model: AC1012 Vcc=+15V Icc=24.87

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0	0.15	-142.9	6.46	-173.2	0.095	-7.0	0.20	-149.2
1	0.11	-168.7	6.33	-178.4	0.094	-2.0	0.17	-170.5
10	0.10	177.8	6.27	178.5	0.095	-1.0	0.16	178.5
50	0.09	171.8	6.24	172.5	0.094	-3.0	0.16	171.3
100	0.09	169.5	6.20	165.4	0.094	-6.0	0.16	163.5
200	0.10	154.9	6.16	151.1	0.093	-12.0	0.15	148.1
300	0.10	143.7	6.18	137.2	0.092	-18.0	0.13	133.2
400	0.11	131.3	6.19	123.3	0.091	-24.0	0.11	117.7
500	0.11	122.1	6.17	108.8	0.092	-30.0	0.08	98.7
600	0.12	113.0	6.24	94.1	0.092	-35.0	0.06	72.7
700	0.13	101.4	6.21	79.3	0.089	-41.0	0.03	15.2
800	0.14	93.2	6.22	63.5	0.090	-47.0	0.05	-67.5
900	0.15	86.2	6.20	47.5	0.090	-54.0	0.09	-102.2
1000	0.17	76.7	6.13	31.2	0.087	-58.0	0.15	-123.5
1100	0.17	68.9	5.99	15.0	0.087	-64.0	0.21	-140.6
1200	0.19	58.4	5.79	-2.0	0.085	-70.0	0.26	-157.4

Model: AC1015 Vcc=+15V Icc=24.34

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
0.3	1.23	1.33	15.3		-19.7
1	1.08	1.21	15.1		-19.9
10	1.05	1.20	15.0	1.062	-19.8
50	1.03	1.19	15.0	0.349	-19.8
100	1.05	1.19	14.9	0.316	-19.8
200	1.07	1.20	14.9	0.331	-20.0
300	1.11	1.21	14.9	0.323	-19.9
400	1.13	1.23	14.9	0.319	-20.1
500	1.18	1.26	14.9	0.329	-20.0
600	1.25	1.28	15.0	0.336	-20.0
700	1.33	1.31	14.9	0.338	-20.1
800	1.40	1.34	15.0	0.351	-20.3
900	1.50	1.37	14.9	0.363	-20.2
1000	1.62	1.42	14.9	0.360	-20.3
1100	1.73	1.48	14.8	0.363	-20.4

LINEAR S-PARAMETERS

Model: AC1015 Vcc=+15V Icc=24.34

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0	0.10	-108.7	5.79	-171.6	0.103	-7.0	0.14	-127.3
1	0.04	-133.9	5.67	-178.0	0.102	-3.0	0.10	-159.5
10	0.02	-178.8	5.65	178.7	0.102	-1.0	0.09	178.1
50	0.02	-166.1	5.63	173.6	0.102	-3.0	0.09	165.9
100	0.02	-137.8	5.59	168.0	0.102	-5.0	0.09	154.0
200	0.03	-148.4	5.54	156.1	0.100	-10.0	0.09	129.6
300	0.05	-149.0	5.57	144.3	0.101	-14.0	0.10	106.9
400	0.06	-161.8	5.57	132.9	0.099	-19.0	0.10	87.1
500	0.08	-168.0	5.55	121.0	0.099	-24.0	0.11	66.8
600	0.11	179.3	5.62	108.9	0.100	-28.0	0.12	47.8
700	0.14	169.1	5.57	96.9	0.099	-32.0	0.13	28.7
800	0.17	159.0	5.60	84.1	0.096	-36.0	0.15	9.5
900	0.20	148.2	5.56	71.0	0.098	-42.0	0.16	-9.8
1000	0.24	138.0	5.57	58.2	0.097	-44.0	0.17	-29.6
1100	0.27	129.9	5.49	45.2	0.096	-49.0	0.19	-47.9
1200	0.30	120.1	5.35	31.9	0.095	-54.0	0.21	-66.4