AC558
AC559

5 TO 500 MHz
TO-8 CASCADABLE AMPLIFIERS

Typical Values	*AC558*	*AC559*
High Dynamic Range	*+114 dBm*	*+117 dBm*
High Power Output	*+19.0 dBm*	*+22.0 dBm*
High Third Order I.P.	*+32.0 dBm*	*+35.0 dBm*

High Performance Thin Film
Available in Surface Mount

SPECIFICATIONS*

Parameter		Typical	Guaranteed 0 to 50° C	Guaranteed -55 to +85° C
Frequency (Min.)		**5-600 MHz**	**5-500 MHz**	**5-500 MHz**
Small Signal Gain (Min.)		11.0 dB	10.5 dB	10.0 dB
Gain Flatness (Max.)		±0.2 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	AC558	<5.2 dB	6.0 dB	6.5 dB
	AC559	<5.7 dB	6.5 dB	7.0 dB
SWR (Max.)	Input/Output	<1.6:1	1.8:1	1.9:1
Power Output (Min.) @ 1 dB comp.	AC558	+19.0 dBm	+18.0 dBm	+17.5 dBm
.	AC559	+22.0^ dBm	+21.0^ dBm	+20.5^ dBm
DC Current (Max.)	AC558	65.0 mA	68.0 mA	71.0 mA
	AC559	88.0 mA	92.0 mA	96.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 0.5 dBm less below 200 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25° C; 200 MHz	*AC558*	*AC559*
Second Order Harmonic Intercept Point	+56 dBm	+55 dBm
Second Order Two Tone Intercept Point	+50 dBm	+49 dBm
Third Order Two Tone Intercept Point	+32 dBm	+35 dBm

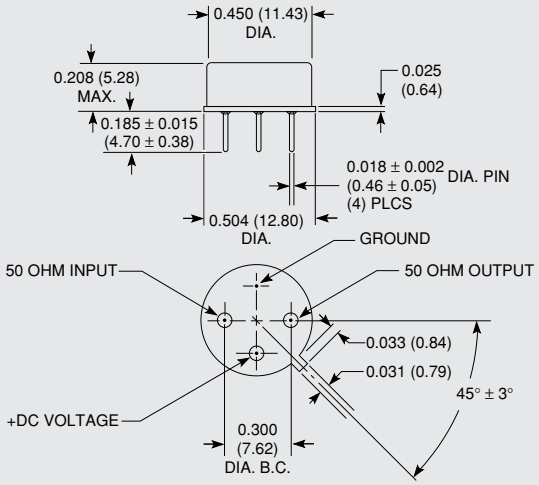
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to 125° C
Maximum Case Temperature	+125° C
Maximum DC Voltage	+19 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature (AC558/AC559)	+105° C/+85° C
Thermal Resistance[1] (θjc; AC558)	+37° C/Watt
Thermal Resistance[1] (θjc; AC559)	+37° C/Watt
Junction Temperature Rise Above Case (Tjc; AC558)	+37.4° C
Junction Temperature Rise Above Case (Tjc; AC559)	+50.3° C

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

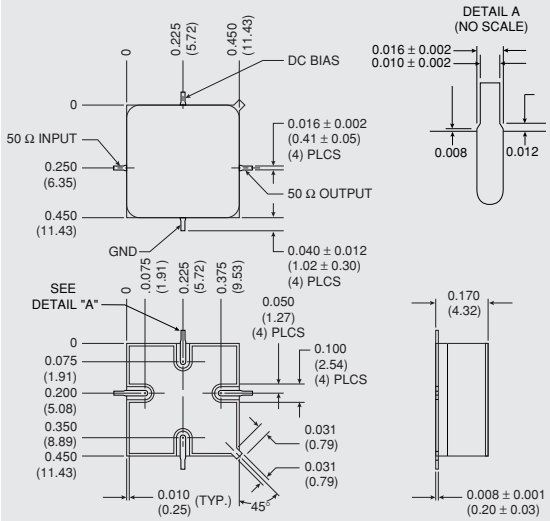
AC558/AC559

TO-8 Package for Amplifiers



AS558/AS559

SMTO-8 Package for Amplifiers

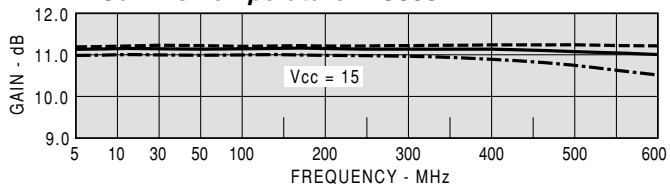


DIMENSIONS ARE IN INCHES (MILLIMETERS)

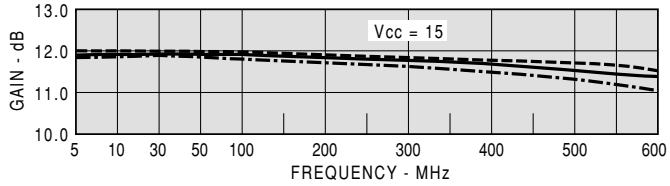
TYPICAL PERFORMANCE

KEY: +25 °C —— +85 °C -·-·- -55 °C - - -

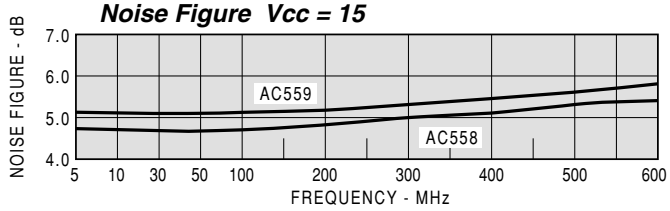
Gain vs Temperature AC558



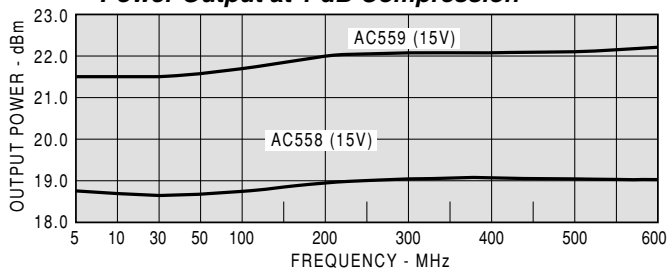
Gain vs Temperature AC559



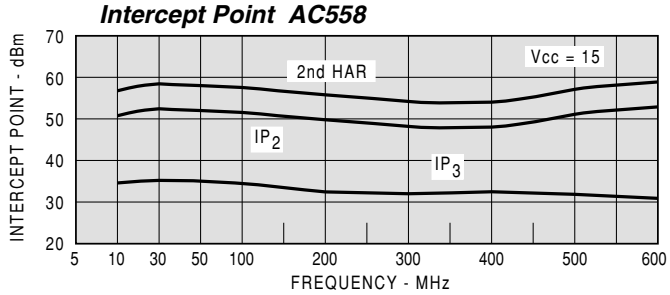
Noise Figure Vcc = 15



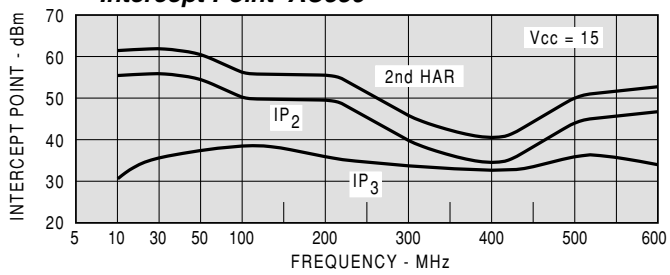
Power Output at 1 dB Compression



Intercept Point AC558



Intercept Point AC559



TYPICAL AUTOMATIC TEST DATA

Model: AC559 Vcc=+15V Icc=87.34

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
5	1.42	1.43	11.85	-174		-17.1
10	1.40	1.41	11.85	-179		-17.0
30	1.40	1.39	11.89	174	0.79	-17.0
50	1.40	1.38	11.89	168	0.75	-17.0
100	1.39	1.37	11.88	155	0.74	-17.0
200	1.39	1.32	11.80	129	0.72	-16.8
300	1.41	1.27	11.71	103	0.72	-16.6
400	1.43	1.24	11.62	77	0.74	-16.3
500	1.41	1.29	11.50	49	0.77	-15.8
600	1.31	1.47	11.32	20	0.82	-15.2

LINEAR S-PARAMETERS

Model: AC559 Vcc=+15V Icc=87.34

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.17	-155.3	3.91	-174.1	0.140	7.7	0.18	174.1
10	0.17	-166.5	3.91	-178.9	0.141	3.4	0.17	174.9
30	0.17	-174.7	3.93	173.7	0.141	-1.0	0.16	172.9
50	0.17	-176.8	3.93	168.0	0.142	-3.6	0.16	171.1
100	0.16	-177.8	3.93	154.6	0.142	-8.8	0.15	165.1
200	0.16	-177.1	3.89	128.9	0.144	-18.2	0.14	154.0
300	0.17	-176.4	3.85	102.9	0.148	-28.1	0.12	147.9
400	0.18	177.0	3.81	76.6	0.154	-38.6	0.11	152.6
500	0.17	160.2	3.76	49.2	0.163	-50.4	0.13	161.3
600	0.13	127.0	3.68	20.4	0.174	-64.5	0.19	157.4
700	0.14	47.7	3.53	-11.0	0.187	-81.7	0.28	137.6

Model: AC559 Vcc=+12V Icc=68.81

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
5	1.42	1.41	11.81	-175		-17.1
10	1.40	1.39	11.81	-179		-17.1
30	1.40	1.38	11.86	173	0.83	-17.0
50	1.40	1.37	11.85	168	0.83	-17.0
100	1.40	1.36	11.82	154	0.76	-17.0
200	1.42	1.31	11.73	128	0.73	-16.8
300	1.46	1.27	11.60	101	0.74	-16.6
400	1.48	1.26	11.47	75	0.75	-16.2
500	1.46	1.33	11.30	47	0.78	-15.7
600	1.37	1.52	11.08	18	0.83	-15.0

Model: AC558 Vcc=+15V Icc=65.09

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
5	1.55	1.54	11.09	-175		-16.6
10	1.53	1.53	11.09	-179		-16.6
30	1.53	1.51	11.12	175	0.79	-16.5
50	1.53	1.50	11.11	170	0.60	-16.5
100	1.52	1.49	11.15	160	0.57	-16.5
200	1.50	1.44	11.14	139	0.59	-16.6
300	1.51	1.36	11.18	117	0.59	-16.6
400	1.54	1.28	11.21	96	0.61	-16.5
500	1.61	1.19	11.20	73	0.62	-16.5
600	1.68	1.18	11.11	50	0.66	-16.3