TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC1569

10 TO 1500 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC1569
High Ouput Power	+21.0 dBm
Medium Gain	17.0 dB
High Third Order I.P.	33 mA
High Performance Thin Film	
Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter		Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)		10-1600 MHz	10-1500 MHz	10-1500 MHz
Small Signal Gain (Min.)		17.0 dB	16.0 dB	15.5 dB
Gain Flatness (Max.)		< ±0.3 dB	±0.5 dB	±0.8 dB
Noise Figure (Max.)		5.5 dB	7.0 dB	7.5 dB
SWR (Max.)	Input	< 1.3:1	1.7:1	1.8:1
	Output	1.5:1	2.0:1	2.1:1
Power Output (Min.) @ 1dB comp.		+21.0 dBm	+19.0 dBm	+19.0 dBm
Reverse Isolation		29.0 dB	—	—
DC Current (Max.)		130.0 mA	135.0 mA	140.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	+12 volts	+15 volts
Second Order Harmonic Intercept Point	60 dBm	58 dBm
Second Order Two Tone Intercept Point	54 dBm	52 dBm
Third Order Two Tone Intercept Point	32 dBm	33 dBm

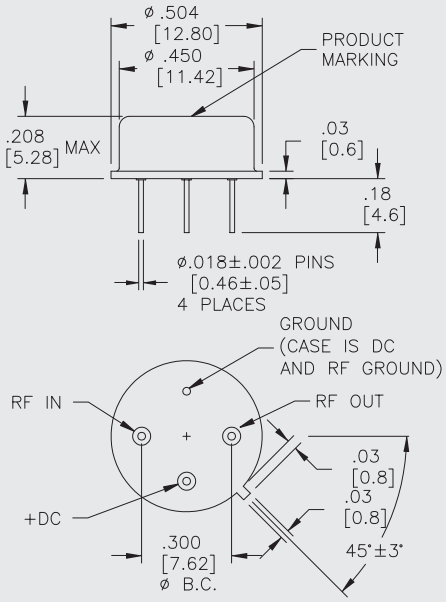
ABSOLUTE MAXIMUM RATINGS

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	+85 °C
Thermal Resistance[1] (θjc)	+19 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+38.7 °C

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

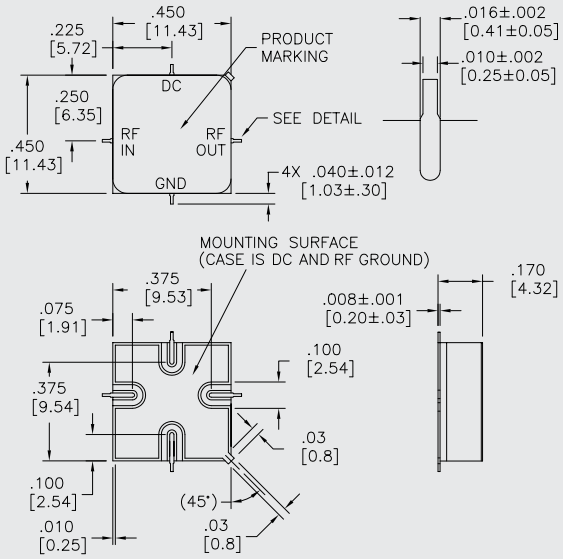
AC1569

TO-8 Package for Amplifiers



AS1569

SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

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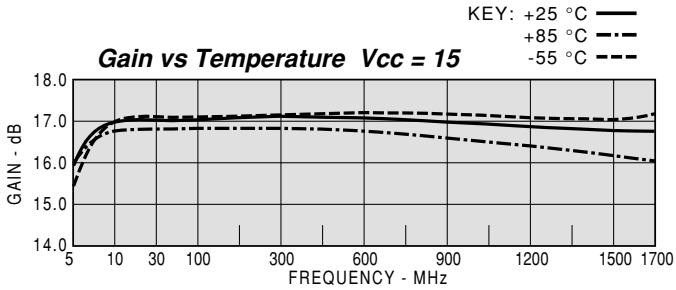
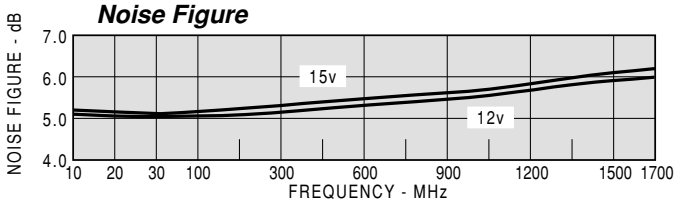
TYPICAL PERFORMANCE

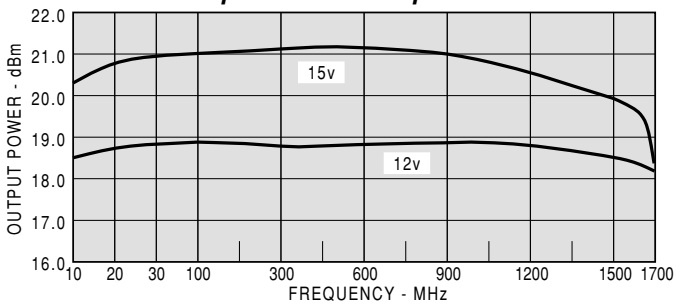
Gain vs Temperature Vcc = 15



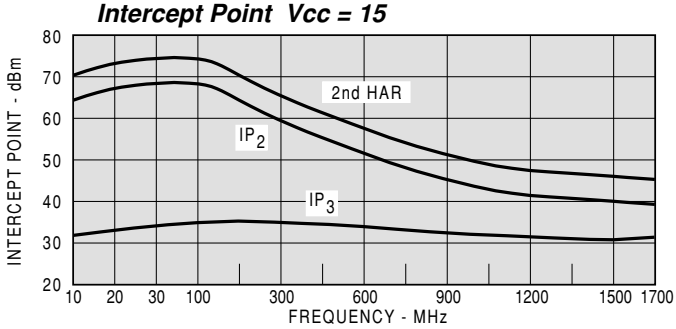
Noise Figure



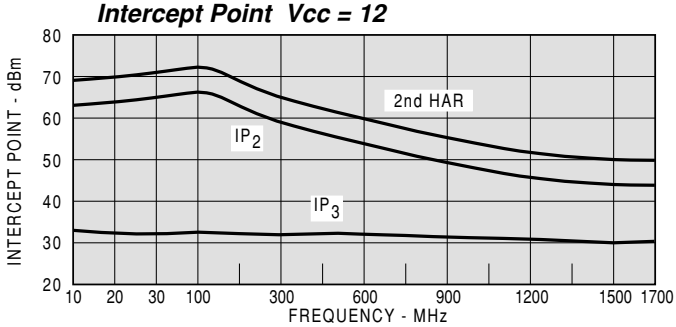
Power Output at 1 dB Compression



Intercept Point Vcc = 15



Intercept Point Vcc = 12



TYPICAL AUTOMATIC TEST DATA

Model: AC1569 Vcc=+15V Icc=129.06

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
5	1.31	2.20	16.07	54		-30.8
10	1.13	1.50	17.02	25		-29.9
20	1.10	1.30	17.12	9		-29.7
50	1.09	1.25	17.06	-4	1.2	-29.9
100	1.08	1.25	17.06	-15	0.62	-29.8
200	1.08	1.26	17.08	-34	0.52	-29.8
300	1.08	1.24	17.07	-52	0.5	-29.7
400	1.09	1.22	17.06	-69	0.49	-29.8
500	1.10	1.18	17.06	-87	0.49	-29.7
600	1.12	1.15	17.05	-105	0.49	-29.6
700	1.14	1.12	17.04	-122	0.49	-29.4
800	1.16	1.09	17.04	-140	0.49	-29.5
900	1.18	1.09	17.00	-158	0.49	-29.5
1000	1.19	1.09	17.01	-175	0.49	-29.5
1100	1.18	1.10	17.00	167	0.49	-29.1
1200	1.18	1.14	17.01	149	0.5	-29.0
1300	1.18	1.21	17.04	131	0.51	-28.6
1400	1.22	1.32	17.03	113	0.5	-28.4
1500	1.30	1.47	17.09	94	0.54	-28.4
1600	1.43	1.69	17.00	75	0.52	-28.0
1700	1.64	1.98	17.10	55	0.55	-27.3

LINEAR S-PARAMETERS

Model: AC1569 Vcc=+15V Icc=129.06

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.13	-140.5	6.36	54.2	0.029	63.1	0.38	143.2
10	0.06	-151.7	7.10	25.0	0.032	30.4	0.20	85.7
20	0.05	-159.0	7.18	9.0	0.033	13.2	0.13	43.9
50	0.04	-170.1	7.12	-3.8	0.032	4.9	0.11	19.8
100	0.04	-172.0	7.13	-14.9	0.032	-2.0	0.11	10.9
200	0.04	-163.7	7.14	-33.7	0.032	-9.1	0.12	2.9
300	0.04	-152.8	7.14	-51.6	0.033	-13.0	0.11	-2.8
400	0.04	-139.8	7.13	-69.3	0.032	-16.4	0.10	-7.7
500	0.05	-134.6	7.12	-87.0	0.033	-22.4	0.08	-10.4
600	0.06	-132.7	7.12	-104.6	0.033	-27.7	0.07	-15.5
700	0.07	-130.5	7.11	-122.2	0.034	-33.6	0.06	-21.5
800	0.08	-133.1	7.11	-139.8	0.033	-39.1	0.05	-29.8
900	0.08	-137.7	7.08	-157.6	0.034	-43.4	0.04	-42.2
1000	0.09	-144.5	7.09	-175.1	0.033	-50.5	0.04	-55.0
1100	0.08	-156.2	7.08	167.1	0.035	-56.7	0.05	-71.4
1200	0.08	-174.9	7.09	149.3	0.035	-63.6	0.06	-88.6
1300	0.08	160.7	7.12	131.0	0.037	-69.2	0.10	-102.9
1400	0.10	132.9	7.11	113.0	0.038	-77.0	0.14	-114.0
1500	0.13	109.2	7.16	93.6	0.038	-86.3	0.19	-124.8
1600	0.18	88.2	7.08	74.7	0.040	-94.7	0.26	-134.2
1700	0.24	73.7	7.16	55.0	0.043	-104.5	0.33	-143.4

Model: AC1569 Vcc=+12V Icc=101.91

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
5	1.30	2.19	15.96	54		-30.9
10	1.13	1.50	16.90	25		-29.9
20	1.10	1.31	17.00	9		-29.8
50	1.09	1.25	16.93	-5	1.2	-29.7
100	1.08	1.25	16.93	-17	0.66	-29.9
200	1.07	1.26	16.94	-37	0.57	-29.8
300	1.08	1.25	16.93	-57	0.55	-29.6
400	1.09	1.23	16.91	-76	0.54	-29.6
500	1.11	1.20	16.90	-95	0.54	-29.7
600	1.13	1.16	16.90	-114	0.53	-29.5
700	1.16	1.14	16.87	-134	0.54	-29.2
800	1.18	1.12	16.88	-153	0.54	-29.3
900	1.20	1.12	16.83	-172	0.54	-29.3
1000	1.21	1.13	16.82	168	0.53	-29.3
1100	1.21	1.16	16.79	149	0.54	-28.7
1200	1.21	1.22	16.80	130	0.54	-28.7
1300	1.22	1.31	16.82	110	0.56	-28.2
1400	1.26	1.44	16.78	90	0.54	-27.9
1500	1.34	1.63	16.82	69	0.59	-27.9
1600	1.47	1.90	16.67	48	0.57	-27.4
1700	1.70	2.25	16.76	27	0.6	-26.9