TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC380

10 TO 250 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC380
Ultra Low Noise Figure	1.7 dB
High Gain	25.0 dB
High Reverse Isolation	+30.0 dB
High Efficiency	17.0 mA Current Drain
High Performance Thin Film	
Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter		Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to 85 °C
Frequency (Min.)		5-350 MHz	10-250 MHz	10-250 MHz
Small Signal Gain (Min.)		25.0 dB	24.0 dB	23.7 dB
Gain Flatness (Max.)		< ±0.3 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)		1.7 dB	2.3 dB	2.8 dB
SWR (Max.)	Input	<1.6:1	2.0:1	2.0:1
	Output	<1.6:1	2.0:1	2.0:1
Power Output (Min.) @ 1dB comp.		+9.0 dBm	+7.5^ dBm	+7.0^ dBm
Reverse Isolation		30.0 dB	—	—
DC Current (Max.)		17 mA	19 mA	21 mA

*Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 0.5 dBm less below 20 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC380
Second Order Harmonic Intercept Point	+37 dBm
Second Order Two Tone Intercept Point	+31 dBm
Third Order Two Tone Intercept Point	+22 dBm

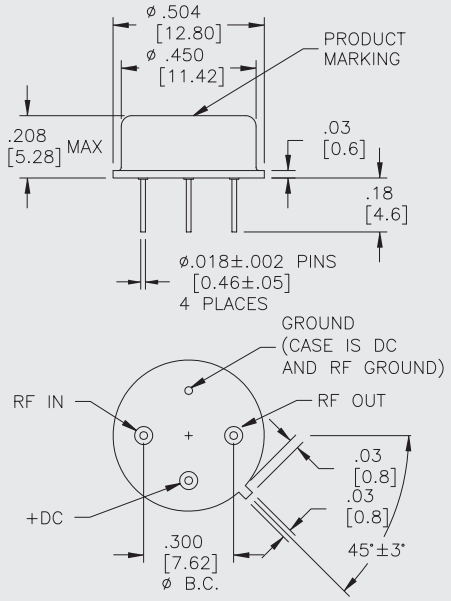
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+19 Volts
Maximum Continuous RF Input Power	+10 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+125 °C
Thermal Resistance[1] (θjc)	+38 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+10.8 °C

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

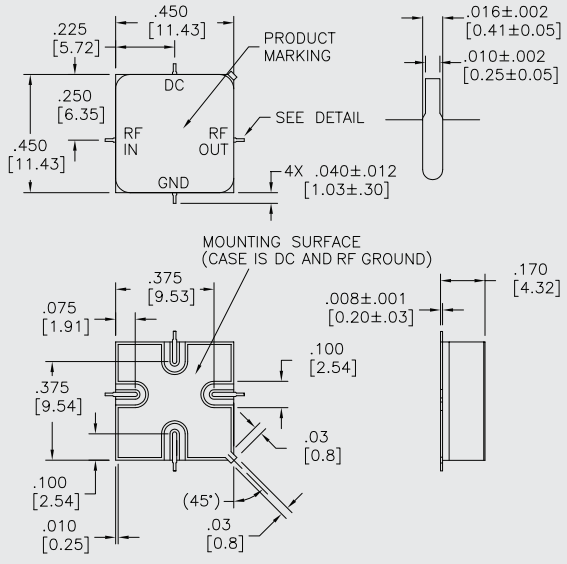
AC380

TO-8 Package for Amplifiers



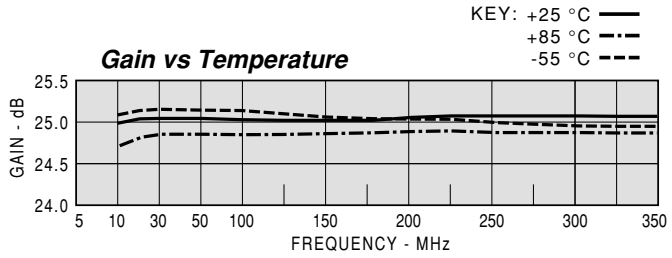
AS380

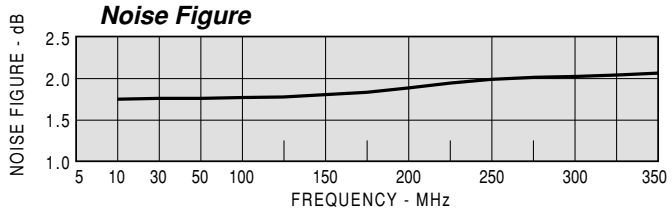
SMTO-8 Package for Amplifiers

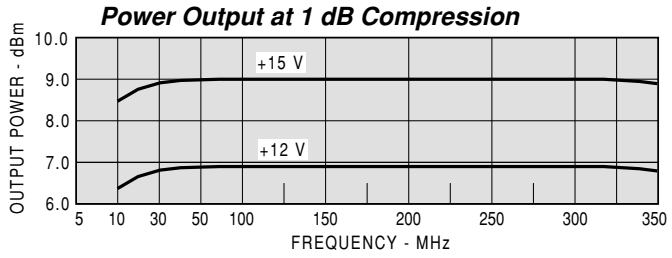


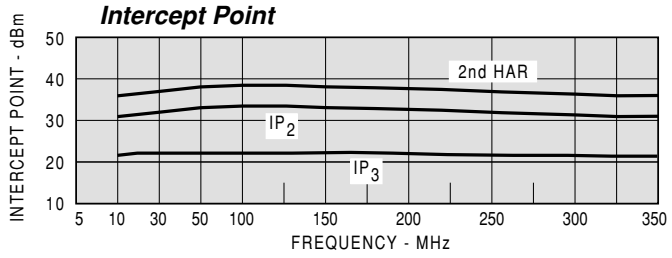
DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE









TYPICAL AUTOMATIC TEST DATA

Model: AC380 Vcc=+15V Icc=16.29

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
10	1.38	1.82	25.2		-31.2
20	1.29	1.61	25.3		-30.9
50	1.28	1.48	25.3	1.170	-30.6
100	1.33	1.45	25.2	0.851	-30.7
150	1.41	1.43	25.1	0.776	-30.8
200	1.49	1.42	25.1	0.759	-30.8
250	1.59	1.41	25.1	0.751	-30.8
300	1.65	1.41	25.1	0.748	-30.9
350	1.72	1.42	25.2	0.794	-30.8

LINEAR S-PARAMETERS

Model: AC380 Vcc=+15V Icc=16.29

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.16	-122.1	18.18	-171.4	0.027	9.0	0.29	149.3
20	0.13	-152.7	18.42	-179.3	0.029	3.0	0.23	151.1
50	0.12	162.4	18.49	168.0	0.029	-4.0	0.19	147.1
100	0.14	128.0	18.25	152.7	0.029	-12.0	0.18	132.6
150	0.17	103.2	18.08	138.7	0.029	-20.0	0.18	114.4
200	0.20	85.7	17.95	125.1	0.029	-28.0	0.17	94.3
250	0.23	73.4	17.90	111.5	0.029	-35.0	0.17	71.5
300	0.25	61.3	17.92	98.1	0.029	-44.0	0.17	45.5
350	0.27	49.9	18.19	83.9	0.029	-53.0	0.17	14.7
400	0.27	38.8	18.39	68.7	0.028	-63.0	0.19	-20.2
450	0.26	26.5	18.54	52.5	0.028	-75.0	0.24	-55.8

Model: AC380 Vcc=+12V Icc=13.12

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
10	1.33	1.70	24.5		-30.6
20	1.16	1.48	24.6		-30.2
50	1.11	1.34	24.7	1.200	-29.9
100	1.17	1.31	24.5	0.861	-30.0
150	1.26	1.30	24.5	0.780	-30.0
200	1.34	1.29	24.4	0.767	-30.2
250	1.42	1.29	24.4	0.766	-30.2
300	1.47	1.30	24.4	0.758	-30.4
350	1.51	1.34	24.6	0.809	-30.5

LINEAR S-PARAMETERS

Model: AC380 Vcc=+12V Icc=13.12

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.14	-92.5	16.70	-170.5	0.030	10.0	0.26	141.4
20	0.07	-121.2	16.98	-178.8	0.031	3.0	0.19	142.5
50	0.05	161.2	17.08	168.2	0.032	-5.0	0.15	140.2
100	0.08	106.8	16.88	152.7	0.032	-14.0	0.13	127.1
150	0.12	81.8	16.75	138.6	0.032	-23.0	0.13	108.8
200	0.14	68.0	16.63	124.9	0.031	-31.0	0.13	87.2
250	0.17	59.1	16.64	111.1	0.031	-39.0	0.13	61.8
300	0.19	49.1	16.67	97.4	0.030	-47.0	0.13	32.2
350	0.20	38.9	16.95	82.8	0.030	-58.0	0.14	-1.8
400	0.21	27.6	17.14	67.3	0.029	-68.0	0.18	-37.2
450	0.18	15.5	17.28	50.7	0.028	-81.0	0.24	-70.2