TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AP389

10 TO 250 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AP389
High Gain	24.5 dB
High Output Power	+23.0 dBm
High Third Order I.P.	+36.0 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.)	10-350 MHz	10-250 MHz	10-250 MHz
Small Signal Gain (Min.)	24.5 dB	23.0 dB	22.5 dB
Gain Flatness (Max.)	±0.5 dB	±0.7 dB	±0.8 dB
Noise Figure (Max.)	<3.3 dB	4.3 dB	4.8 dB
SWR (Max.) Input/Output	<1.7:1	1.8:1	1.8:1
Power Output (Min.) @ 1dB comp.	+23.0 dBm	+22.0 dBm	+21.5 dBm
Reverse Isolation	29.0 dB	—	—
DC Current (Max.)	65.0 mA	68.0 mA	71.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AP389
Second Order Harmonic Intercept Point	+52 dBm
Second Order Two Tone Intercept Point	+46 dBm
Third Order Two Tone Intercept Point	+36 dBm

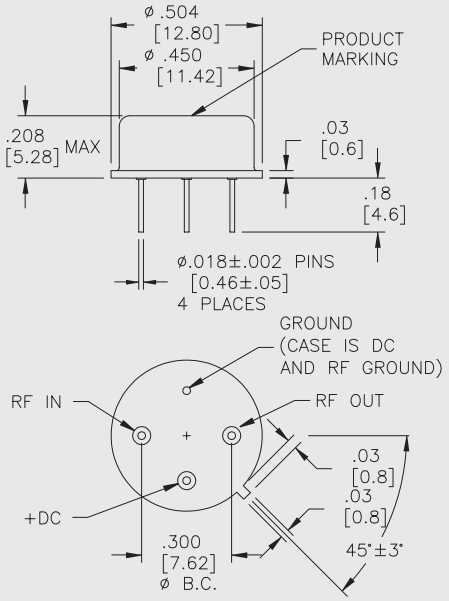
ABSOLUTE MAXIMUM RATINGS

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.)	100 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+100 °C
Thermal Resistance[1] (θjc)	+45 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+46.2 °C

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

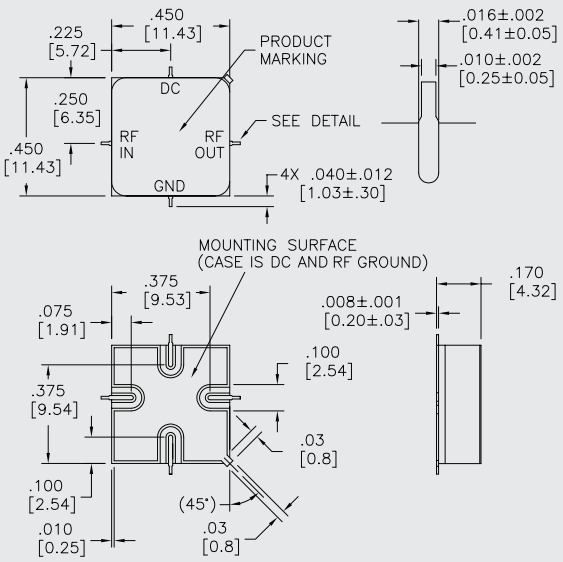
AP389

TO-8 Package for Amplifiers



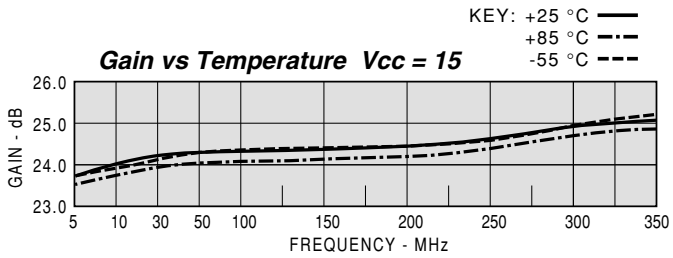
APS389

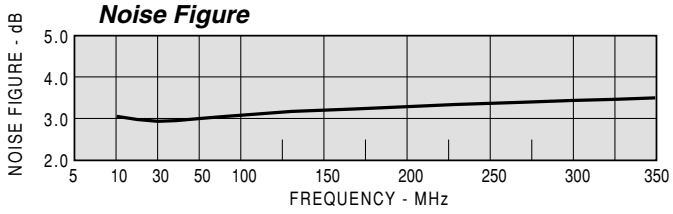
SMTO-8 Package for Amplifiers

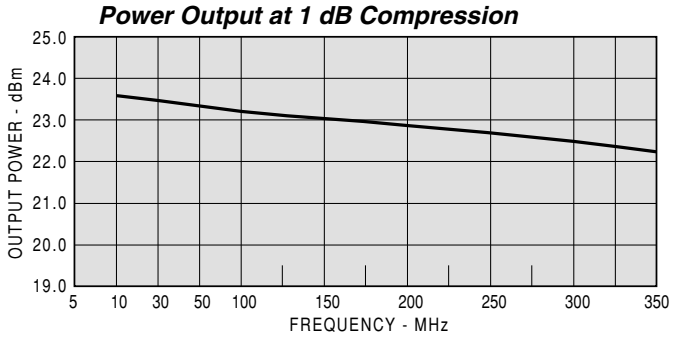


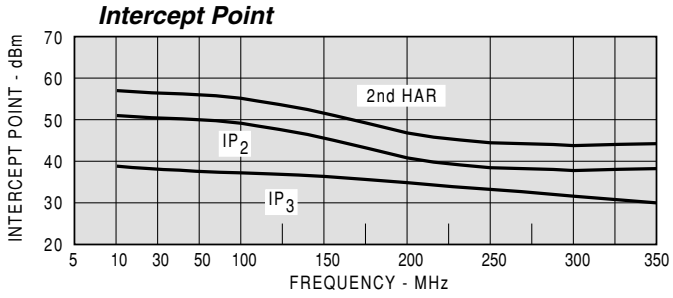
DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE









TYPICAL AUTOMATIC TEST DATA

Model: AP389 Vcc=+15V Icc=64.75

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
10	1.33	1.41	25.0		-29.8
20	1.17	1.24	25.2		-29.5
30	1.10	1.17	25.3	1.437	-29.4
50	1.08	1.13	25.3	1.177	-29.4
100	1.23	1.11	25.4	1.029	-29.4
150	1.35	1.13	25.4	.981	-29.4
200	1.51	1.17	25.6	.979	-29.7
250	1.66	1.26	25.8	1.021	-29.6
300	1.85	1.44	26.0	1.095	-29.8

LINEAR S-PARAMETERS

Model: AP389 Vcc=+15V Icc=64.75

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.14	-58.8	17.73	-173.2	0.032	7.0	0.17	117.0
20	0.08	-45.7	18.11	179.1	0.034	0.0	0.11	109.5
30	0.05	-36.1	18.38	174.0	0.034	-3.0	0.08	104.1
50	0.04	15.0	18.43	165.6	0.034	-10.0	0.06	95.5
100	0.10	41.1	18.52	147.2	0.034	-23.0	0.05	69.5
150	0.15	31.8	18.57	129.5	0.034	-34.0	0.06	38.2
200	0.20	22.0	19.02	111.9	0.033	-47.0	0.08	2.3
250	0.25	5.3	19.46	93.6	0.033	-61.0	0.12	-34.1
300	0.30	-13.2	19.92	73.9	0.032	-78.0	0.18	-68.4

Model: AP389 Vcc=+12V Icc=51.48

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
10	1.35	1.43	24.9		-29.7
20	1.17	1.23	25.1		-29.5
30	1.12	1.17	25.2	1.471	-29.4
50	1.10	1.12	25.2	1.198	-29.2
100	1.22	1.11	25.2	1.054	-29.3
150	1.37	1.13	25.3	1.007	-29.3
200	1.51	1.19	25.5	1.009	-29.5
250	1.67	1.30	25.7	1.055	-29.7
300	1.88	1.53	25.9	1.142	-29.9

LINEAR S-PARAMETERS

Model: AP389 Vcc=+12V Icc=51.48

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.15	-58.8	17.57	-172.5	0.033	8.0	0.18	113.0
20	0.08	-43.2	17.89	179.3	0.033	0.0	0.10	103.3
30	0.06	-35.6	18.12	173.9	0.034	-3.0	0.08	95.8
50	0.05	13.7	18.16	165.2	0.035	-10.0	0.06	85.2
100	0.10	35.4	18.28	146.4	0.034	-23.0	0.05	56.1
150	0.16	25.9	18.35	128.2	0.034	-35.0	0.06	22.9
200	0.20	16.6	18.79	110.2	0.034	-49.0	0.09	-12.6
250	0.25	-1.6	19.27	91.0	0.033	-65.0	0.13	-46.2
300	0.30	-22.4	19.71	70.5	0.032	-82.0	0.21	-77.7