TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC524
AC525

5 TO 500 MHz
TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC524	AC525
High Gain	31.5 dB	31.5 dB
High Reverse Isolation	40.0 dB	40.0 dB
Low Noise Figure	3.0 dB	3.2 dB
Medium Output Power	+8.5 dBm	+11.5 dBm
Medium Third Order I.P.	+20.0 dBm	+24.0 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.)		3-600 MHz	5-500 MHz	5-500 MHz
Small Signal Gain (Min.)		31.5 dB	30.0 dB	29.0 dB
Gain Flatness (Max.)		< ±0.3 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.)	AC524	3.0 dB	4.0 dB	4.5 dB
	AC525	3.2 dB	4.2 dB	4.7 dB
SWR (Max.)	Input/Output	< 1.4:1	1.7:1	2.0:1
Power Output (Min.) @ 1dB comp.	AC524	+8.5 dBm	+7.5 dBm	+7.0 dBm
	AC525	+12.0 dBm	+10.5 dBm	+10.0 dBm
Reverse Isolation		40.0 dB	—	—
DC Current (Max.)	AC524	35.0 mA	38.0 mA	41.0 mA
	AC525	48.0 mA	52.0 mA	55.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC524	AC525
Second Order Harmonic Intercept Point	+39 dBm	+43 dBm
Second Order Two Tone Intercept Point	+33 dBm	+37 dBm
Third Order Two Tone Intercept Point	+20 dBm	+24 dBm

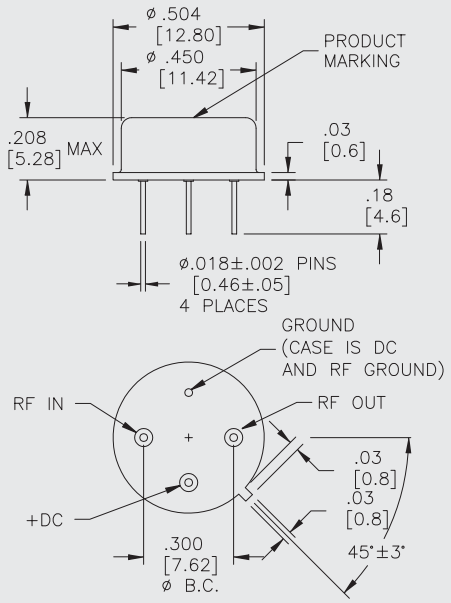
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 Volts
Maximum Continuous RF Input Power	+6 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature (AC524)	+125 °C
Burn-in Temperature (AC525)	+105 °C
Thermal Resistance[1] (θjc; AC524)	+43 °C/Watt
Thermal Resistance[1] (θjc; AC525)	+36 °C/Watt
Junction Temperature Rise Above Case (Tjc; AC524)	+24.5 °C
Junction Temperature Rise Above Case (Tjc; AC525)	+27.8 °C

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

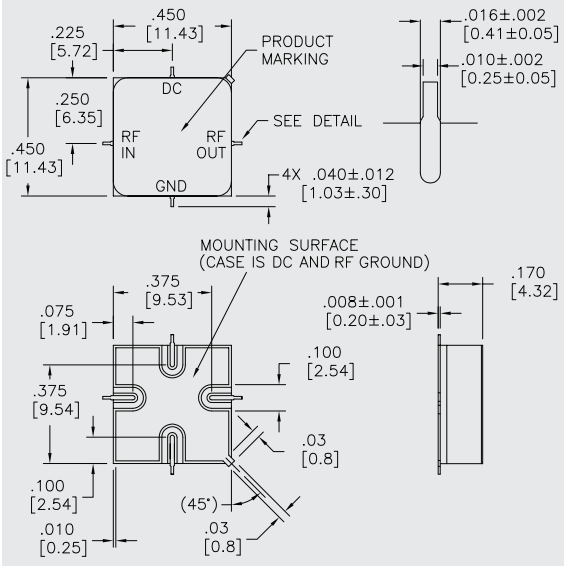
AC524/AC525

TO-8 Package for Amplifiers



AS524/AS525

SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TELEDYNE
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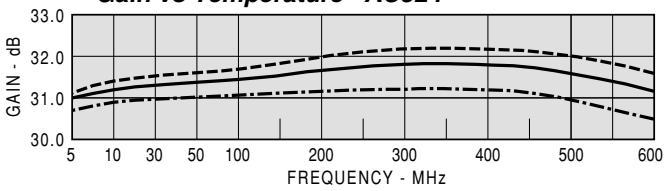
AC524/AC525

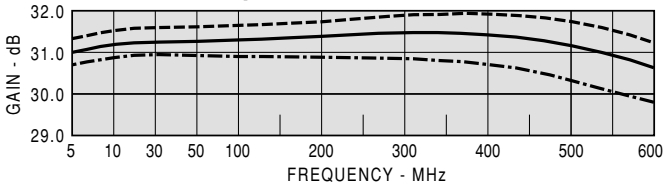
TYPICAL PERFORMANCE

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

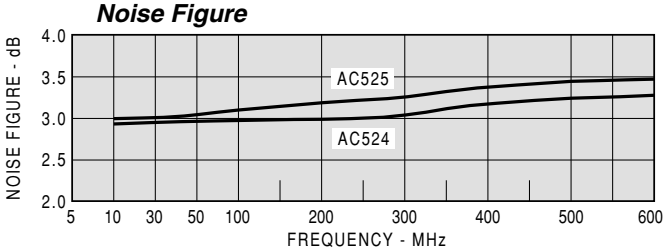
Gain vs Temperature AC524



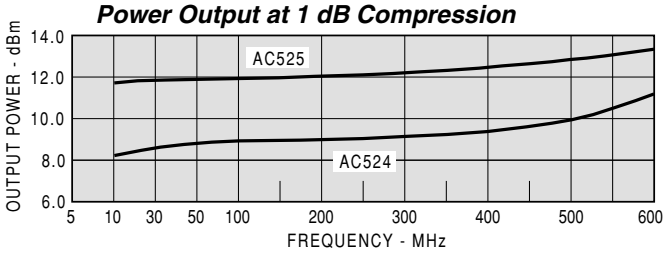
Gain vs Temperature AC525



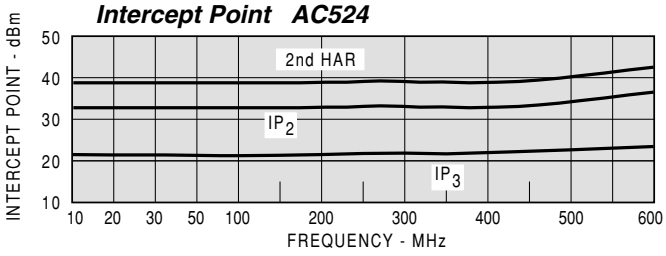
Noise Figure



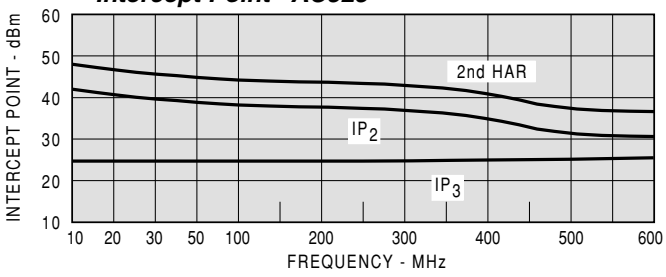
Power Output at 1 dB Compression



Intercept Point AC524



Intercept Point AC525



TYPICAL AUTOMATIC TEST DATA

Model: AC524 Vcc=+15V Icc=36.27

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
2	1.71	1.75	29.8		-42.8
5	1.26	1.24	31.2		-41.3
10	1.13	1.13	31.4	8.670	-40.6
50	1.06	1.08	31.5	1.758	-40.8
100	1.08	1.09	31.5	1.082	-40.3
200	1.13	1.14	31.7	1.037	-40.3
300	1.16	1.18	31.8	1.073	-40.8
400	1.16	1.18	31.8	1.111	-40.6
500	1.18	1.14	31.5	1.135	-40.3
600	1.31	1.06	31.0	1.141	-40.6

LINEAR S-PARAMETERS

Model: AC524 Vcc=+15V Icc=36.27

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2	0.26	-82.8	30.81	68.5	0.007	80.0	0.27	-96.3
5	0.12	-83.7	36.14	25.8	0.009	32.0	0.11	-104.8
10	0.06	-89.0	36.98	10.3	0.009	16.0	0.06	-120.9
50	0.03	-94.8	37.39	-15.1	0.009	2.0	0.04	-162.4
100	0.04	-99.8	37.76	-34.5	0.010	-5.0	0.05	-173.6
200	0.06	-109.1	38.31	-71.9	0.010	-11.0	0.06	163.0
300	0.08	-117.2	38.99	-110.4	0.009	-26.0	0.08	132.9
400	0.07	-112.5	38.81	-150.4	0.009	-31.0	0.08	97.4
500	0.08	-88.9	37.45	168.7	0.010	-43.0	0.07	54.6
600	0.13	-74.6	35.35	127.6	0.009	-57.0	0.03	-47.3
700	0.22	-74.7	33.13	86.0	0.010	-73.0	0.13	-152.2
700	0.34	-80.1	31.73	41.9	0.010	-95.0	0.32	164.3

Model: AC524 Vcc=+12V Icc=28.95

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
2	1.68	1.77	29.0		-42.1
5	1.27	1.27	30.3		-40.5
10	1.15	1.15	30.5	8.356	-40.2
50	1.09	1.09	30.6	1.740	-40.4
100	1.11	1.10	30.7	1.081	-40.2
200	1.18	1.14	30.8	1.039	-40.0
300	1.23	1.17	30.9	1.068	-40.1
400	1.24	1.17	30.9	1.108	-40.0
500	1.22	1.12	30.7	1.133	-39.9
600	1.26	1.08	30.3	1.148	-39.9

Model: AC525 Vcc=+15V Icc=49.19

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
2	1.62	1.91	29.7		-42.6
5	1.22	1.33	31.1		-41.2
10	1.12	1.23	31.3	8.510	-40.8
50	1.06	1.20	31.4	1.750	-40.9
100	1.09	1.22	31.5	1.077	-40.7
200	1.15	1.27	31.5	1.021	-40.8
300	1.15	1.30	31.6	1.053	-41.1
400	1.08	1.30	31.6	1.091	-40.9
500	1.12	1.22	31.3	1.116	-40.7
600	1.36	1.08	30.8	1.123	-40.6

Model: AC525 Vcc=+12V Icc=39.34

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
2	1.57	1.92	29.1		-42.2
5	1.23	1.35	30.4		-40.7
10	1.13	1.25	30.6	8.311	-40.4
50	1.10	1.21	30.7	1.729	-40.7
100	1.13	1.22	30.7	1.070	-40.4
200	1.19	1.27	30.8	1.022	-40.1
300	1.21	1.30	31.0	1.049	-40.3
400	1.13	1.28	31.0	1.091	-40.5
500	1.05	1.20	30.7	1.124	-39.7
600	1.27	1.08	30.3	1.138	-40.1