

# 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	-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

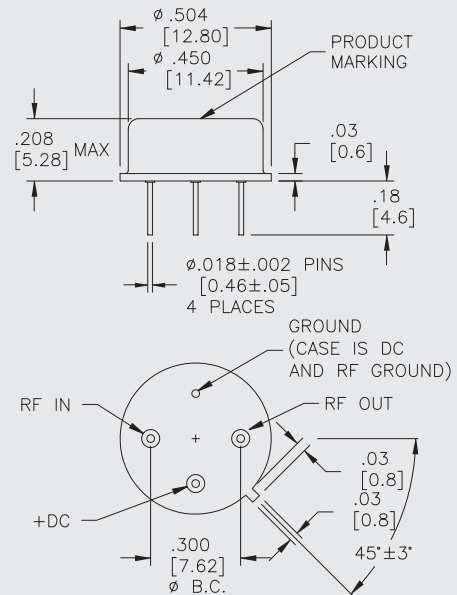
### ABSOLUTE MAXIMUM RATINGS

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 <sup>1</sup> (θ <sub>jc</sub> ; AC524)	+43 °C/Watt
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC525)	+36 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC524)	+24.5 °C
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC525)	+27.8 °C

<sup>1</sup> Thermal resistance is based on total power dissipation.

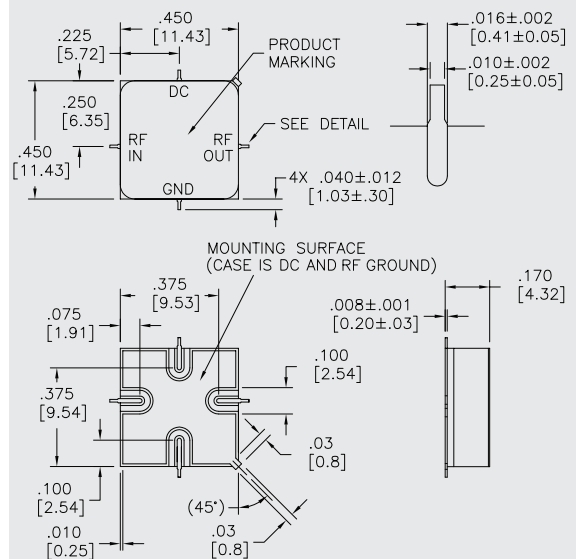
### AC524/AC525

#### TO-8 Package for Amplifiers



### AS524/AS525

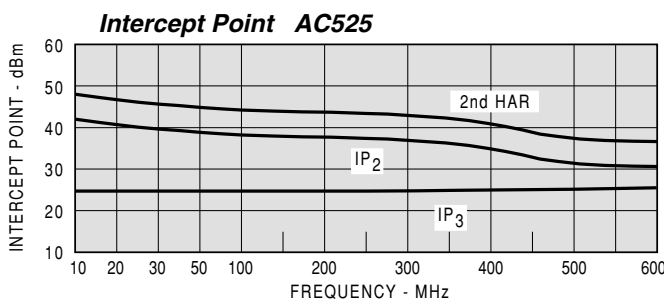
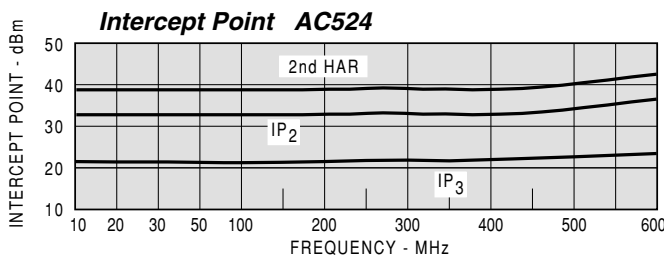
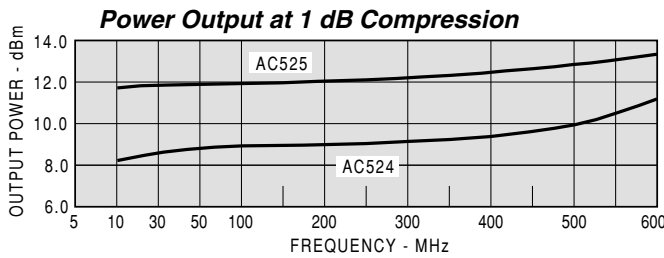
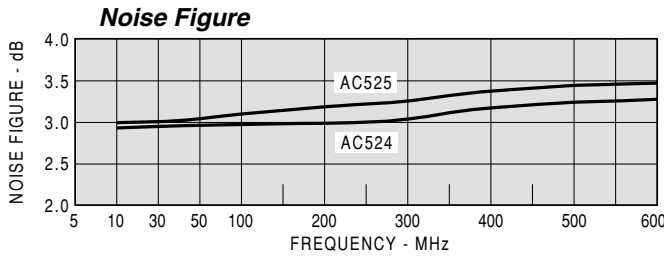
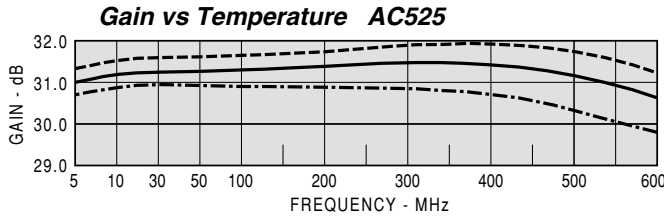
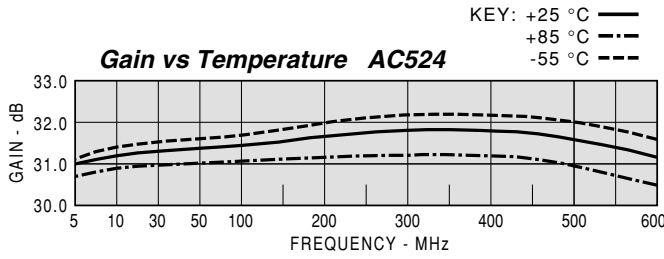
#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

## TYPICAL PERFORMANCE

## TYPICAL AUTOMATIC TEST DATA



Model: AC524			Vcc=+15V		GROUP DELAY		lcc=36.27
FREQ	SWR	SWR	GAIN		GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB		NSEC	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

Model: AC524

Vcc=+15V

lcc=36.27

FREQ	S11		S21		S12		S22	
	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	-47.2
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		GROUP DELAY		lcc=28.95
FREQ	SWR	SWR	GAIN		GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB		NSEC	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		GROUP DELAY		lcc=49.19
FREQ	SWR	SWR	GAIN		GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB		NSEC	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		GROUP DELAY		lcc=39.34
FREQ	SWR	SWR	GAIN		GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB		NSEC	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