

# AS529 100 TO 500 MHz SMT0-8 CASCADABLE AMPLIFIER

Typical Values	AS529
Low Noise Figure	<1.0 dB
High Gain	29.5 dB
Low Input/Output VSWR	1.1:1
Medium Output Level	+19.5 dBm
Low Voltage	+5 Vdc
High Performance Thin Film	
Standard Size SMT0-8 Package	

## SPECIFICATIONS\*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	
<b>Frequency (Min.)</b>	<b>100-500 MHz</b>	<b>100-500 MHz</b>	<b>100-500 MHz</b>	
Small Signal Gain (Min.)	29.5 dB	28.0 dB	27.0 dB	
Gain Flatness (Max.)	±0.5 dB	±0.7 dB	±0.9 dB	
Noise Figure (Max.)	<1.0 dB	1.2 dB	1.4 dB	
SWR (Max.)	Input/Output 1.1:1	1.4:1	1.5:1	
	Input 400-500 MHz 1.3:1	1.5:1	1.6:1	
Power Output (Min.) @ 1dB comp.	+19.5 dBm	+18.0 dBm	+17.5 dBm	
Reverse Isolation	45.0 dB	—	—	
DC Current (Max.)	185 mA	190 mA	195 mA	

\* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.

## INTERMODULATION PERFORMANCE

Typical @ 25 °C; 300 MHz	+5 Volts	+8 Volts
Second Order Harmonic Intercept Point	+60 dBm	+61 dBm
Second Order Two Tone Intercept Point	+54 dBm	+55 dBm
Third Order Two Tone Intercept Point	+32 dBm	+35 dBm

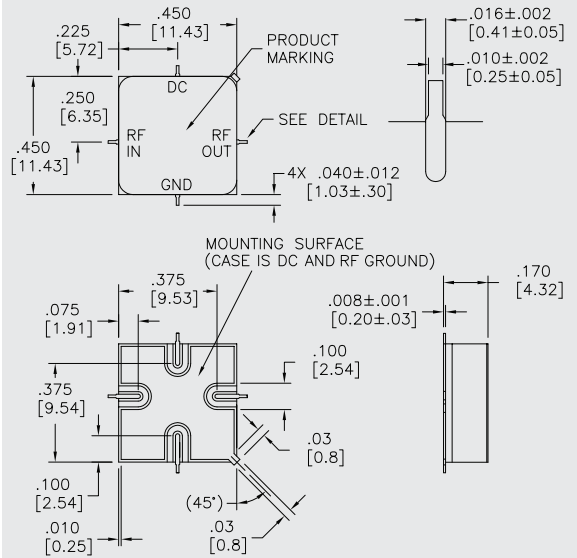
## ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+12 Volts
Maximum Continuous RF Input Power	+24 dBm
Maximum Short Term Input Power (1 Minute Max.)	+27 dBm
Maximum Peak Power (3 μsec Max.)	+27 dBm
Burn-in Temperature	+125 °C
Thermal Resistance <sup>1</sup> (θjc)	+16.66 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+15.4 °C

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

## AS529

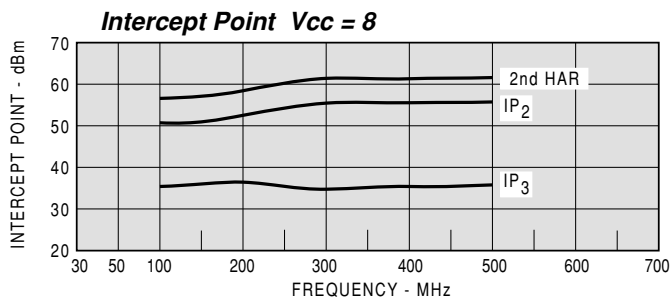
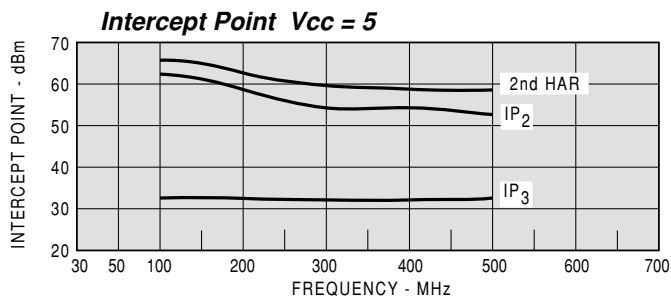
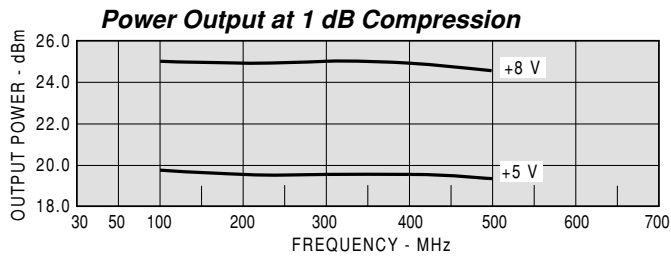
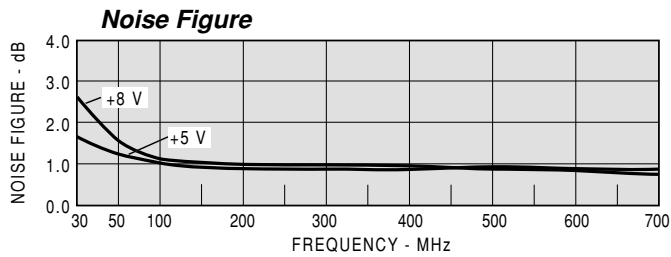
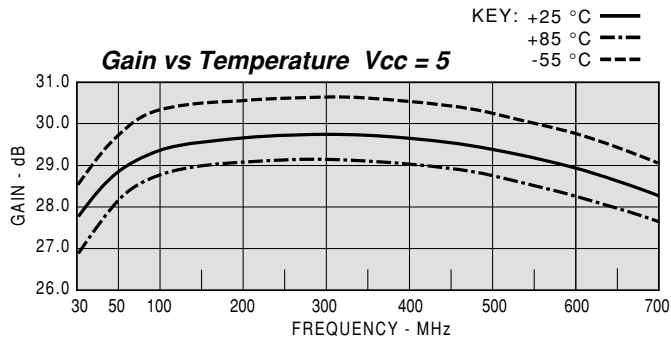
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AS529		Vcc=+5V				Icc=185.77	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
30	1.81	1.44	27.81	64.0		-44.30	
50	1.33	1.25	28.98	34.0		-46.40	
100	1.11	1.13	29.53	2.0	1.30	-45.90	
150	1.07	1.07	29.67	-15.0	0.91	-46.70	
200	1.05	1.04	29.81	-29.0	0.80	-45.30	
250	1.05	1.03	29.85	-42.0	0.73	-46.30	
300	1.05	1.02	29.82	-54.0	0.68	-45.60	
350	1.06	1.01	29.81	-66.0	0.66	-45.30	
400	1.08	1.02	29.77	-78.0	0.66	-45.10	
450	1.11	1.03	29.67	-90.0	0.66	-44.40	
500	1.16	1.05	29.54	-102.0	0.66	-43.90	
550	1.22	1.07	29.35	-114.0	0.65	-43.60	
600	1.28	1.08	29.11	-125.0	0.65	-45.20	
650	1.36	1.10	28.84	-137.0	0.64	-42.90	
700	1.44	1.12	28.50	-148.0	0.64	-42.00	

Model: AS529		Vcc=+5V						Icc=185.77	
FREQ.	S11		S21		S12		S22		
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
30	0.29	110.40	24.59	64.10	0.01	50.50	0.18	158.30	
50	0.14	77.20	28.13	33.60	0.01	21.20	0.11	124.90	
100	0.05	42.50	29.96	1.60	0.01	6.80	0.06	80.90	
150	0.03	22.70	30.43	-14.70	0.01	17.50	0.03	41.10	
200	0.02	10.70	30.95	-29.10	0.01	0.30	0.02	14.40	
250	0.02	8.70	31.07	-42.20	0.01	2.90	0.01	-12.40	
300	0.02	12.60	30.99	-54.40	0.01	4.50	0.01	-44.20	
350	0.03	18.70	30.93	-66.30	0.01	7.40	0.01	-103.40	
400	0.04	24.60	30.79	-78.10	0.01	9.10	0.01	-159.70	
450	0.05	22.60	30.45	-90.00	0.01	8.10	0.02	171.80	
500	0.07	15.10	30.01	-101.90	0.01	-1.40	0.02	144.30	
550	0.10	6.70	29.34	-113.60	0.01	-4.80	0.03	127.70	
600	0.12	-3.10	28.55	-125.40	0.01	-3.90	0.04	111.60	
650	0.15	-13.20	27.66	-137.00	0.01	-7.20	0.05	97.60	
700	0.18	-23.10	26.62	-148.50	0.01	-7.00	0.05	82.50	

Model: AS529		Vcc=+8V				Icc=200.43	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
30	1.71	1.40	28.41	64.0		-44.20	
50	1.26	1.26	29.59	34.0		-45.20	
100	1.08	1.22	30.15	2.0	1.30	-44.80	
150	1.07	1.19	30.29	-14.0	0.90	-44.10	
200	1.08	1.17	30.45	-29.0	0.80	-45.10	
250	1.10	1.15	30.49	-42.0	0.73	-44.80	
300	1.11	1.14	30.47	-54.0	0.68	-45.60	
350	1.14	1.12	30.46	-66.0	0.66	-44.60	
400	1.17	1.10	30.42	-78.0	0.66	-43.90	
450	1.22	1.09	30.32	-90.0	0.66	-43.80	
500	1.27	1.10	30.19	-102.0	0.66	-42.90	
550	1.33	1.11	29.97	-114.0	0.66	-43.70	
600	1.40	1.15	29.71	-125.0	0.66	-44.60	
650	1.47	1.19	29.40	-137.0	0.64	-44.00	
700	1.55	1.23	29.04	-149.0	0.64	-43.10	

Model: AS529		Vcc=+8V						Icc=200.43	
FREQ.	S11		S21		S12		S22		
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
30	0.26	114.00	26.34	64.20	0.01	44.00	0.17	146.50	
50	0.12	88.00	30.15	33.70	0.01	16.50	0.12	99.90	
100	0.04	92.50	32.17	1.90	0.01	8.80	0.10	48.80	
150	0.03	103.60	32.71	-14.40	0.01	6.80	0.09	18.60	
200	0.04	97.50	33.29	-28.80	0.01	-5.90	0.08	6.50	
250	0.05	85.00	33.45	-41.90	0.01	-6.80	0.07	-2.20	
300	0.05	70.00	33.38	-54.10	0.01	-1.50	0.06	-7.20	
350	0.06	57.60	33.35	-65.90	0.01	-3.40	0.06	-8.10	
400	0.08	45.60	33.20	-77.90	0.01	-4.60	0.05	-4.90	
450	0.10	33.40	32.81	-89.90	0.01	-6.30	0.04	5.40	
500	0.12	20.60	32.31	-101.80	0.01	-15.40	0.05	19.20	
550	0.14	8.90	31.53	-113.60	0.01	-19.40	0.05	30.00	
600	0.17	-3.00	30.57	-125.50	0.01	-23.70	0.07	33.90	
650	0.19	-14.40	29.52	-137.10	0.01	-28.50	0.09	32.40	
700	0.22	-24.90	28.33	-148.60	0.01	-23.30	0.10	28.10	
750	0.24	-35.50	27.03	-159.90	0.01	-37.50	0.12	22.60	
800	0.26	-45.60	25.67	-171.10	0.01	-35.80	0.15	15.10	