

# AC518 AC519

## 5 TO 500 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC518	AC519
High Gain	28.0 dB	27.5 dB
High Output Power	+19.3 dBm	+21.8 dBm
High Third Order I.P.	+32.0 dBm	+33.0 dBm
Low Noise Figure	4.0 dB	3.5 dB

High Performance Thin Film  
Standard Size TO-8 Package  
Available in Surface Mount

### 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.)				
AC518	28.0 dB	26.5 dB	26.0 dB	
AC519	27.5 dB	26.5 dB	26.0 dB	
Gain Flatness (Max.)	< ±0.25 dB	±0.5 dB	±0.7 dB	
Noise Figure (Max.)				
AC518	4.0 dB	4.7 dB	5.2 dB	
AC519	3.5 dB	4.5 dB	5.0 dB	
SWR (Max.)	Input/Output	1.7:1	1.8:1	
Power Output (Min.) @ 1dB comp.				
AC518	+19.3 dBm	+18.5 dBm	+17.0 dBm	
AC519	+21.8 dBm	+20.5 dBm	+20.0 dBm	
Reverse Isolation	36.0 dB	—	—	
DC Current (Max.)				
AC518	96.0 mA	103.0 mA	110.0 mA	
AC519	127.0 mA	135.0 mA	140.0 mA	

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

### INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC518	AC519
Second Order Harmonic Intercept Point	+55 dBm	+50 dBm
Second Order Two Tone Intercept Point	+50 dBm	+44 dBm
Third Order Two Tone Intercept Point	+32 dBm	+33 dBm

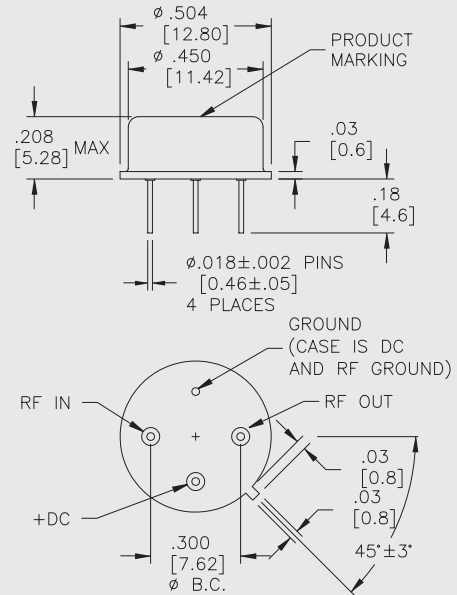
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+19 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature (AC518/AC519)	+85 °C/+105 °C
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC518)	+35 °C/Watt
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC519)	+20 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC518)	+50 °C
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC519)	+37.4 °C

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

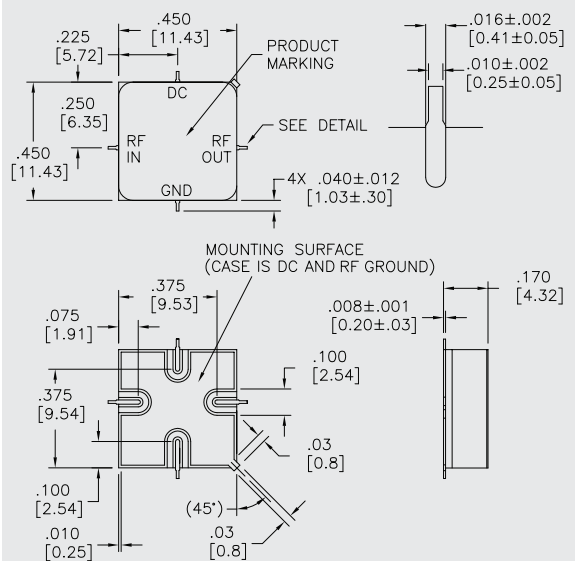
### AC518/AC519

#### TO-8 Package for Amplifiers



### AS518/AS519

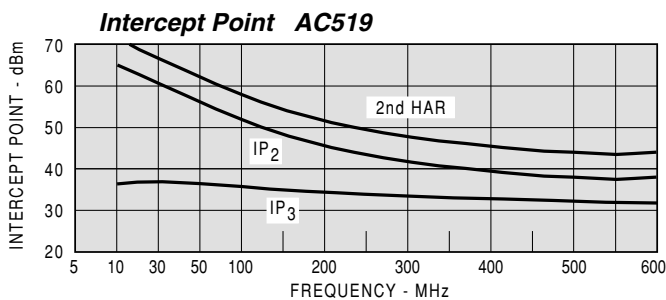
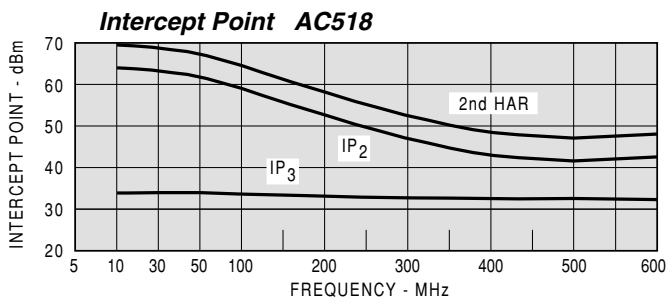
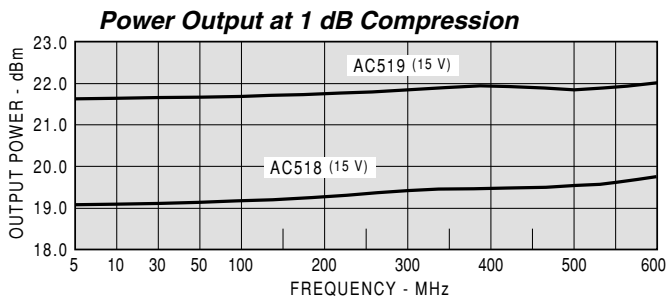
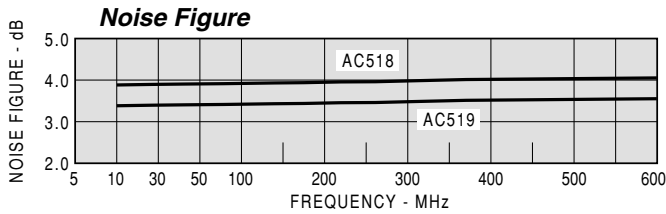
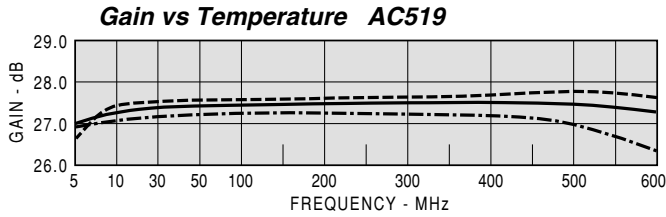
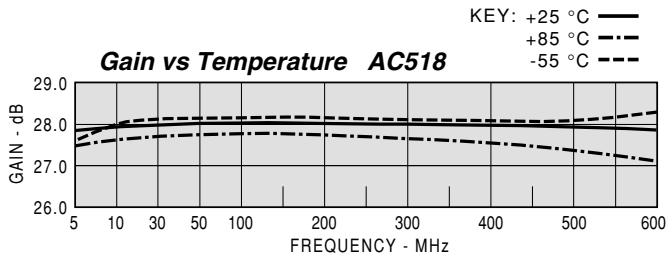
#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

## TYPICAL PERFORMANCE

## TYPICAL AUTOMATIC TEST DATA



Model: AC519		Vcc=+15V				Icc=129.18	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.09	1.09	26.88	36			-37.1
10	1.12	1.05	27.27	16			-37.0
20	1.15	1.03	27.43	4	3.4		-37.0
50	1.17	1.05	27.51	-11	1.4		-36.7
100	1.19	1.06	27.48	-29	0.97		-36.7
200	1.26	1.07	27.43	-60	0.88		-36.9
300	1.34	1.10	27.36	-92	0.86		-36.7
400	1.42	1.17	27.32	-123	0.87		-36.6
500	1.44	1.27	27.27	-155	0.89		-36.1
600	1.39	1.46	27.26	172	0.92		-35.2
700	1.27	1.82	27.20	137	0.98		-34.0

Model: AC519		Vcc=+15V				Icc=129.18		
FREQ.	S11	S21		S12		S22		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.04	-53.0	22.09	35.7	0.014	35.0	0.04	-84.7
10	0.06	-13.2	23.11	16.1	0.014	17.6	0.02	-60.5
20	0.07	-8.6	23.53	3.7	0.014	10.6	0.02	-17.6
50	0.08	-19.4	23.73	-11.4	0.015	0.5	0.02	0.7
100	0.09	-36.7	23.67	-28.8	0.015	-6.8	0.03	0.5
200	0.11	-64.5	23.53	-60.5	0.014	-17.1	0.04	1.0
300	0.15	-84.1	23.35	-91.5	0.015	-24.1	0.05	-3.7
400	0.17	-102.4	23.21	-122.9	0.015	-32.3	0.08	-14.4
500	0.18	-122.2	23.10	-154.8	0.016	-40.8	0.12	-30.8
600	0.16	-148.9	23.08	172.0	0.017	-54.9	0.19	-53.3
700	0.12	163.0	22.91	136.7	0.020	-69.6	0.29	-77.2

Model: AC519		Vcc=+12V				Icc=102.49	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.11	1.11	26.71	35			-37.1
10	1.14	1.06	27.10	16			-36.7
20	1.16	1.04	27.26	3	3.4		-36.6
50	1.18	1.05	27.33	-12	1.4		-36.6
100	1.20	1.06	27.30	-29	0.97		-36.8
200	1.28	1.09	27.25	-61	0.89		-36.2
300	1.37	1.13	27.17	-92	0.87		-36.4
400	1.45	1.20	27.12	-124	0.88		-35.9
500	1.47	1.32	27.09	-156	0.9		-35.7
600	1.43	1.53	27.09	170	0.93		-34.6
700	1.33	1.94	27.02	134	1		-33.8

Model: AC518		Vcc=+15V				Icc=96.59	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.24	1.07	27.71	30			-37.6
10	1.13	1.15	27.84	13			-37.1
20	1.08	1.18	27.91	2	3		-36.7
50	1.08	1.19	27.94	-11	1.3		-36.8
100	1.11	1.20	27.93	-28	0.9		-36.9
200	1.20	1.21	27.96	-58	0.84		-36.6
300	1.31	1.20	28.01	-88	0.84		-36.0
400	1.38	1.21	28.04	-119	0.86		-35.9
500	1.45	1.24	28.01	-151	0.89		-35.6
600	1.53	1.40	27.84	175	0.93		-34.2
700	1.76	1.77	27.44	140	0.97		-33.7

Model: AC518		Vcc=+15V				Icc=96.59		
FREQ.	S11	S21		S12		S22		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.11	-109.0	24.28	30.1	0.013	37.2	0.03	47.2
10	0.06	-127.0	24.66	12.8	0.014	17.7	0.07	15.1
20	0.04	-157.0	24.85	2.1	0.015	10.7	0.08	7.7
50	0.04	157.5	24.94	-11.5	0.014	0.6	0.09	2.3
100	0.05	128.0	24.91	-27.7	0.014	-0.6	0.09	-2.5
200	0.09	106.5	25.01	-57.9	0.015	-10.1	0.09	-10.6
300	0.13	97.5	25.14	-88.1	0.016	-10.7	0.09	-25.0
400	0.16	93.6	25.24	-119.1	0.016	-17.0	0.09	-52.2
500	0.18	94.6	25.16	-151.1	0.017	-26.6	0.11	-95.6
600	0.21	103.0	24.66	175.3	0.019	-38.5	0.17	-142.0
700	0.27	113.5	23.55	140.4	0.021	-51.5	0.28	-179.2

Model: AC518		Vcc=+12V				Icc=76.42	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.24	1.07	27.51	29			-37.4
10	1.12	1.15	27.65	13			-37.1
20	1.07	1.17	27.72	2	2.9		-37.2
50	1.06	1.19	27.75	-12	1.3		-36.6
100	1.09	1.19	27.74	-28	0.9		-36.7
200	1.18	1.21	27.78	-58	0.84		-36.9
300	1.27	1.22	27.85	-89	0.85		-36.3
400	1.34	1.22	27.90	-120	0.87		-35.7
500	1.43	1.26	27.89	-152	0.9		-34.8
600	1.55	1.42	27.72	174	0.95		-34.3
700	1.85	1.81	27.29	138	0.98		-33.2