

AC1523 AC1525

5 TO 1500 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC1523	AC1525
Low Noise Figure	< 2.9 dB	< 3.8 dB
Medium Gain	14.4 dB	13.6 dB
High Performance Thin Film Standard Size TO-8 Package		

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	1-1600 MHz	5-1500 MHz	5-1500 MHz
Small Signal Gain (Min.)			
AC1523	14.4 dB	13.5 dB	13.0 dB
AC1525	13.6 dB	12.5 dB	12.0 dB
Gain Flatness (Max.)	±0.25 dB	±0.4 dB	±0.6 dB
Noise Figure (Max.)			
AC1523	< 2.9 dB	3.8 dB	4.5 dB
AC1525	< 3.8 dB	4.8 dB	5.5 dB
SWR (Max.) Input/Output	< 1.5:1	1.8:1	2.0:1
Power Output (Min.) @ 1dB comp.			
AC1523	+4.0 dBm	+2.5 dBm	+2.0 dBm
AC1525	+9.5 dBm	+8.0 dBm	+7.5 dBm
Reverse Isolation	19.0 dB	—	—
DC Current (Max.)			
AC1523	15.0 mA	17.0 mA	20.0 mA
AC1525	24.0 mA	26.0 mA	28.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC1523	AC1525
Second Order Harmonic Intercept Point	+29 dBm	+38 dBm
Second Order Two Tone Intercept Point	+23 dBm	+32 dBm
Third Order Two Tone Intercept Point	+17 dBm	+23 dBm

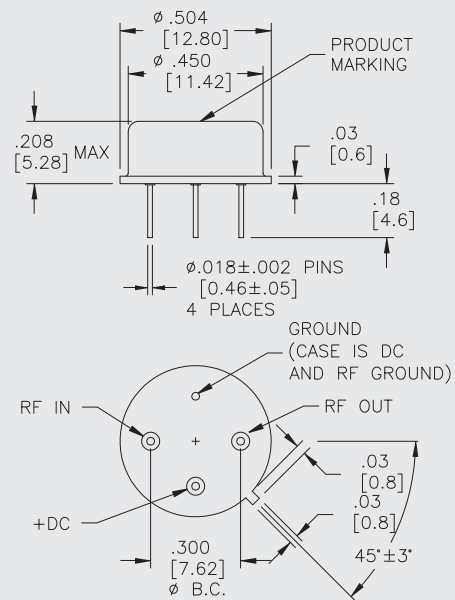
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature AC1523/AC1525	+125 °C
Thermal Resistance ¹ (θ _{jc} ; AC1523)	+55 °C/Watt
Thermal Resistance ¹ (θ _{jc} ; AC1525)	+56 °C/Watt
Junction Temperature Rise Above Case (T _{jc} ; AC1523)	+14.1 °C
Junction Temperature Rise Above Case (T _{jc} ; AC1525)	+21.9 °C

1. Thermal resistance is based on total power dissipation.

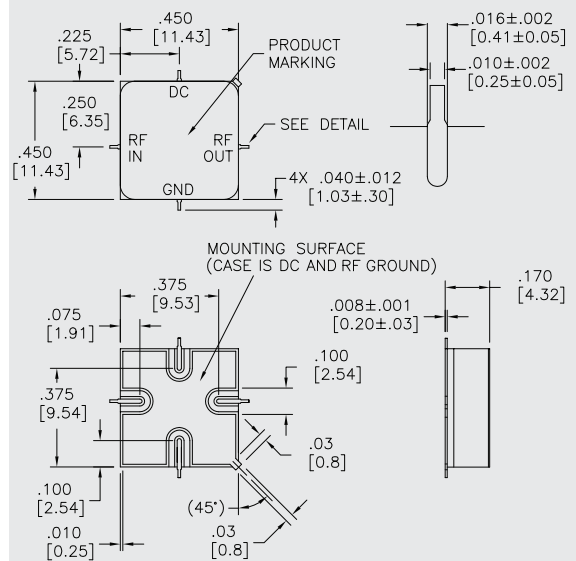
AC1523/AC1525

TO-8 Package for Amplifiers



AS1523/AS1525

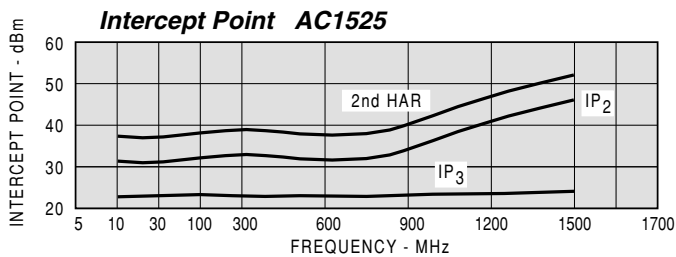
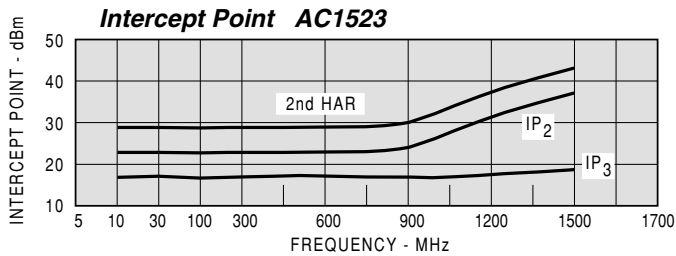
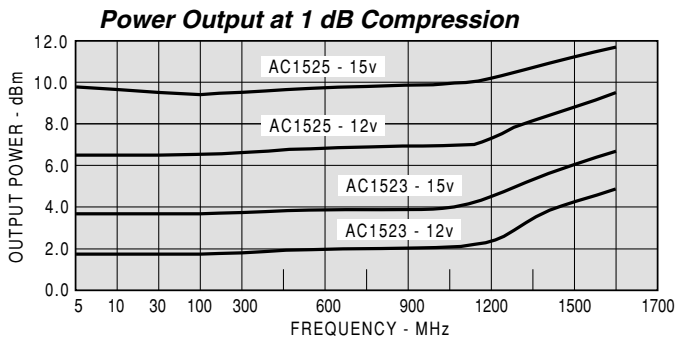
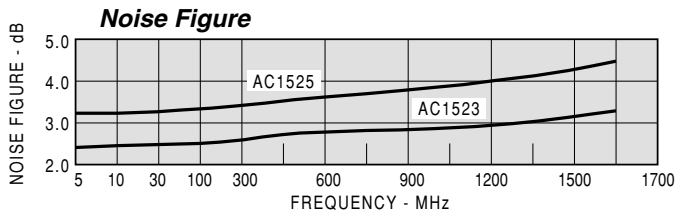
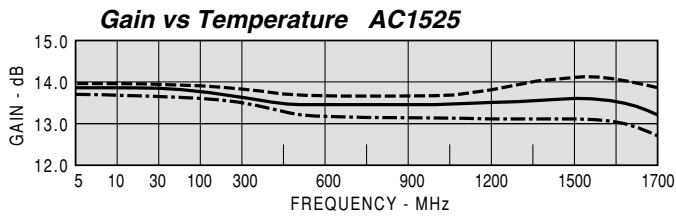
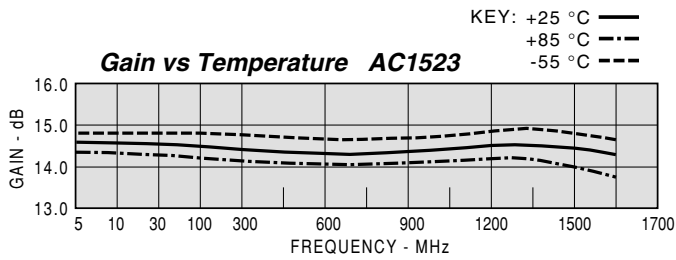
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC1523				Vcc= +15V		Icc= 14.89	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT		NSEC			
1	1.31	1.38	14.5			-19.1	
5	1.14	1.22	14.6			-18.9	
10	1.14	1.22	14.5	1.562		-18.9	
50	1.13	1.21	14.5	0.512		-18.9	
100	1.13	1.21	14.5	0.429		-18.9	
300	1.15	1.24	14.3	0.397		-19.0	
500	1.20	1.27	14.3	0.403		-19.0	
700	1.31	1.28	14.3	0.403		-19.0	
900	1.39	1.24	14.3	0.415		-19.0	
1100	1.45	1.15	14.5	0.435		-18.8	
1300	1.34	1.05	14.6	0.481		-18.5	
1500	1.29	1.21	14.5	0.542		-18.1	

LINEAR S-PARAMETERS

Model: AC1523		Vcc= +15V				Icc= 14.89		
FREQ.	S11	S21		S12		S22		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	
1	0.13	-125.1	5.28	-162.7	0.110	21.0	0.16	-133.1
5	0.06	-167.5	5.35	-177.4	0.114	4.0	0.10	-170.3
10	0.07	-169.4	5.33	179.9	0.114	1.0	0.10	-177.7
50	0.06	-176.1	5.29	172.4	0.113	-4.0	0.09	165.4
100	0.06	-168.2	5.28	164.7	0.113	-8.0	0.09	151.3
300	0.07	-148.1	5.21	136.0	0.112	-23.0	0.11	101.8
500	0.09	-138.8	5.18	107.2	0.112	-39.0	0.12	61.1
700	0.13	-141.2	5.17	78.0	0.112	-54.0	0.12	25.0
900	0.16	-151.6	5.20	48.2	0.113	-71.0	0.11	-10.4
1100	0.18	-168.1	5.29	16.9	0.114	-88.0	0.07	-43.7
1300	0.14	157.0	5.35	-17.6	0.118	-106.0	0.02	-41.8
1500	0.13	49.9	5.32	-56.9	0.124	-129.0	0.10	10.9
1700	0.36	-31.0	4.62	-101.4	0.120	-158.0	0.24	-33.8

Model: AC1523				Vcc= +12V		Icc= 11.95	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT		NSEC			
1	1.24	1.31	14.0			-18.8	
5	1.07	1.15	14.2			-18.5	
10	1.07	1.14	14.2	1.636		-18.6	
50	1.06	1.13	14.1	0.503		-18.6	
100	1.08	1.14	14.1	0.440		-18.6	
300	1.16	1.18	13.9	0.401		-18.7	
500	1.28	1.22	13.9	0.402		-18.7	
700	1.40	1.22	13.9	0.407		-18.8	
900	1.49	1.19	13.9	0.415		-18.7	
1100	1.53	1.11	14.1	0.438		-18.6	
1300	1.41	1.01	14.2	0.489		-18.2	
1500	1.39	1.22	14.1	0.552		-17.7	

Model: AC1525				Vcc= +15V		Icc= 25.05	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT		NSEC			
1	1.29	1.53	13.7			-19.4	
5	1.11	1.35	13.9			-19.1	
10	1.11	1.34	13.9	1.501		-19.1	
50	1.10	1.33	13.8	0.495		-19.0	
100	1.09	1.33	13.8	0.427		-19.1	
300	1.07	1.33	13.7	0.380		-19.1	
500	1.04	1.34	13.7	0.379		-19.1	
700	1.09	1.32	13.6	0.383		-19.0	
900	1.17	1.28	13.7	0.396		-18.9	
1100	1.22	1.23	13.8	0.416		-18.7	
1300	1.21	1.21	13.8	0.441		-18.6	
1500	1.25	1.26	13.8	0.475		-18.4	

Model: AC1525				Vcc= +12V		Icc= 20.02	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT		NSEC			
1	1.27	1.49	13.5			-19.2	
5	1.08	1.31	13.7			-18.9	
10	1.07	1.30	13.7	1.509		-18.9	
50	1.06	1.29	13.6	0.480		-18.9	
100	1.06	1.29	13.6	0.413		-18.9	
300	1.04	1.29	13.5	0.381		-19.0	
500	1.07	1.29	13.5	0.383		-18.9	
700	1.14	1.27	13.5	0.386		-18.9	
900	1.21	1.23	13.6	0.399		-18.7	
1100	1.26	1.19	13.7	0.420		-18.5	
1300	1.26	1.18	13.6	0.446		-18.3	
1500	1.35	1.24	13.6	0.484		-18.1	