

AC2023 5 to 2000 MHz AC2025 TO-8 Cascadable Amplifiers

(Typical Values)

	AC2023	AC2025
Low Noise Figure	3.2 dB	3.4 dB
High Single Stage Gain	12.5 dB	12.5 dB
High Performance Thin Film Standard Size TO-8		

Specifications

Parameter	Typical	Guaranteed*		
		0 to 50 °C	-55 to 85 °C	
Frequency (Min.)	1-2000 MHz	5-2000 MHz	5-2000 MHz	
Small Signal Gain (Min.)	12.5 dB	12.0 dB	11.5 dB	
Gain Flatness (Max.)	AC2023 ± 0.25 dB AC2025 ± 0.25 dB	± 0.5 dB ± 0.5 dB	± 0.7 dB ± 0.8 dB	
Noise Figure (Max.)	AC2023 3.2 dB AC2025 3.4 dB	4.0 dB 4.2 dB	4.5 dB 4.7 dB	
SWR (Max.) - Input/Output	< 1.5:1	2.0:1	2.0:1	
Power Output @ 1dB comp. (Min.)	AC2023 + 4.0 dBm AC2025 + 8.5 dBm	+ 2.5 dBm + 7.0 dBm	+ 2.0 dBm + 7.0 dBm	
DC Current (Max.)	AC2023 14.0 mA AC2025 24.0 mA	17.0 mA 27.0 mA	20.0 mA 30.0 mA	

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

Intermodulation Performance

(Typical at 25 °C)

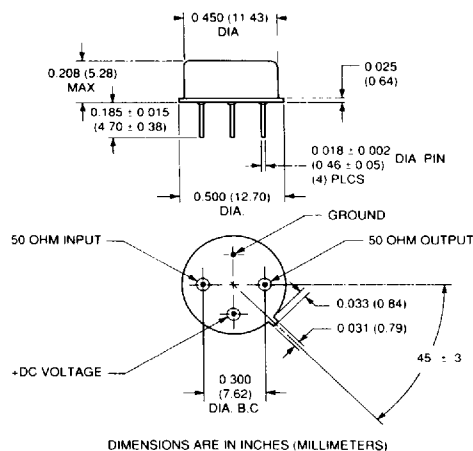
	AC2023	AC2025
Second Order Harmonic Intercept Point	+ 27 dBm	+ 39 dBm
Second Order Two Tone Intercept Point	+ 21 dBm	+ 33 dBm
Third Order Two Tone Intercept Point	+ 16 dBm	+ 22.5 dBm

Absolute Maximum Ratings

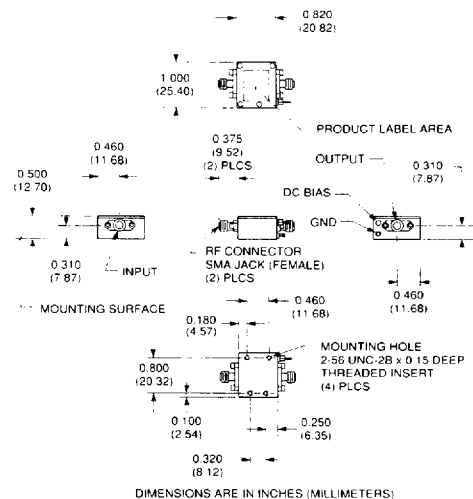
Ambient Operating Temperature	-55 to 125 °C
Storage Temperature	-62 to 125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Q Series Burn-in Temperature	+125 °C

Outline Drawings

TO-8 Package for Amplifiers



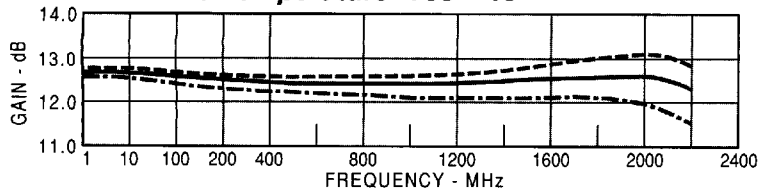
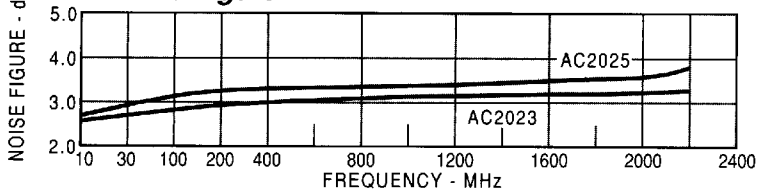
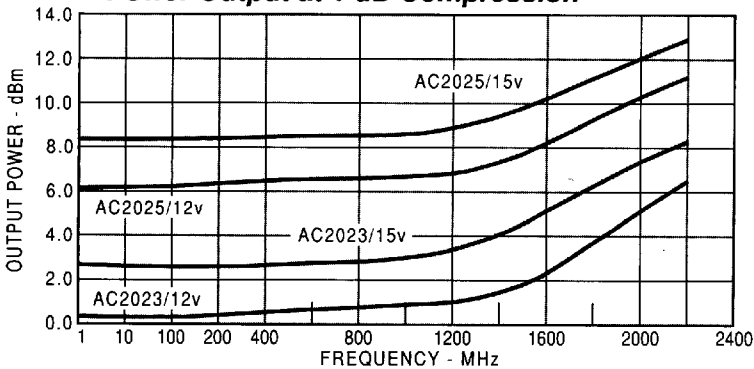
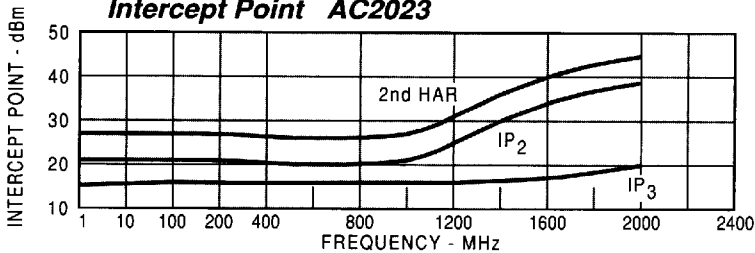
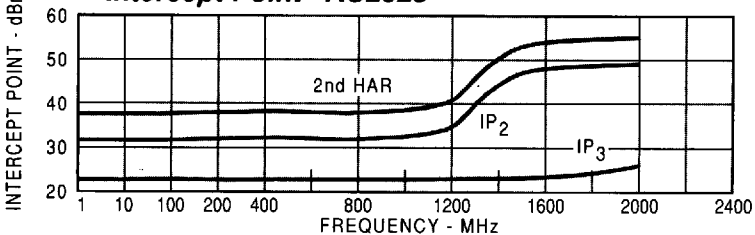
Amplifier Case - connectorized



AC2023/AC2025

Typical Performance

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

Gain vs Temperature Vcc = 15**Noise Figure****Power Output at 1 dB Compression****Intercept Point AC2023****Intercept Point AC2025**

Typical Automatic Test Data

MODEL: AC2023

Vcc=15V Icc= 13.90 mA

FREQUENCY MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
1.0	1.32	1.36	12.6		-17.9
10.0	1.12	1.15	12.9		-17.6
50.0	1.10	1.14	12.8	.491	-17.5
200.0	1.13	1.16	12.7	.352	-17.6
400.0	1.17	1.20	12.6	.353	-17.7
600.0	1.25	1.25	12.6	.354	-17.7
800.0	1.36	1.27	12.5	.354	-17.7
1000.0	1.53	1.29	12.5	.360	-17.7
1200.0	1.71	1.34	12.5	.357	-17.6
1400.0	1.93	1.38	12.5	.378	-17.4
1600.0	1.96	1.36	12.7	.388	-17.0
1800.0	1.79	1.25	12.9	.438	-16.3
2000.0	1.59	1.04	12.7	.524	-15.7
2200.0	2.49	1.35	11.3	.572	-15.7

LINEAR S-PARAMETERS

MODEL: AC2023

Vcc=15V Icc= 13.90 mA

FREQ. MHZ	S11 MAG ANG	S21 MAG ANG	S12 MAG ANG	S22 MAG ANG
1	.14 -117.6	4.28 -161.3	.128 24	.15 -119.5
10	.06 -171.6	4.41 -179.8	.133 2	.07 -174.1
50	.05 -170.9	4.36 173.3	.133 -3	.07 163.9
200	.06 -155.5	4.30 154.2	.131 -13	.07 118.4
400	.08 -137.4	4.25 128.9	.131 -25	.09 69.5
600	.11 -132.3	4.25 103.4	.131 -38	.11 30.7
800	.15 -137.5	4.23 77.9	.131 -50	.12 -9.3
1000	.21 -150.3	4.22 52.0	.131 -63	.13 -51.9
1200	.26 -168.7	4.21 26.4	.132 -76	.14 -93.5
1400	.32 -175.5	4.21 -9	.135 -89	.16 -131.6
1600	.33 150.3	4.33 -28.0	.142 -102	.15 -167.4
1800	.28 113.4	4.43 -60.3	.153 -118	.11 155.8
2000	.23 37.7	4.29 -98.0	.163 -138	.02 163.5
2200	.43 -49.6	3.68 -139.5	.164 -162	.15 -132.3

MODEL: AC2025

Vcc=15V Icc= 24.36 mA

FREQUENCY MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
1.0	1.47	1.68	12.6		-18.4
10.0	1.28	1.49	12.8		-18.2
50.0	1.27	1.48	12.7	.485	-18.1
200.0	1.25	1.47	12.6	.342	-18.2
400.0	1.20	1.45	12.6	.345	-18.2
600.0	1.17	1.42	12.6	.344	-18.1
800.0	1.19	1.36	12.5	.346	-18.0
1000.0	1.28	1.28	12.6	.354	-17.9
1200.0	1.42	1.19	12.6	.354	-17.7
1400.0	1.60	1.14	12.6	.378	-17.5
1600.0	1.65	1.12	12.8	.387	-17.2
1800.0	1.49	1.09	13.0	.434	-16.7
2000.0	1.34	1.06	12.9	.510	-16.2
2200.0	2.32	1.30	11.8	.592	-16.2

LINEAR S-PARAMETERS

MODEL: AC2025

Vcc=15V Icc= 24.36 mA

FREQ. MHZ	S11 MAG ANG	S21 MAG ANG	S12 MAG ANG	S22 MAG ANG
1	.19 -130.8	4.27 -161.6	.120 23	.25 -139.3
10	.12 -175.4	4.39 -179.7	.124 2	.20 -177.4
50	.12 179.0	4.33 173.3	.124 -3	.19 171.6
200	.11 173.9	4.28 154.9	.123 -12	.19 145.5
400	.09 170.6	4.25 130.1	.123 -24	.18 112.9
600	.08 177.0	4.25 105.3	.124 -36	.17 81.3
800	.08 -163.7	4.24 80.4	.126 -48	.15 50.6
1000	.12 -161.5	4.26 54.9	.128 -61	.12 17.0
1200	.17 -171.7	4.26 29.4	.130 -75	.09 -28.8
1400	.23 175.6	4.28 2.2	.133 -89	.06 -88.5
1600	.25 153.0	4.38 -25.6	.138 -104	.06 -154.9
1800	.20 116.0	4.48 -57.0	.146 -120	.04 142.1
2000	.15 22.8	4.40 -93.6	.155 -140	.03 -1.1
2200	.40 -64.9	3.89 -135.4	.155 -165	.13 -107.4



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