

High Performance Amplifier, 10 dB Gain 5 - 500 MHz

V3.00

AM-/AMC-123/AM-131

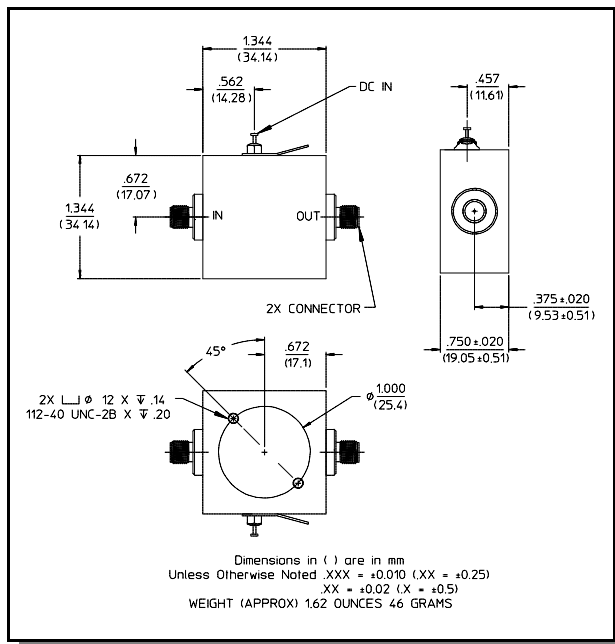
Features

- 3.5 dB Typical Midband Noise Figure
- +42 dBm Typical Midband Intercept

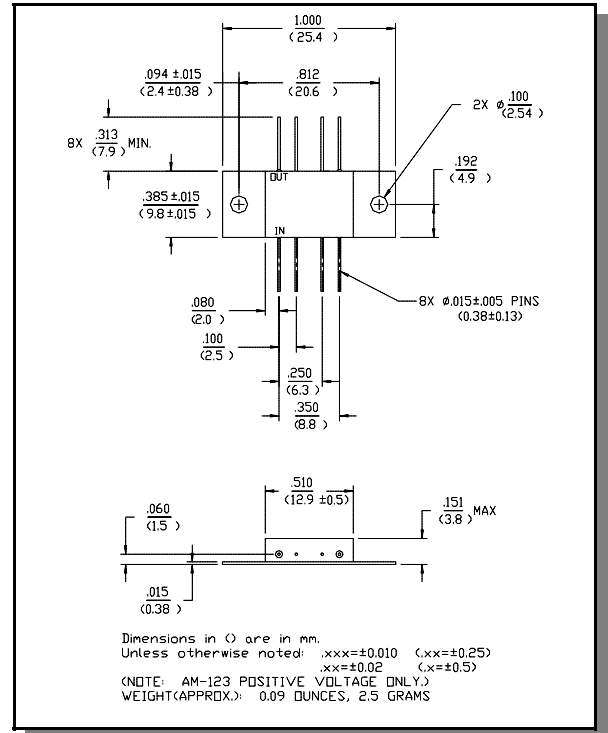
Description

M/A-COM's AM-123 and AM-131 are coupler feedback amplifier's with high intercept and compression points. The use of coupler feedback minimizes noise figure and current in a high intercept amplifier. This amplifier is packaged in a TO-8 package. Due to the internal power dissipation the thermal rise minimized. The ground plane on the PC board should be configured to remove heat from under the package AM-123 and AM-131 are ideally suited for use where a high intercept, high reliability amplifier is required.

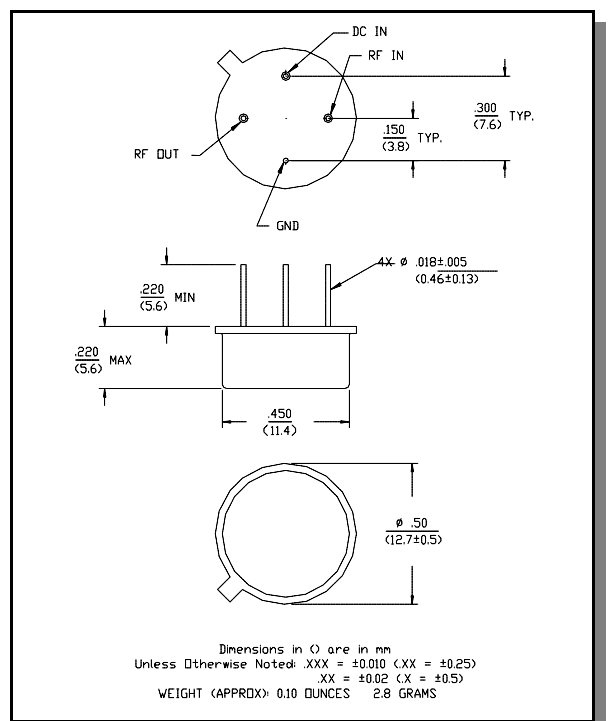
C-32



FP-7



TO-8-1



Electrical Specifications ^{1,2} T_A = -55°C to +85°C Case Temperature

Parameter	Test Conditions	Frequency	Units	Min.	Typ.	Max.
Gain	@ +25°C	50 MHz	dB	9.4	10.0	10.6
Frequency Response	—	5 - 500 MHz	dB	—	—	±0.7
Gain Variation with Temperature	—	5 - 500 MHz	dB	—	—	±1.0
1 dB Compression	Output Power	5 - 500 MHz 10 - 300 MHz	dBm dBm	+16 +19	— —	— —
Noise Figure	—	5 - 500 MHz 10 - 300 MHz	dB dB	— —	— —	7.5 5.5
Reverse Transmission	—	5 - 500 MHz	dB	—	-18	-15
VSWR	—	5 - 500 MHz 10 - 400 MHz	Ratio Ratio	— —	— —	2.5:1 2:1
Output IP ₂	Two-tone inputs up to +10 dBm	5 - 500 MHz 10 - 300 MHz	dBm dBm	+33 +40	— —	— —
Output IP ₃	Two-tone inputs up to +10 dBm	5 - 500 MHz 10 - 300 MHz	dBm dBm	+22 +32	— —	— —
V _{bias}	—	—	VDC	+14.5	+15.0	+15.5
I _{bias}	V _{bias} = +15.0 VDC	—	mA	—	62	75
Power Dissipation	@ +15V Bias	—	mW	—	930	—

1. All specifications apply when operated at +15 VDC, with 50 ohms source and load impedance.
2. Heat Sinking: Operation at case temperature above 95°C is not recommended. Heat sinking adequate to dissipate 1W must be provided in use.

Pin Configuration (For AM-123 Only)

Pin No.	Function	Pin No.	Function
1	RF OUT	5	RF IN
2	GND	6	GND
3	GND	7	GND
4	DC IN	8	DC IN

Absolute Maximum Ratings ³

Parameter	Absolute Maximum
Max. Input Power	+23 dBm
V _{bias}	+15.75 V
Operating Temperature	-55°C to +85°C
Storage Temperature	-65°C to +125°C

3. Operation of this device above any one of these parameters may cause permanent damage.

Specifications subject to change without notice.

■ North America: Tel. (800) 366-2266
 ■ Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
 ■ Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

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S-Parameter Data AM-123

Frequency (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.21	-69.6	3.15	-158.8	0.11	171.3	0.15	92.8
10	0.11	-81.5	3.17	-172.2	0.11	175.0	0.06	116.1
20	0.08	-88.5	3.18	-178.4	0.12	171.7	0.04	139.8
50	0.06	-108.4	3.17	162.9	0.13	159.9	0.03	174.7
100	0.05	-122.8	3.14	142.8	0.13	141.4	0.04	-163.9
200	0.05	-141.8	3.11	104.8	0.13	102.1	0.04	-119.4
300	0.07	-155.4	3.09	66.9	0.12	64.9	0.14	-114.6
400	0.15	177.2	3.08	26.7	0.11	27.3	0.22	-153.2
500	0.20	151.3	3.05	-21.9	0.09	-20.9	0.25	83.4

S-Parameter Data AM-131

Frequency (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.23	-71.9	3.15	-157.9	0.11	173.2	0.15	90.6
10	0.12	-65.2	3.16	-171.9	0.12	175.7	0.07	105.5
20	0.08	-55.5	3.17	178.4	0.13	172.0	0.04	124.1
50	0.05	-61.3	3.17	162.9	0.13	160.8	0.02	-178.6
100	0.04	-78.3	3.15	143.5	0.13	143.9	0.03	-103.7
200	0.02	41.9	3.12	106.2	0.13	108.1	0.12	-83.4
300	0.10	5.0	3.10	68.8	0.13	75.7	0.20	-108.0
400	0.15	-28.7	3.09	29.8	0.14	42.3	0.24	-144.5
500	0.20	-18.6	3.07	-16.4	0.14	5.3	0.27	15.0

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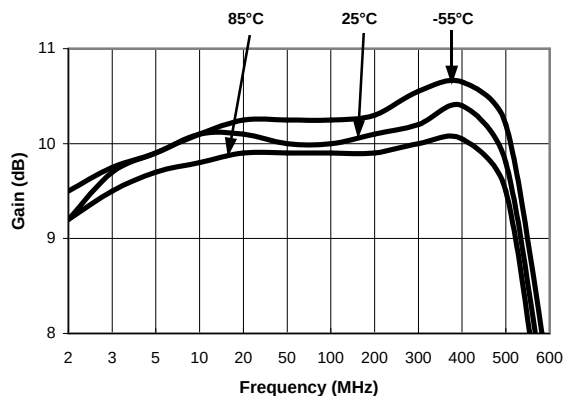
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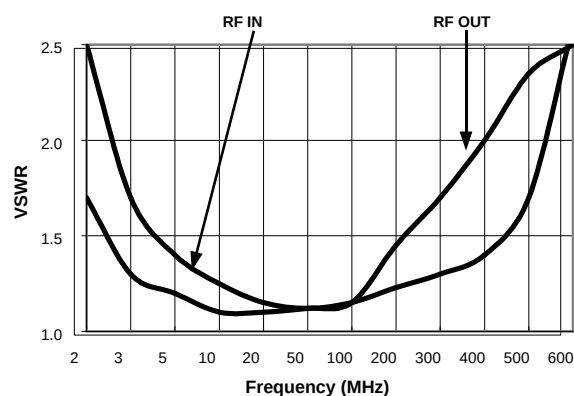
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Typical Performance Curves

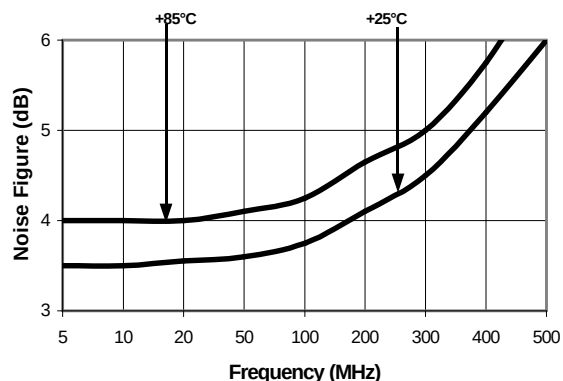
Gain vs. Frequency



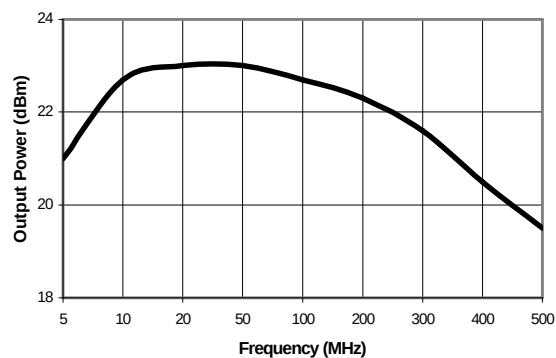
VSWR vs. Frequency



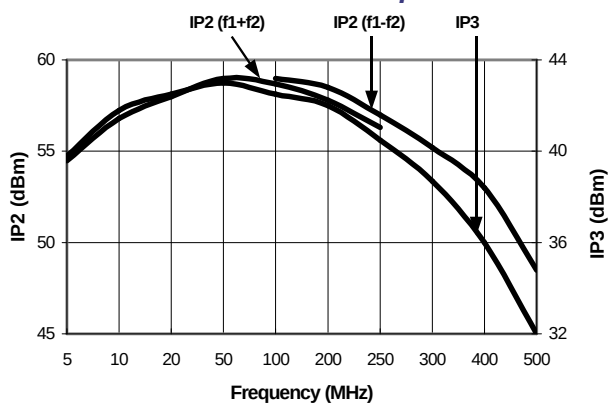
Noise Figure



1 dB Compression



Intermodulation Intercept



Ordering Information

Part Number	Package
AM-123 PIN	Flatpack
AMC-123 SMA	Connectorized
AM-131 PIN ⁴	TO-8-1

4. Mounting kit part number AU00071 required for PCB applications.

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