

AM-123 / AMC-123

High Performance Amplifier,
10 dB Gain 5 - 500 MHz

Rev. V3

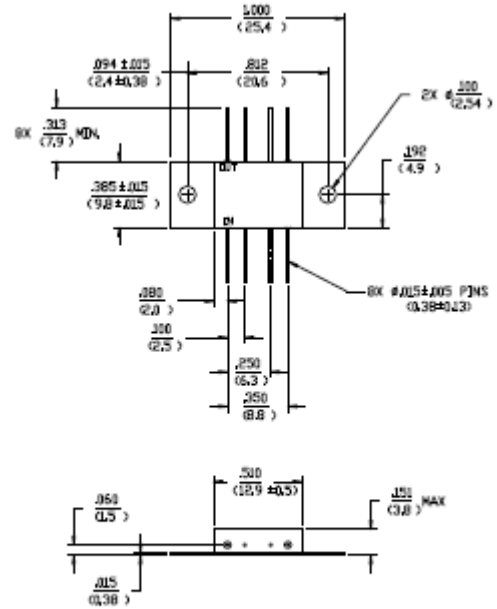
Features

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

Description

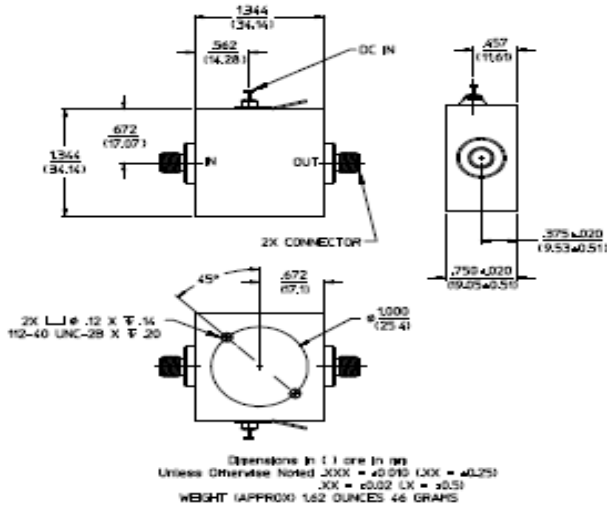
M/A-COM's AM-123 is a coupler feedback amplifier with high intercept and compression points. The use of coupler feedback minimizes noise figure and current in a high intercept amplifier. This amplifier is packaged in a TO-8 package. Due to the internal power dissipation the thermal rise minimized. The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

FP-7



Dimensions in ϕ are in mm.
Unless otherwise noted .XXX = ±.010 (XX = ±.025)
NOTE: AM-123 POSITIVE VOLTAGE ONLY.
WEIGHT (APPROX.) 0.09 OUNCES, 2.5 GRAMS

C-32



Dimensions in ϕ are in mm.
Unless otherwise noted .XXX = ±.010 (XX = ±.025)
XX = ±.002 (X = ±.015)
WEIGHT (APPROX.) 1.62 OUNCES 46 GRAMS

Absolute Maximum Ratings ¹

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

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

Electrical Specifications: ^{2,3} 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	— —	— —
Vbias	—	—	VDC	+14.5	+15.0	+15.5
Ibias	Vbias = +15.0 VDC	—	mA	—	62	75
Power Dissipation	@ +15 V Bias	—	mW	—	930	—

2. All specifications apply when operated at +15 VDC, with 50 ohms source and load impedance.

3. Heat Sinking: Operation at case temperature above 95°C is not recommended. Heat sinking adequate to dissipate 1 W must be provided in use.

S-Parameter Data

Frequency (MHz)	S11 MAG/ANG	S21 MAG/ANG	S12 MAG/ANG	S22 MAG/ANG
5	0.21/-69.9	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

2

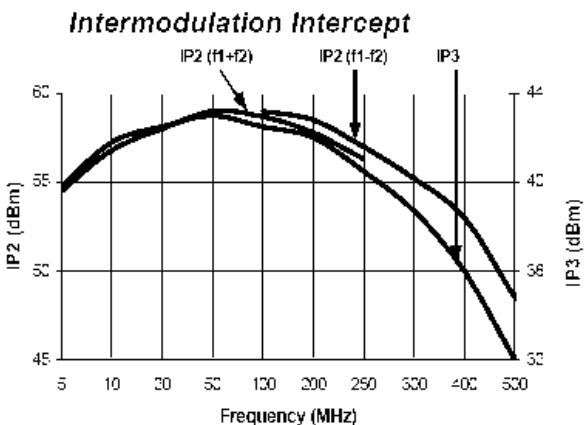
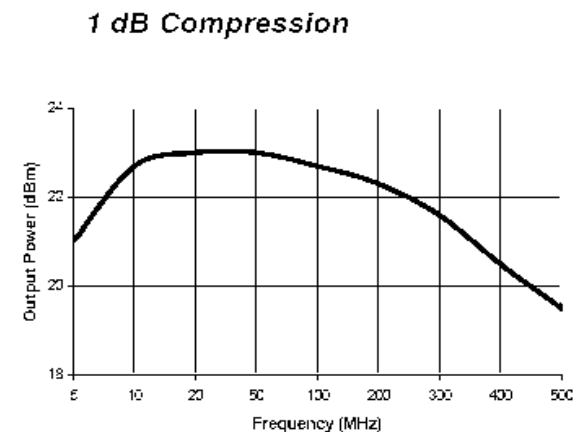
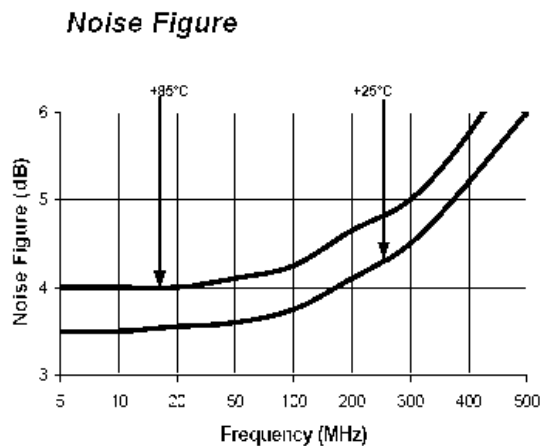
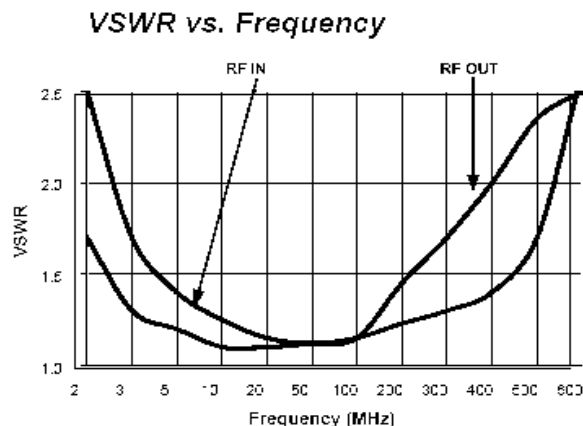
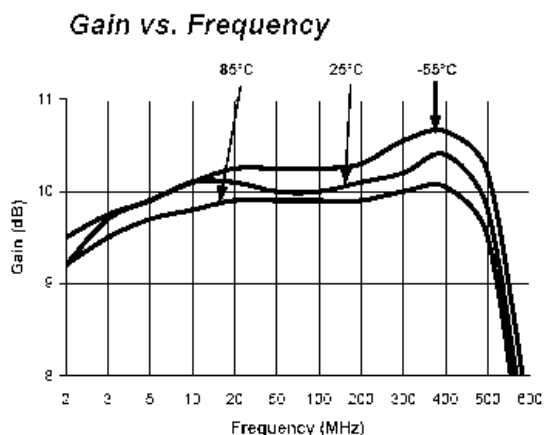
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Typical Performance Curves



Ordering Information

Part Number	Package
AM-123 PIN	Flatpack
AMC-123 SMA	Connectorized

Pin Configuration

Part 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