AM-123 / AMC-123

High Performance Amplifier, 10 dB Gain
5 - 500 MHz

Rev. V6

Features

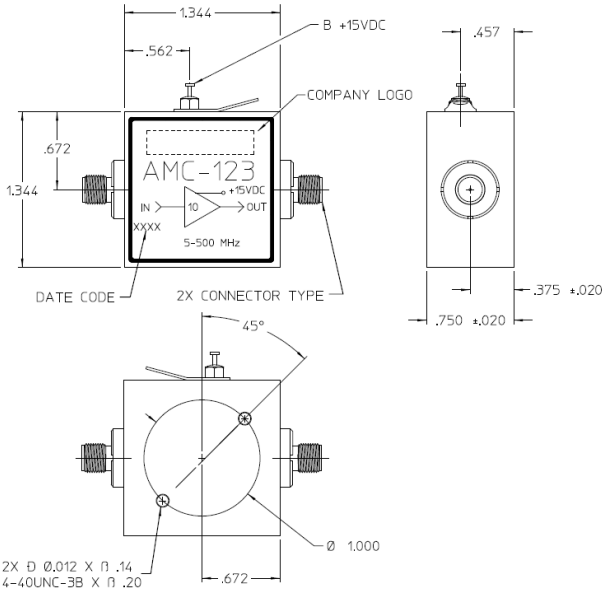
- 3.5 dB Mid-band Noise Figure
- 42 dBm Mid-band Intercept

Description

The 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 available in both the flat pack (FP-7) and the connectorized (C-32) packages. Due to the internal power dissipation the thermal rise is minimized. The ground plane on the PC board should be configured to remove heat from under the package.

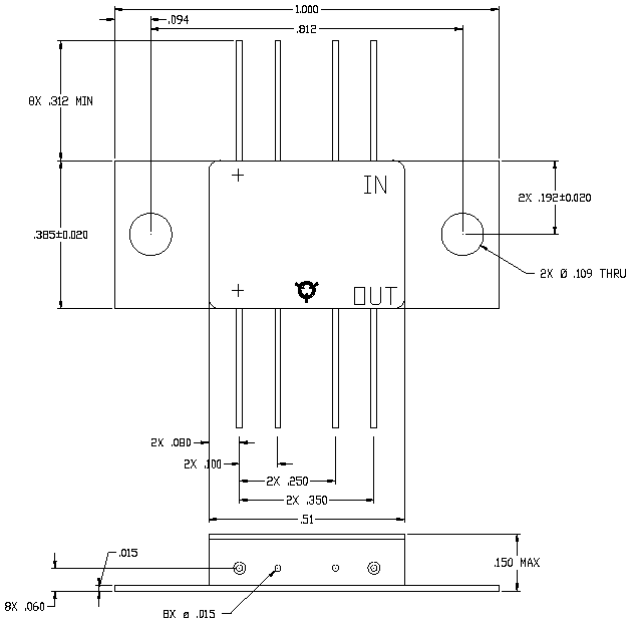
AM-123 is ideally suited for use where a high intercept, high reliability amplifier is required.

C-32



Dimensions are in mm unless otherwise noted.
.xxx = ±0.010 (.xx = ±0.85)
.xx = ±0.02 (.x = ±0.5)
AM-123 Positive voltage only.
Weight (approx.) 1.62 ounces, 46 grams

FP-7



Dimensions are in mm unless otherwise noted.
.xxx = ±0.010 (.xx = ±0.85)
.xx = ±0.02 (.x = ±0.5)
AM-123 Positive voltage only.
Weight (approx.) 0.09 ounces, 2.5 grams

Pin Configuration

Pin #	Function
1	RF OUT
2,3,6,7	GND
4,8	DC IN
5	RF IN

Ordering Information

Part Number	Package
AM-123 PIN	Flat pack (FP-7)
AMC-123 SMA	Connectorized (C32)

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Electrical Specifications[1,2]: T_A = -55°C to +85°C Case Temperature

Parameter	Frequency	Units	Typical	Guaranteed	
			25ºC	0º to 50ºC	-54º to +85ºC*
Small Signal Gain (min.)	5 - 250 MHz 250 - 500 MHz	dB	9.8 9.3	9.5 9.0	9.0 8.5
Gain Flatness (max.)	5 - 500 MHz	dB	±0.3	±0.7	±1.0
Reverse Isolation	5 - 500 MHz	dB	16	—	—
Noise Figure (max.)	5 - 500 MHz	dB	4.0	5.0	5.5
Power Output @ 1 dB comp. (min.)	—	dBm	19.0	18.0	17.5
IP3	5 - 500 MHz	dBm	34	33	—
IP2	5 - 500 MHz	dBm	48	40	—
Second Order Harmonic IP	5 - 500 MHz	dBm	54	—	—
VSWR In/Out	5 - 500 MHz 20 - 400 MHz	Max.	2.1:1 / 2.1:1 1.6:1 / 1.8:1	2.3:1 / 2.2:1 2.0:1 / 2.0:1	2.5:1 / 2.4:1 2.2:1 / 2.2:1
DC Current @ 15 Volts (max.)	—	mA	65	69	72

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 1 W must be provided in use.

Absolute Maximum Ratings[3,4]

Parameter	Absolute Maximum
Input Power	23 dBm
V_{BIAS}	15.75 V
Operating Temperature	-55°C to +85°C
Storage Temperature	-65°C to +125°C

3. Exceeding any one or combination of these limits may cause permanent damage to this device.
4. MACOM does not recommend sustained operation near these survivability limits.

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

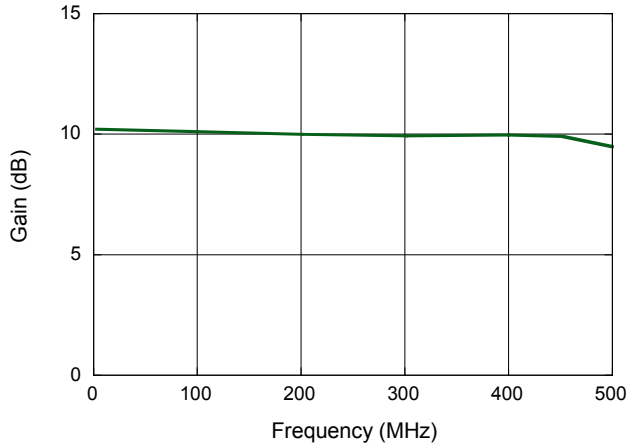
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

S-Parameter Data

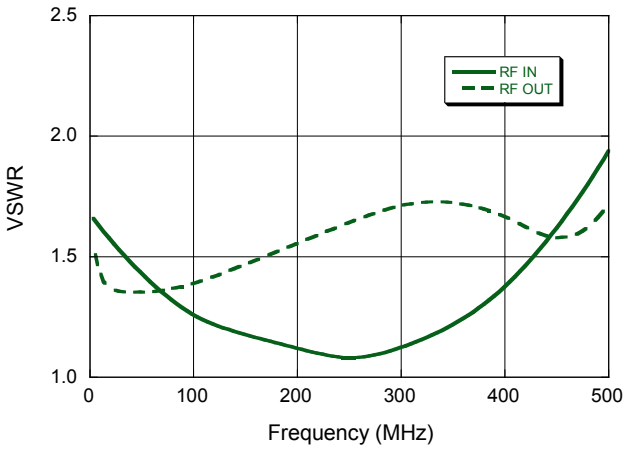
Frequency (MHz)	S11 MAG/ANG	S21 MAG/ANG	S12 MAG/ANG	S22 MAG/ANG
5	0.21/-69.9	3.15/-158.8	0.11/171.3	0.15/92.8
10	0.11/-81.5	3.17/-172.2	0.11/175.0	0.06/116.1
20	0.08/-88.5	3.18/-178.4	0.12/171.7	0.04/139.8
50	0.06/-108.4	3.17/162.9	0.13/159.9	0.03/174.7
100	0.05/-122.8	3.14/142.8	0.13/141.4	0.04/-163.9
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

Typical Performance Curves

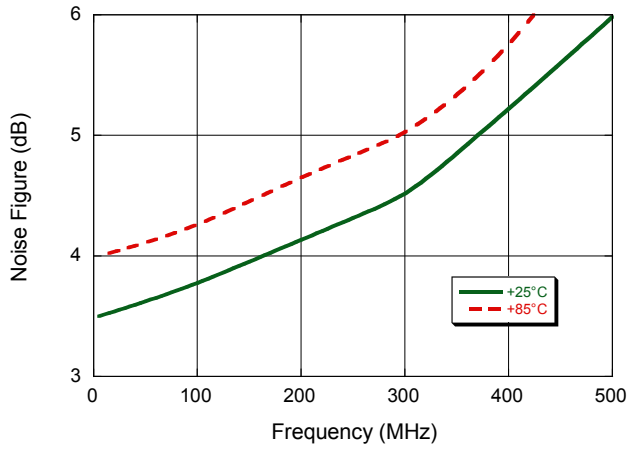
Gain



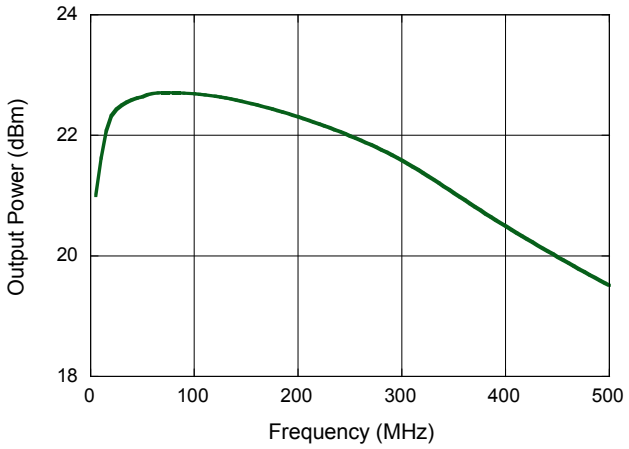
VSWR



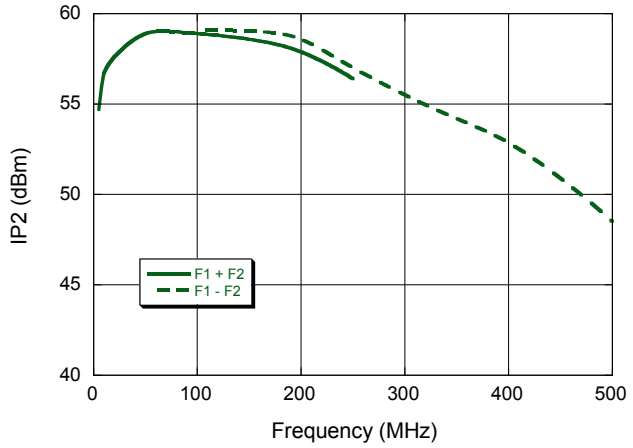
Noise Figure



P1dB



Intermodulation Intercept, IP2



Intermodulation Intercept, IP3