

AM-123 / AMC-123



High Performance Amplifier, 10 dB Gain
5 - 500 MHz

Rev. V6

Features

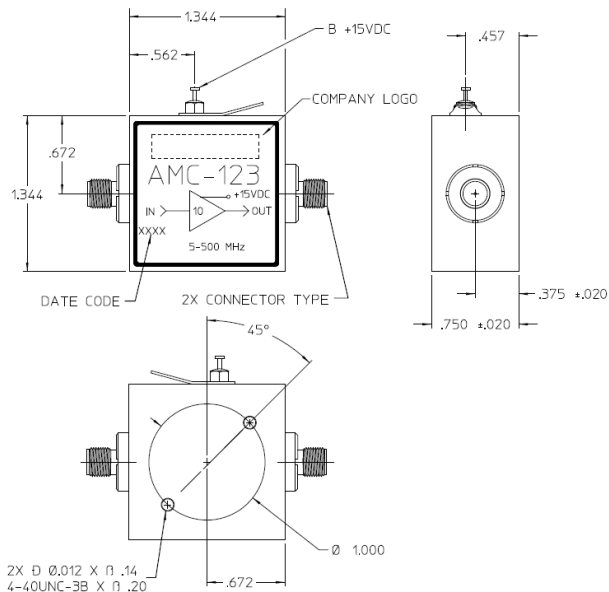
- 3.5 dB Mid-band Noise Figure
- 42 dBm Mid-band Intercept

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.

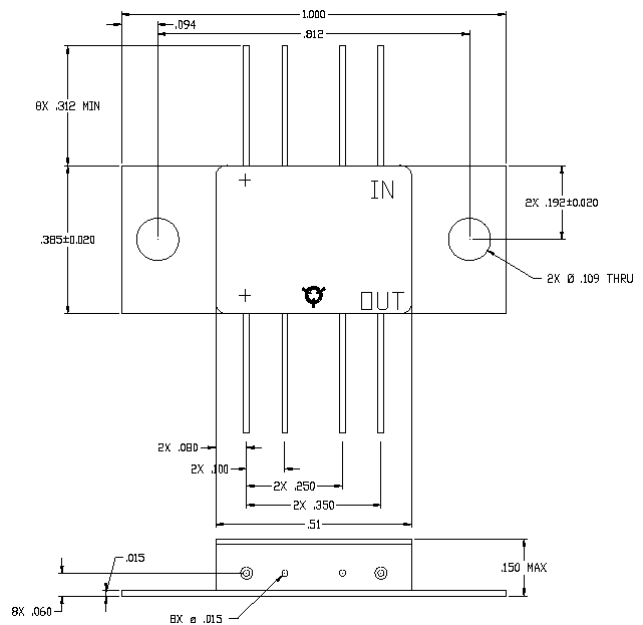
AM-123 is ideally suited for use where a high intercept, high reliability amplifier is required.

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)

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

Parameter	Frequency	Units	Typical	Guaranteed	
			25°C	0° to 50°C	-54° to +85°C*
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

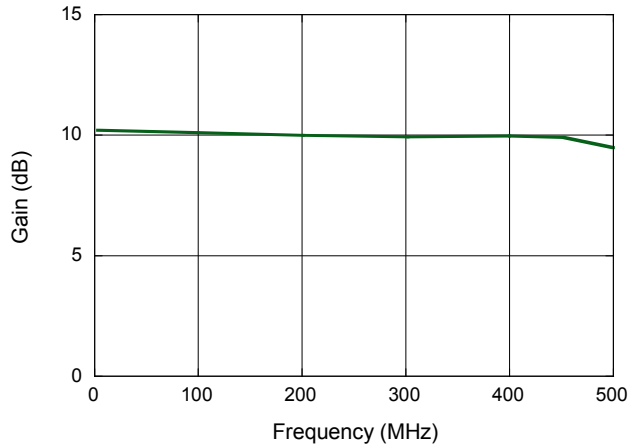
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

S-Parameter Data

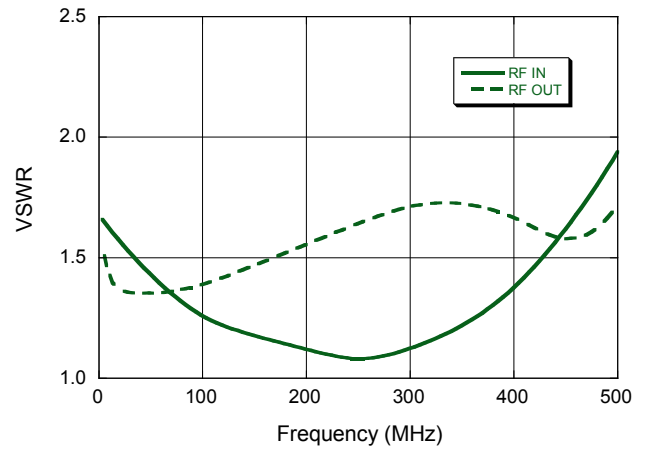
Frequency (MHz)	S11 MAG/ANG	S21 MAG/ANG	S12 MAG/ANG	S22 MAG/ANG
5	0.21/-69.9	3.15/-158.8	0.11/171.3	0.15/92.8
10	0.11/-81.5	3.17/-172.2	0.11/175.0	0.06/116.1
20	0.08/-88.5	3.18/-178.4	0.12/171.7	0.04/139.8
50	0.06/-108.4	3.17/162.9	0.13/159.9	0.03/174.7
100	0.05/-122.8	3.14/142.8	0.13/141.4	0.04/-163.9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

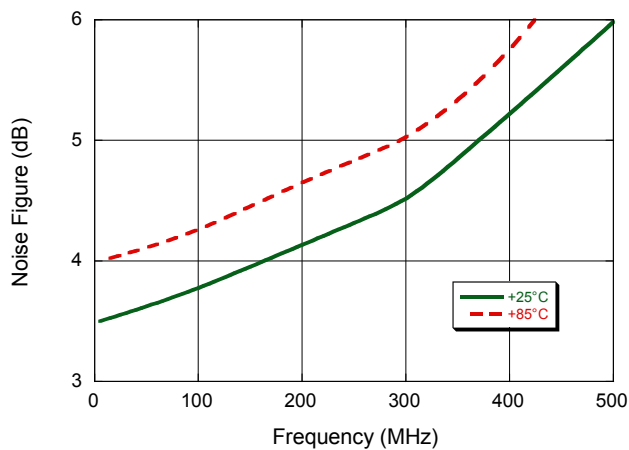
Gain



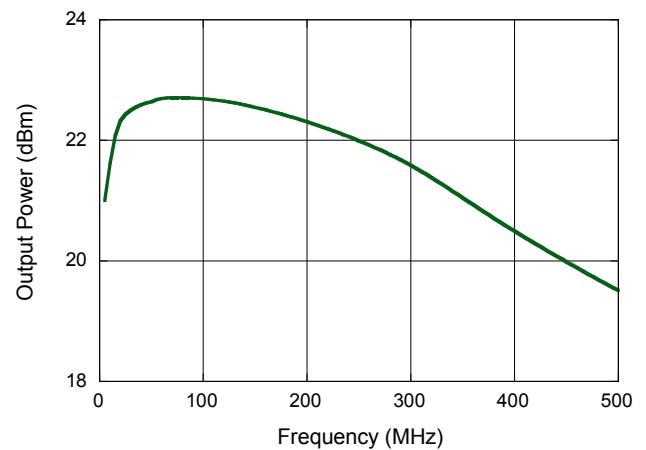
VSWR



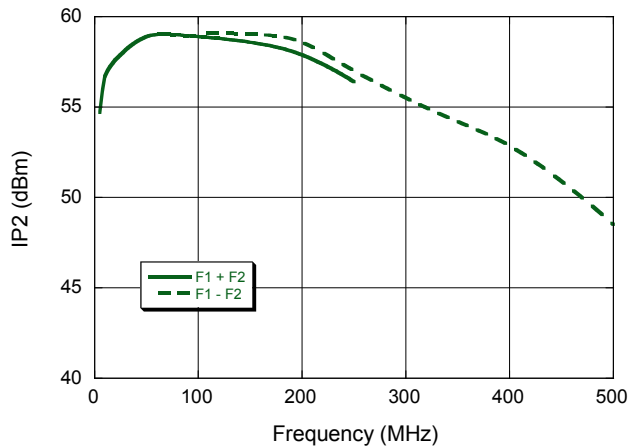
Noise Figure



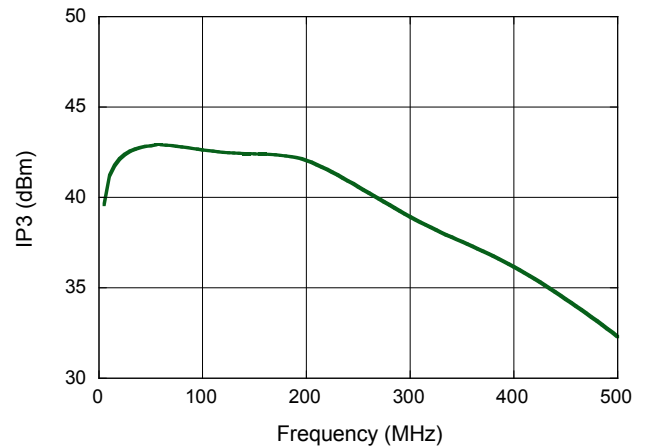
P1dB



Intermodulation Intercept, IP2



Intermodulation Intercept, IP3



MACOM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with MACOM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.