

# AM-143 / AMC-143

Low Noise Amplifier, 16 dB Gain,  
5 - 500 MHz

Rev. V4

## Features

- 1.9 dB Typical Midband Noise Figure
- +7 dBm Typical Midband Output Power
- +20 dBm Typical Third Order Intercept

## Description

M/A-COM's AM-143 is a coupler feedback amplifier with low noise figure and high intercept points for the low bias current. The use of coupler feedback minimizes noise figure and current in a high intercept amplifier. This amplifier is packaged in a TO-8 package. The ground plane on the PC board should be configured to remove heat from under the package. AM-143 are ideally suited for use where a low noise, high reliability amplifier is required.

## Ordering Information

Part Number	Package
AM-143 PIN <sup>3</sup>	TO-8-1
AMC-143 SMA	Connectorized

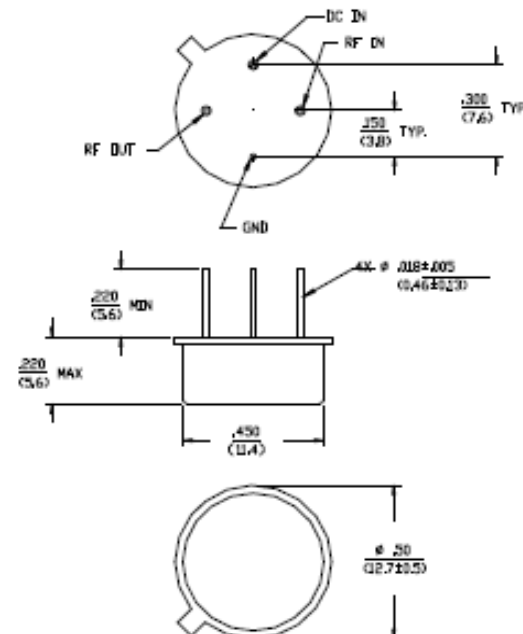
3. Mounting kit part number AU00071 required for PCB applications.

## Absolute Maximum Ratings<sup>1</sup>

Parameter	Absolute Maximum
Max. Input Power	+20 dBm
V <sub>bias</sub>	+15.75 V
Operating Temperature	-55°C to +85°C
Storage Temperature	-65°C to +125°C

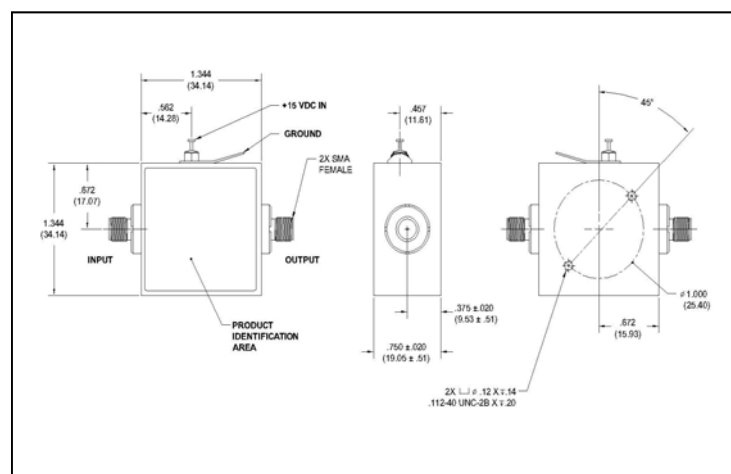
1. Operation of this device above any one of these parameters may cause permanent damage.

## TO-8-1



Dimensions in  $\phi$  are in mm  
Unless Otherwise Noted, .XXX =  $\pm 0.010$  (.254)  
.XX =  $\pm 0.02$  (.51)  
WEIGHT (APPROX) 0.00 UNCES 0.01 GRAMS

## Outline Drawing: SMA Connectorized \*



\* Dimensions are inches (millimeters)  $\pm 0.015$  (0.38) unless otherwise specified.



## Electrical Specifications: <sup>2</sup>, T<sub>A</sub> = -55°C to +85°C Case Temperature

Parameter	Test Conditions	Frequency	Units	Min.	Typ.	Max.
Gain	@+25°C	50 MHz	dB	15.3	15.8	16.3
Frequency Response	—	5 - 500 MHz	dB	—	—	±1.0
Gain Variation with Temperature	—	5 - 500 MHz	dB	—	—	±0.8
1 dB Compression	Output Power	5 - 500 MHz	dBm	+4	—	—
Noise Figure	—	5 - 500 MHz 5 - 100 MHz	dB	— —	— —	3.5 2.7
Reverse Transmission	—	5 - 500 MHz	dB	—	-21	-16
VSWR	—	5 - 500 MHz	Ratio	—	—	2.5:1
Output IP <sub>2</sub>	Two-Tone inputs up to -10 dBm	5 - 500 MHz	dBm	+24	—	—
Output IP <sub>3</sub>	Two-Tone inputs up to -10 dBm	5 - 500 MHz	dBm	+16	—	—
V <sub>bias</sub>	—	—	VDC	+14.5	+15.0	+15.5
I <sub>bias</sub>	V <sub>bias</sub> = +15.0 VDC	—	mA	—	13	15
Power Dissipation	@ +15 V Bias	—	mW	—	200	—

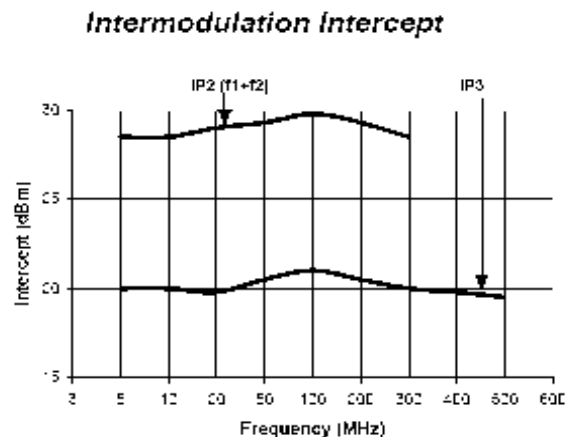
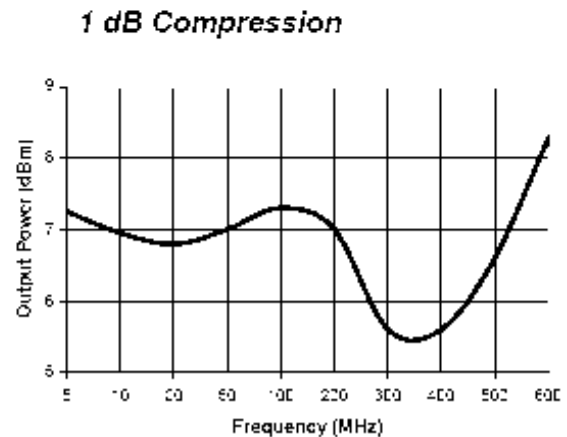
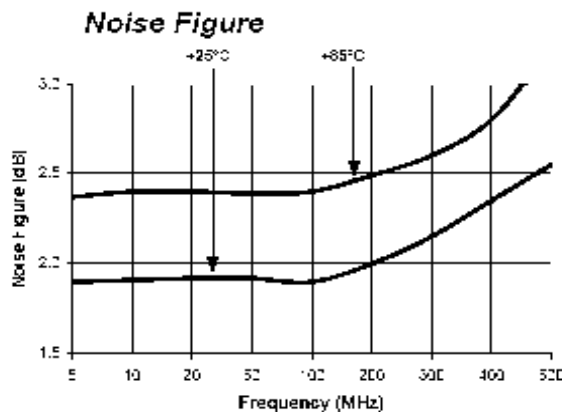
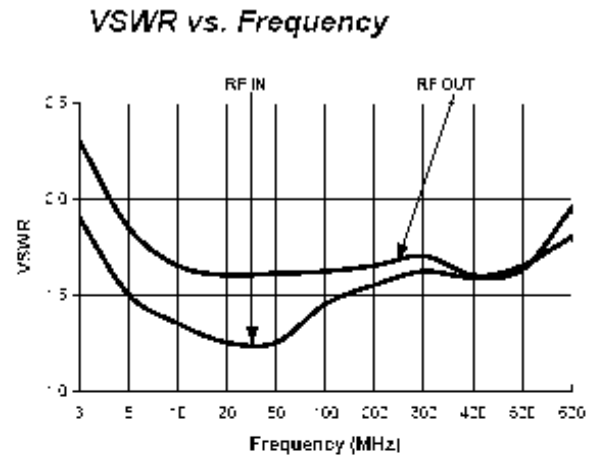
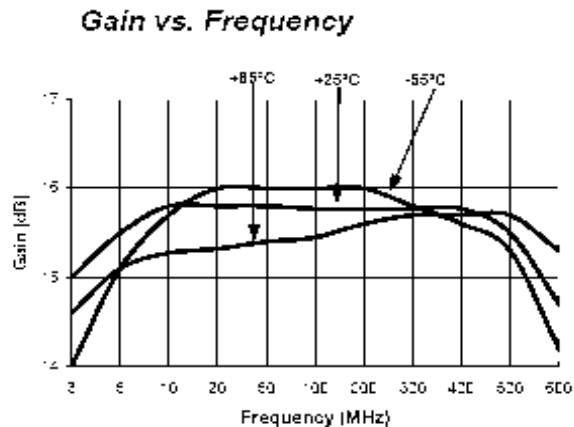
2. All specifications apply when operated at +15 VDC, with 50 ohms source and load impedance.

## S-Parameter Data

Frequency (MHz)	S11 MAG/ANG	S21 MAG/ANG	S12 MAG/ANG	S22 MAG/ANG
5	0.20/-60.7	5.90/-161.0	0.09/-160.5	0.32/-24.9
10	0.12/-63.8	6.07/-171.8	0.09/-172.6	0.27/-24.9
20	0.09/-65.3	6.16/-179.8	0.10/178.9	0.26/-17.4
50	0.10/-82.7	6.08/167.5	0.10/166.3	0.25/-28.0
100	0.14/-101.0	6.06/153.3	0.10/150.5	0.26/-49.3
200	0.21/-130.6	6.00/126.7	0.10/119.8	0.26/-82.3
300	0.23/-149.2	6.01/100.9	0.10/93.6	0.24/-104.5
400	0.20/-155.5	6.09/70.7	0.10/67.4	0.22/-100.5
500	0.22/-142.9	6.11/36.8	0.10/43.3	0.20/-79.8



## Typical Performance Curves





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