AM-146/AMC-146

High Performance Amplifier, 21 dB Gain, 10 - 500 MHz

Rev. V3

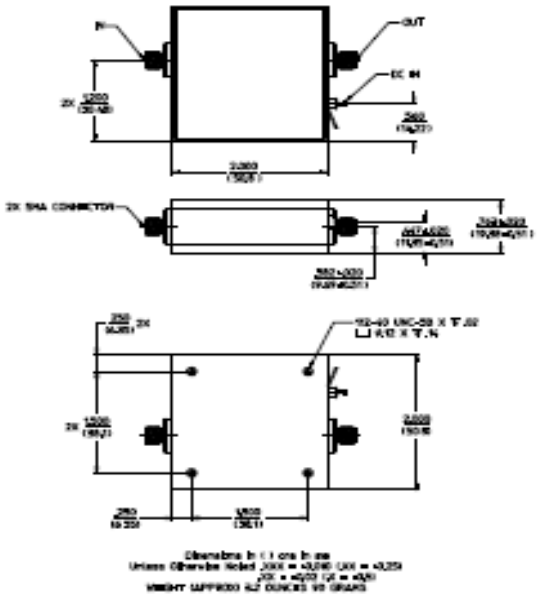
Features

- 4 dB Typical Midband Noise Figure
- +38 dBm Typical Midband Third Order Intercept
- +24 dBm Typical Midband 1 dB Compression

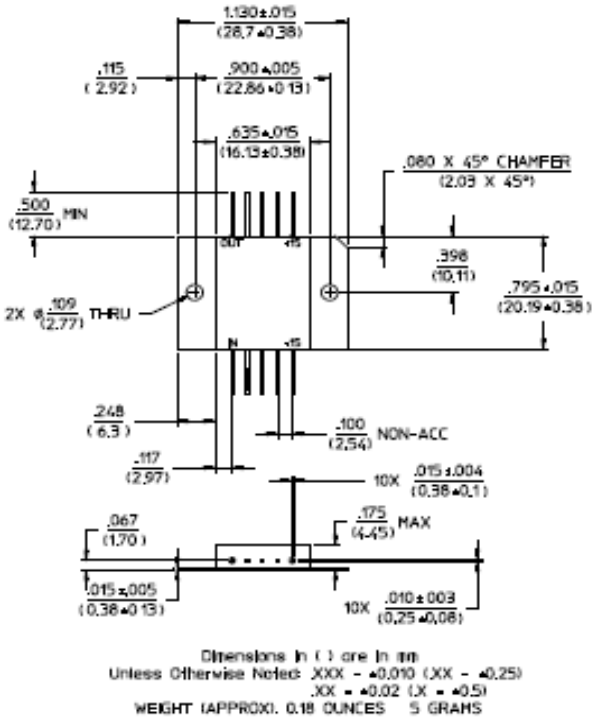
Description

M/A-COM's AM-146 is a coupler feedback amplifier with high intercept and compression points. The use of coupler feedback minimizes current in a high intercept amplifier. This amplifier is packaged in a flatpack with flanges. Due to the metal flatpack the thermal rise minimized. The ground plane on the PC board should be configured to remove heat from under the package. AM-146 is ideally suited for use where a high intercept, high reliability amplifier is required.

C-25



FP-9



Absolute Maximum Ratings [1]

Parameter	Absolute Maximum
Max. Input Power	+10 dBm
Vbias	+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.

Pin Configuration

Pin No.	Function	Pin No.	Function
1	RF OUT	6	RF IN
2	GND	7	GND
3	GND	8	GND
4	GND	9	GND
5	VDC	10	VDC

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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	20.3	21.0	21.7
Frequency Response	—	10 - 500 MHz	dB	—	—	±1.0
Gain Variation with Temperature	—	10 - 500 MHz	dB	—	—	+-0.8, -1.2
1 dB Compression	Output Power	10 - 500 MHz	dBm	+20.0	—	—
Noise Figure	—	10 - 500 MHz 10 - 300 MHz	dB dB	— —	— —	7.0 5.5
Reverse Transmission	—	10 - 500 MHz	dB	—	-35	-30.0
VSWR	—	10 - 500 MHz	Ratio	—	—	2:1
Output IP_2	Two-Tone inputs up to +10 dBm	10 - 500 MHz	dBm	+40	—	—
Output IP_3	Two-Tone inputs up to +10 dBm	10 - 500 MHz	dBm	+30	—	—
Vbias	—	—	VDC	+14.5	+15.0	+15.5
Ibias	Vbias = +15.0 VDC	—	mA	—	130	140
Power Dissipation	@ +15 V Bias	—	mW	—	2	—

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 2 W must be provided in use.

S-Parameter Data

Frequency (MHz)	S11 MAG/ANG	S21 MAG/ANG	S12 MAG/ANG	S22 MAG/ANG
10	0.13/-118.5	11.44/16.8	0.02/7.1	0.14/164.6
20	0.12/-144.0	11.63/-1.0	0.02/-4.0	0.16/168.2
50	0.13/-175.5	11.56/-27.1	0.02/-25.3	0.15/155.9
75	0.14/169.0	11.49/-44.3	0.02/-41.3	0.13/143.8
100	0.15/163.8	11.45/-59.9	0.02/-55.7	0.08/132.5
200	0.16/121.4	11.24/-120.3	0.02/-113.3	0.05/160.6
300	0.18/86.3	11.34/176.4	0.02/-170.1	0.07/167.7
400	0.20/55.2	11.33/110.4	0.02/133.3	0.12/159.2
500	0.23/13.1	10.84/31.1	0.01/75.6	0.23/174.8

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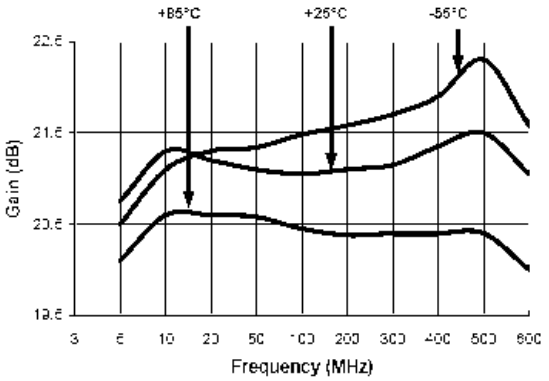
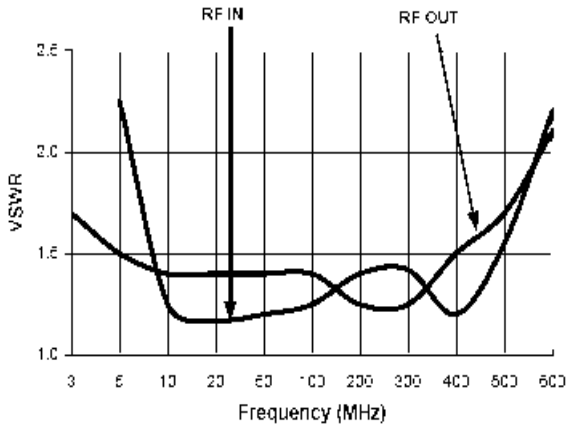
Typical Performance Curves

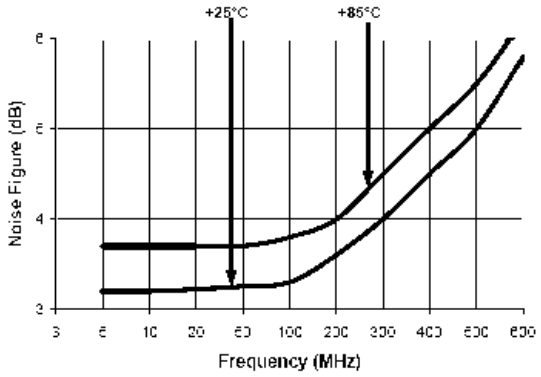
Gain vs. Frequency



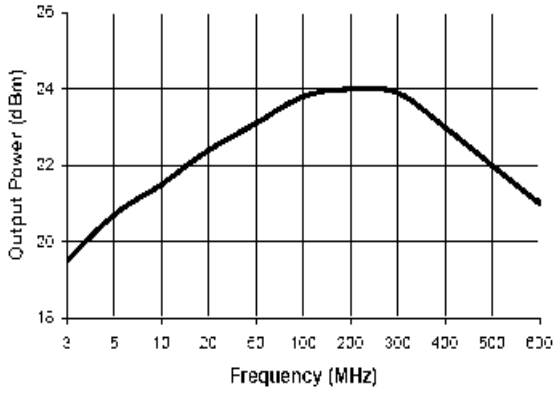
VSWR vs. Frequency



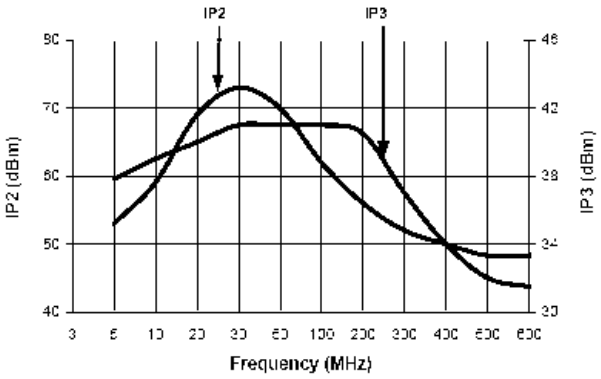
Noise Figure



1 dB Compression



Intermodulation Intercept



Ordering Information

Part Number	Package
AM-146 PIN	Flatpack
AMC-146 SMA	Connectorized