

AM-146/AMC-146



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

Rev. V3

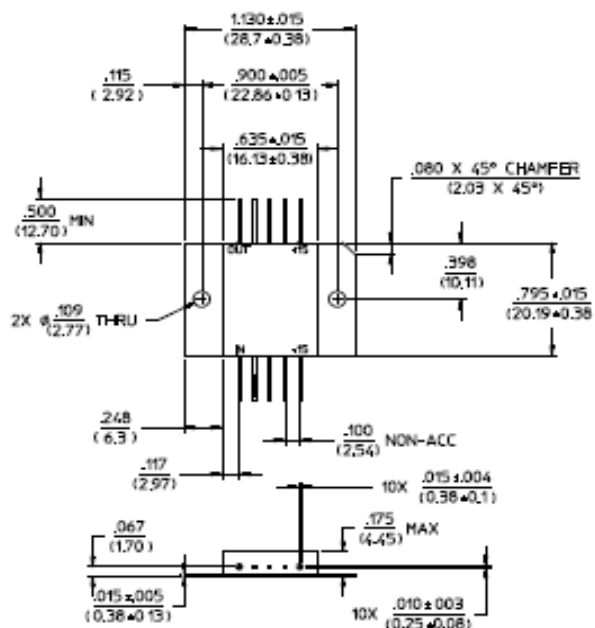
Features

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

Description

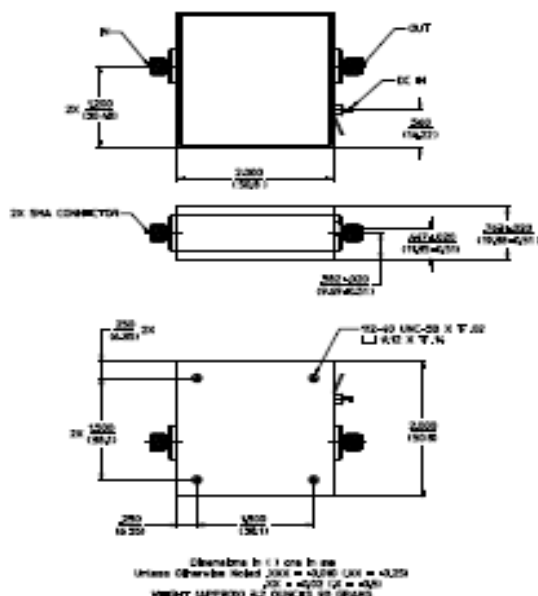
M/A-COM's AM-146 is a coupler feedback amplifier with high intercept and compression points. The use of coupler feedback minimizes current in a high intercept amplifier. This amplifier is packaged in a flatpack with flanges. Due to the metal flatpack the thermal rise minimized. The ground plane on the 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.

FP-9



Dimensions in () are in mm
Unless Otherwise Noted: .XXX = ±0.010 (.XX = ±0.25)
.XX = ±0.02 (.X = ±0.5)
WEIGHT (APPROX): 0.18 OUNCES 5 GRAMS

C-25



Dimensions in () are in mm
Unless Otherwise Noted: .XXX = ±0.010 (.XX = ±0.25)
.XX = ±0.02 (.X = ±0.5)
WEIGHT (APPROX): 0.2 OUNCES 5.6 GRAMS

Absolute Maximum Ratings¹

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

AM-146/AMC-146



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

Rev. V3

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

2

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

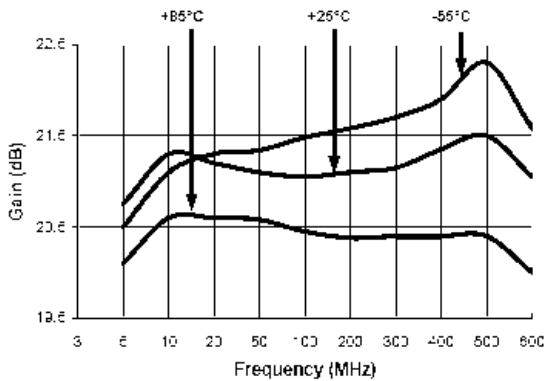
• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588

Visit www.macomtech.com for additional data sheets and product information.

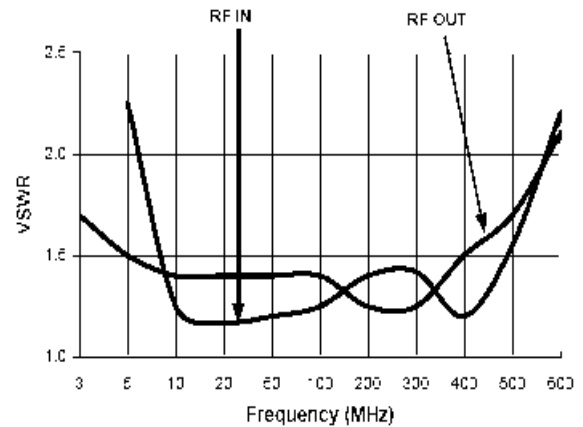
M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

Typical Performance Curves

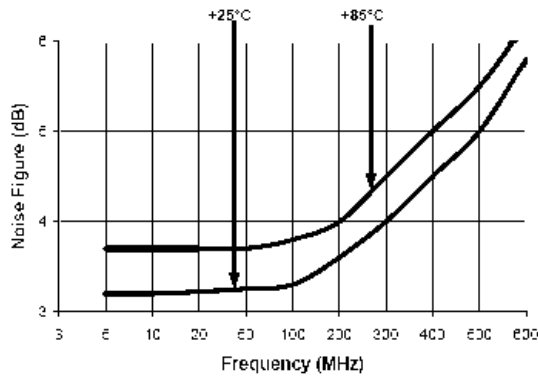
Gain vs. Frequency



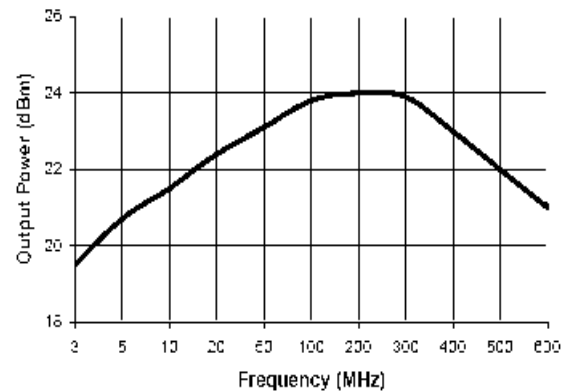
VSWR vs. Frequency



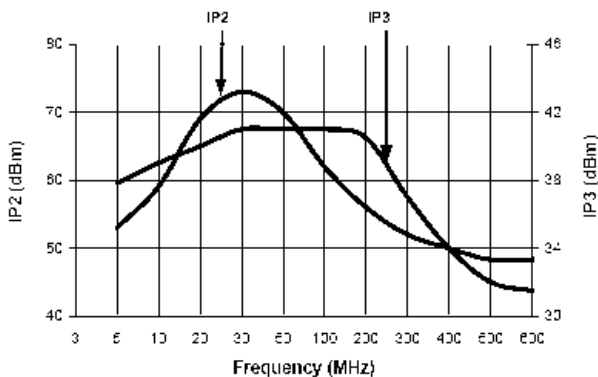
Noise Figure



1 dB Compression



Intermodulation Intercept



Ordering Information

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