

# A87-1 / SMA87-1

Cascadable Amplifier  
10 to 400 MHz

Rev. V3

## Features

- HIGH OUTPUT LEVEL: +17 dBm (TYP.)
- HIGH EFFICIENCY: 33 mA @ +15 Vdc (TYP.)
- HIGH THIRD ORDER IP: +31 dBm (TYP.)
- WIDE POWER SUPPLY RANGE: +5 TO +15 VOLTS

## Description

The A87-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. Use of an impedance transformer offers the benefit of high dynamic range and high efficiency.

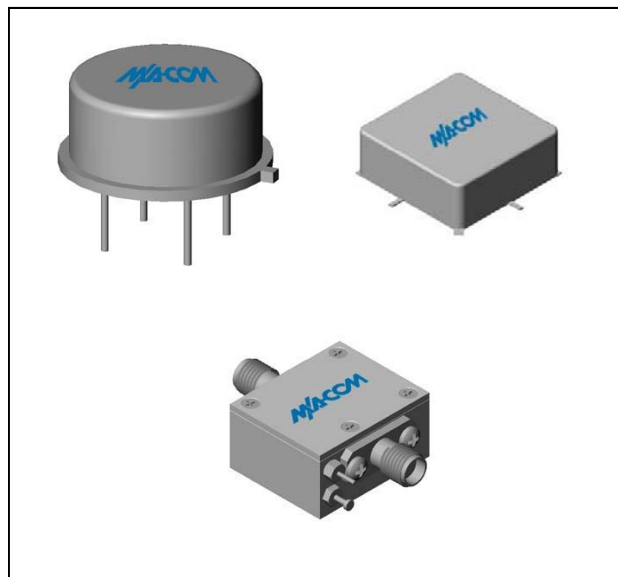
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

## Ordering Information

Part Number	Package
A87-1	TO-8
SMA87-1	Surface Mount
CA87-1 **	SMA Connectorized

\*\* The connectorized version is not RoHs compliant.

## Product Image



## Electrical Specifications: $Z_0 = 50\Omega$ , $V_{CC} = +15 V_{DC}$

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C*
Frequency	MHz	5-450	10-400	10-400
Small Signal Gain (min)	dB	16.0	15.0	14.5
Gain Flatness (max)	dB	±0.1	±0.6	±0.8
Reverse Isolation	dB	20		
Noise Figure (max)	dB	3.4	4.0	4.5
Power Output @ 1 dB comp. (min)	dBm	17.0	15.5	15.0
IP3	dBm	+31		
IP2	dBm	+46		
Second Order Harmonic IP	dBm	+52		
VSWR Input / Output (max)		1.4:1 / 1.4:1	1.8:1 / 1.8:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	33	35	37

## Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	+125°C
DC Voltage	+17 V
Continuous Input Power	+13 dBm
Short Term Input power (1 minute max.)	50 mW
Peak Power (3 µsec max.)	0.5 W
"S" Series Burn-In Temperature (case)	+125°C

## Thermal Data: $V_{CC} = +15 V_{DC}$

Parameter	Rating
Thermal Resistance $\theta_{jc}$	185°C/W
Transistor Power Dissipation $P_d$	0.273 W
Junction Temperature Rise Above Case $T_{jc}$	51°C

\* Over temperature performance limits for part number CA87-1, guaranteed from 0°C to +50°C only.

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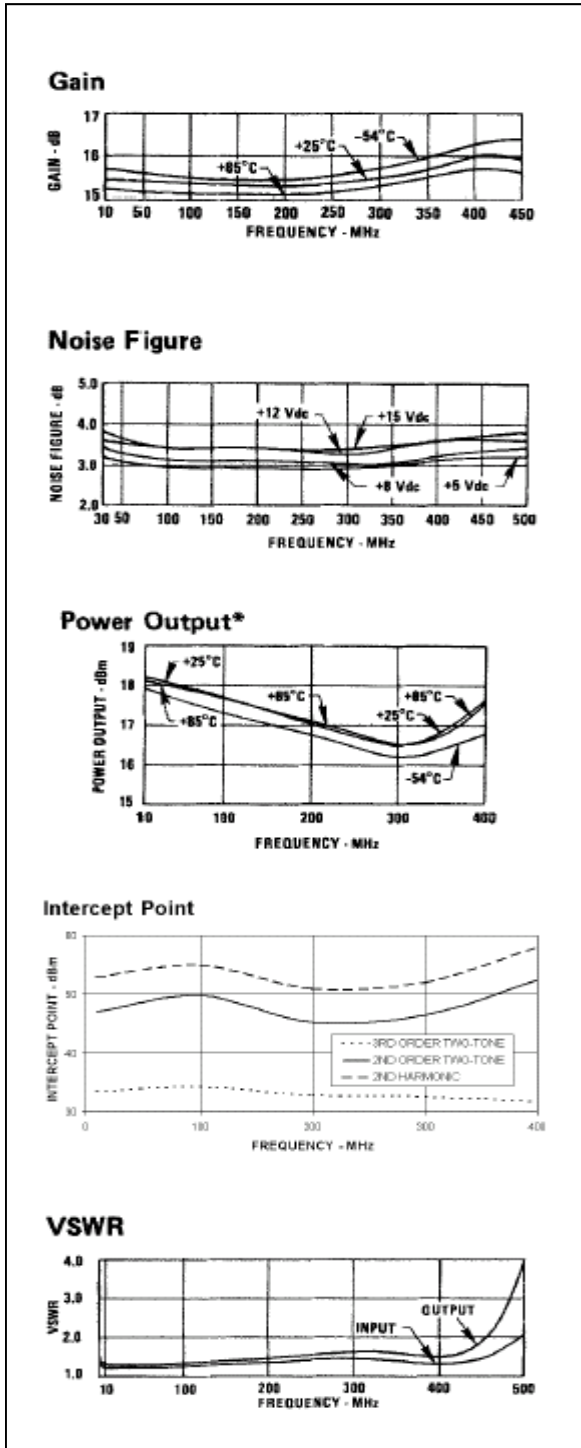
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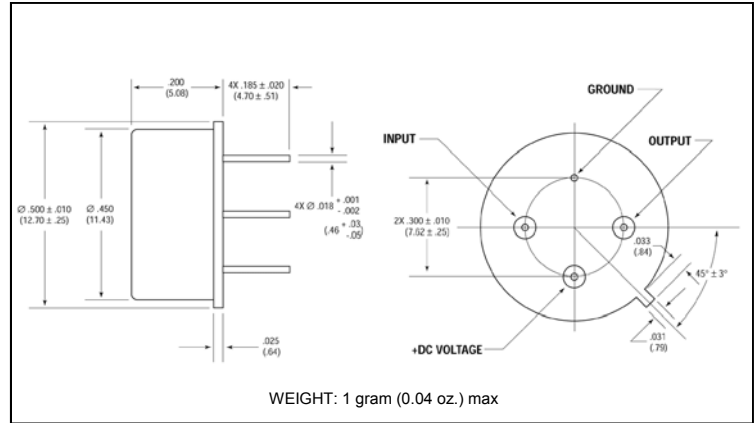
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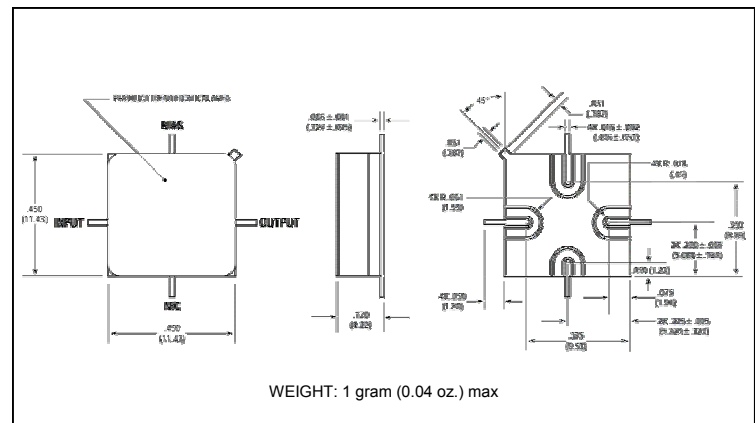
## Typical Performance Curves at +25°C



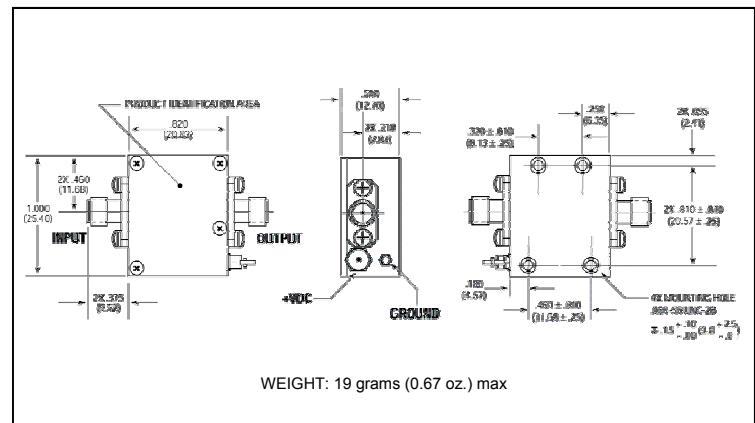
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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

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