tyco Electronics

MACOM

Cascadable Amplifier
5 to 250 MHz

A74-1/ SMA74-1
V2

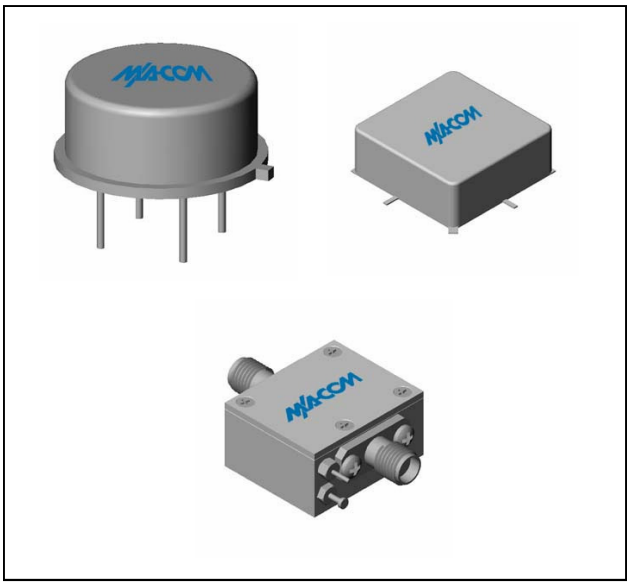
Features

- HIGH GAIN - TWO STAGES: 31 dB (TYP.)
- MEDIUM OUTPUT LEVEL +8.5 dBm (TYP.)
- WIDE POWER SUPPLY RANGE +8 TO +15 VOLTS
- LOW VSWR: <1.3:1 (TYP.)

Description

The A74-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for consistent performance and high reliability.
This 2 stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. An active DC biasing network insures temperature-stable performance.
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available

Product Image



Ordering Information

Part Number	Package
A74-1	TO-8
SMA74-1	Surface Mount
CA74-1	SMA Connectorized

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

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
Frequency	MHz	1-300	5-250	5-250
Small Signal Gain (min)	dB	31.0	30.0	29.0
Gain Flatness (max)	dB	±0.2	±0.7	±1.0
Reverse Isolation	dB	40		
Noise Figure (max)	dB	4.5	5.0	5.5
Power Output @ 1 dB comp. (min)	dBm	8.5	7.5	7.0
IP3	dBm	+21		
IP2	dBm	+34		
Second Order Harmonic IP	dBm	+42		
VSWR Input / Output (max)		1.3:1 / 1.3:1	1.7:1 / 1.7:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	40	42	44

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	125ºC
DC Voltage	+17 V
Continuous Input Power	+6 dBm
Short Term Input power (1 minute max.)	50 mW
Peak Power (3 µsec max.)	0.5 W
"S" Series Burn-In Temperature (case)	125ºC

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

Parameter	Rating
Thermal Resistance θ_{jc}	45ºC/W
Transistor Power Dissipation P_d	0.185 W
Junction Temperature Rise Above Case T_{jc}	8ºC

* Over temperature performance limits for part number CA74-1, guaranteed from 0°C to +50°C only.

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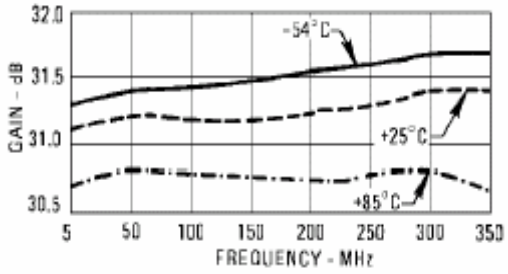
Visit www.macom.com for additional data sheets and product information.

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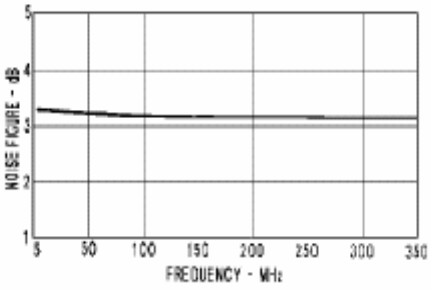
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Typical Performance Curves at +25°C

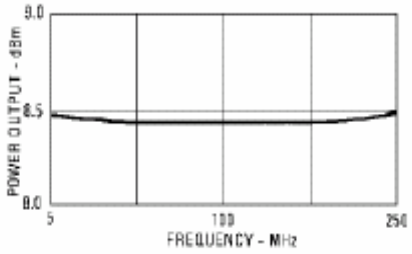
Gain



Noise Figure

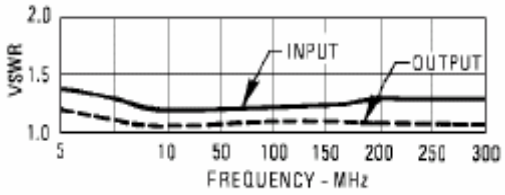


Power Output*

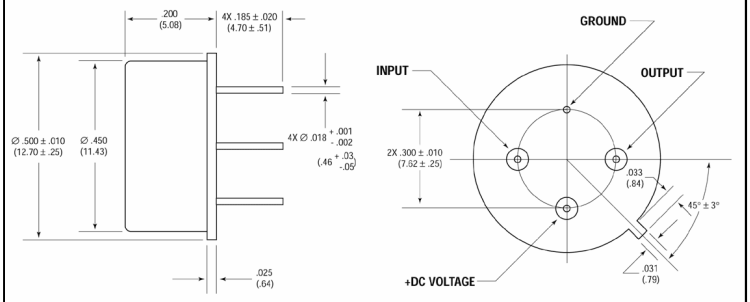


*at 1 dB Gain Compression

VSWR

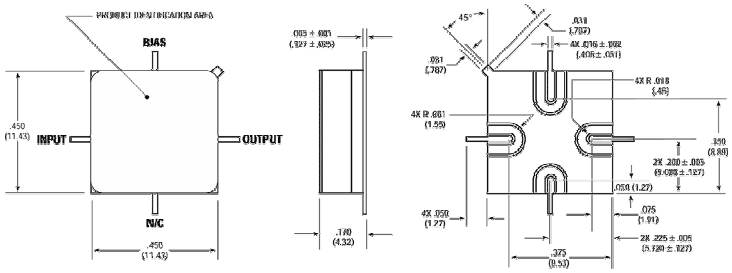


Outline Drawing: TO-8 *



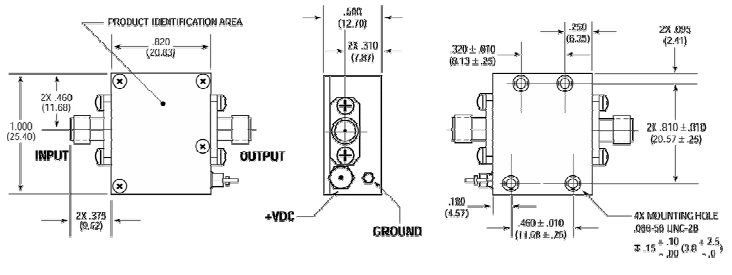
WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: Surface Mount *



WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: SMA Connectorized *



WEIGHT: 19 grams (0.67 oz.) max

* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

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