

# Cascadable Amplifier 5 to 500 MHz

Rev. V4

#### **Features**

- HIGH GAIN TWO STAGES: 30.0 dB (TYP.)
- MEDIUM OUTPUT LEVEL: +8.5 dBm (TYP.)
- WIDE POWER SUPPLY RANGE: +8 TO +15 VOLTS
- LOW VSWR: <1.3:1 (TYP.)</li>

#### **Description**

The A74 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.

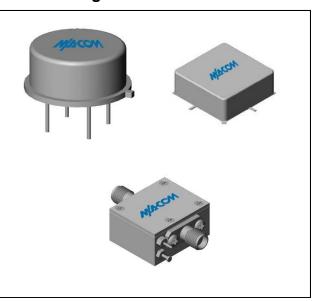
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available

#### **Ordering Information**

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

<sup>\*\*</sup> 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	0º to 50ºC	-54º to +85ºC*
Frequency	MHz	1-600	5-500	5-500
Small Signal Gain (min)	dB	30.0	28.0	27.0
Gain Flatness (max)	dB	±0.3	±0.7	±1.0
Reverse Isolation	dB	40		
Noise Figure (max)	dB	3.0	4.0	4.5
Power Output @ 1 dB comp. (min)	dBm	8.5	7.5	7.0
IP3	dBm	+20		
IP2	dBm	+33		
Second Order Harmonic IP	dBm	+36		
VSWR Input / Output (max)		1.3:1 / 1.3:1	1.8:1 / 1.8:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	40	42	44

### **Absolute Maximum Ratings**

Parameter	Absolute Maximum			
Storage Temperature	-62°C to +125°C			
Case Temperature	125°C			
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)	125°C			

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

Parameter	Rating
Thermal Resistance $\theta_{jc}$	171°C/W
Transistor Power Dissipation Pd	0.200 W
Junction Temperature Rise Above Case T <sub>jc</sub>	34°C

<sup>\*</sup> Over temperature performance limits for part number CA74, guaranteed from 0°C to +50°C only.

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.

<sup>•</sup> 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.



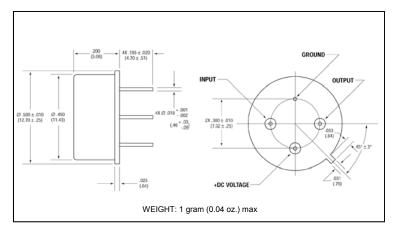
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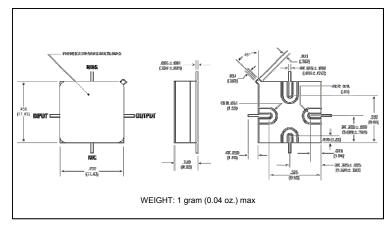
## Typical Performance Curves at +25°C

## Gain ¥ 30 100 300 400 FREQUENCY - MHz Noise Figure 300 400 500 FREQUENCY - MHz Power Output\* POWER DUTPUT -300 FREQUENCY - MHz \* at 1 dB Gain Compression **VSWR** 10 110 200 300 400 500 800 FREQUENCY - MHz

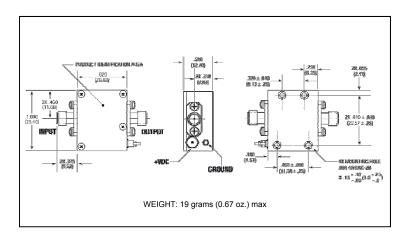
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount



## Outline Drawing: SMA Connectorized \*



- \* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.
  - North America Tel: 800.366.2266 Europe Tel: +353.21.244.6400 • China Tel: +86.21.2407.1588 • India Tel: +91.80.4155721