

Surface Mount

# Monolithic Amplifier

DC-2 GHz

## Product Features

- Wideband, DC to 2 GHz
- Cascadable ceramic package
- Internally Matched to 50 Ohms
- Low noise figure, 2.8 dB typ.
- Excellent repeatability
- Aqueous washable

## Typical Applications

- Cellular
- UHF/VHF
- Communication system
- Transmission receivers



## RAM-6+

CASE STYLE: AF190-1  
PRICE: \$4.60 ea. QTY. (20)

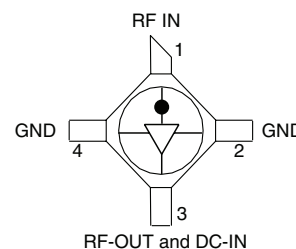
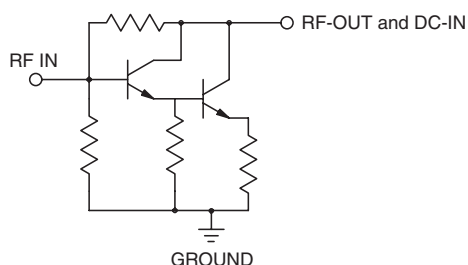
**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

## General Description

RAM-6+ (RoHS compliant) is a wideband amplifier offering high dynamic range. It has repeatable performance from lot to lot. It is enclosed in a ceramic surface-mount package. RAM-6+ uses Darlington configuration and is fabricated using silicon technology. Expected MTBF is 4000 years at 100°C case temperature.

## simplified schematic and pin description



Function	Pin Number	Description
RF IN	1	RF input pin. This pin requires the use of an external DC blocking capacitor chosen for the frequency of operation.
RF-OUT and DC-IN	3	RF output and bias pin. DC voltage is present on this pin; therefore a DC blocking capacitor is necessary for proper operation. An RF choke is needed to feed DC bias without loss of RF signal due to the bias connection, as shown in "Recommended Application Circuit".
GND	2,4	Connections to ground. Use via holes as shown in "Suggested Layout for PCB Design" to reduce ground path inductance for best performance.

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RAM-6+  
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## Electrical Specifications at 25°C and 16mA, unless noted

Parameter	Min.	Typ.	Max.	Units
Frequency Range*	DC		2	GHz
Gain	f=0.1 GHz f=1 GHz f=2 GHz	20 16 11		dB
Input Return Loss <sup>3</sup>	f=DC to 2 GHz	15.5		dB
Output Return Loss <sup>3</sup>	f=DC to 2 GHz	17.5		dB
Output Power @ 1 dB compression	f=0.5 GHz	+2		dBm
Output IP3	f=0.5 GHz	+14.5		dBm
Noise Figure	f=0.5 GHz	2.8		dB
Recommended Device Operating Current		16		mA
Device Operating Voltage		3.5		V
Device Voltage Variation vs. Temperature at 16 mA		-5.6		mV/°C
Device Voltage Variation vs. Current at 25°C		8.4		mV/mA
Thermal Resistance, junction-to-case <sup>1</sup>		155		°C/W

\*Guaranteed specification DC-2 GHz. Low frequency cut off determined by external coupling capacitors.

## Absolute Maximum Ratings

Parameter	Ratings
Operating Temperature	-54°C to 100°C
Storage Temperature	-65°C to 150°C
Operating Current	50mA
Power Dissipation	200mW
Input Power	13dBm

Note: Permanent damage may occur if any of these limits are exceeded.

These ratings are not intended for continuous normal operation.

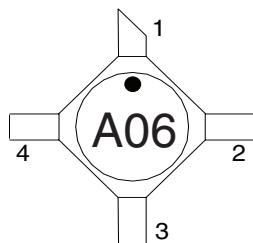
<sup>1</sup>Case is defined as ground leads.

<sup>2</sup>Full temperature range.

<sup>3</sup>RAM-6+ conditionally stable, source and load VSWR<5:1 required.

Potentially unstable with very high VSWR terminations.

## Product Marking



Markings in addition to model number designation may appear for internal quality control purposes.

## Additional Detailed Technical Information

Additional information is available on our web site. To access this information enter the model number on our web site home page.

## Performance data, graphs, s-parameter data set (.zip file)

## Case Style: AF190-1

Ceramic surface-mount, .083 body diameter, lead finish: tin plate

## Tape &amp; Reel: F14

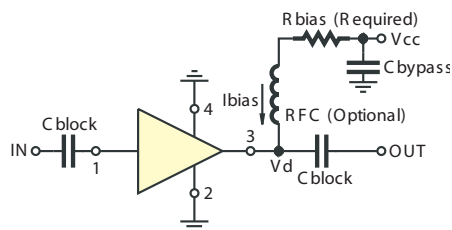
7" inch reels with 20, 50, 100, 200, 500, 1000 devices.

## Suggested Layout for PCB Design: PL-254

## Evaluation Board: TB-414-6+

## Environmental Ratings: ENV08T6

## Recommended Application Circuit



Test Board includes case, connectors, and components (in bold) soldered to PCB

R BIAS	
Vcc	"1%" Res. Values (ohms) for Optimum Biasing
6	154
7	215
8	280
9	340
10	402
11	464
12	536
13	590
14	665

### ESD Rating

Human Body Model (HBM): Class 0 (<250v) in accordance with ANSI/ESD STM 5.1 - 2001

Charged Device Model (CDM): Class III (500 to 1000v) in accordance with JESD 22-C 101C



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