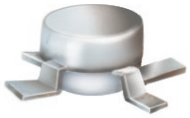
Surface Mount

Monolithic Amplifier DC-1 GHz

Product Features

- Wideband, DC to 1 GHz
- Cascadable ceramic package
- Low noise figure, 6.5 dB typ.
- Excellent repeatability
- Aqueous washable
- Protected under US Patent 6,943,629



RAM-4+

CASE STYLE: AF190
PRICE: $4.60 ea. QTY. (30)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

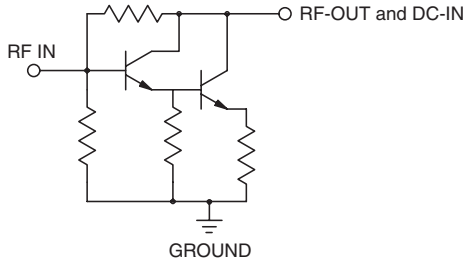
Typical Applications

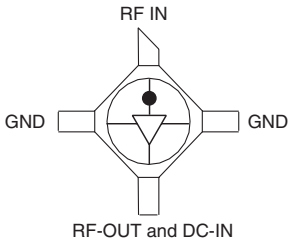
- Cellular
- UHF/VHF
- Communication system
- Transmition receivers

General Description

RAM-4+ (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-4+ uses Darlington configuration and is fabricated using InGaP HBT technology. Expected MTBF is 300 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.

Electrical Specifications at 25°C and 50mA, unless noted

Parameter		Min.	Typ.	Max.	Units
Frequency Range*		DC		1	GHz
Gain	f=0.1 GHz f=1 GHz	 7.0[2]	8.5 8.0		dB
Input Return Loss	f=DC to 1 GHz		15.5		dB
Output Return Loss	f=DC to 1 GHz		10		dB
Output Power @ 1 dB compression	f=1 GHz		+12.5		dBm
Output IP3	f=1 GHz		+25.5		dBm
Noise Figure	f=1 GHz		6.5		dB
Recommended Device Operating Current			50		mA
Device Operating Voltage			5.25		V
Device Voltage Variation vs. Temperature at 50 mA			-2.2		mV/°C
Device Voltage Variation vs. Current at 25°C			23.0		mV/mA
Thermal Resistance, junction-to-case[1]			140		°C/W

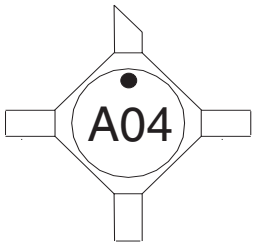
*Guaranteed specification DC-1 GHz. Low frequency cut off determined by external coupling capacitors.

Absolute Maximum Ratings

Parameter	Ratings
Operating Temperature	-54°C to 100°C
Storage Temperature	-65°C to 150°C
Operating Current	100mA
Power Dissipation	540mW
Input Power	13dBm

Note: Permanent damage may occur if any of these limits are exceeded.
These ratings are not intended for continuous normal operation.
[1]Case is defined as ground leads.
[2]Full temperature range.

Product Marking



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

Ceramic surface-mount, .083 body diameter, lead finish: tin/silver/nickel

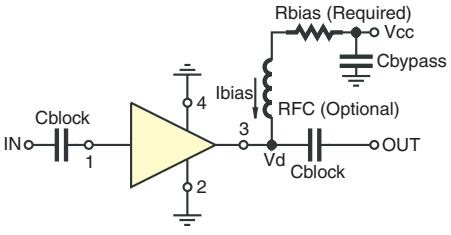
Tape & Reel: F14

Suggested Layout for PCB Design: PL-254

Evaluation Board: TB-414-4+

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**
7	34.8
8	54.9
9	75
10	95.3
11	115
12	133
13	154
14	174
15	196

ESD Rating

Human Body Model (HBM): Class 1B (500 v to < 1000 v) in accordance with ANSI/ESD STM 5.1 - 2001

Machine Model (MM): Class M1 (<100 v) in accordance with ANSI/ESD STM 5.2 - 1999