Surface Mount

Monolithic Amplifier DC-1 GHz

Product Features

- Exact footprint compatible for RAM-8+
  Benefits: • lower device voltage, 3.7V typ.
  • lower power dissipation in the MMIC
  • may eliminate need for RFC
- Wideband, DC to 1 GHz
- Cascadable ceramic package
- Internally Matched to 50 Ohms
- Low noise figure, 2.6 dB typ.
- Excellent repeatability

Replacement for RAM-8+ & MSA-0836[a,b,c,d]
AN-60-061

Generic photo used for illustration purposes only

RAM-8A+

CASE STYLE: AF190

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

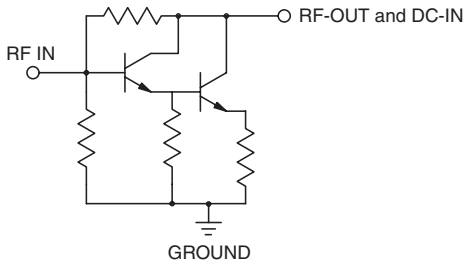
Typical Applications

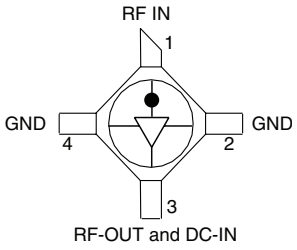
- Cellular
- UHF/VHF
- Communication system
- Transmition receivers

General Description

RAM-8A+ (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-8A+ uses Darlington configuration and is fabricated using InGap HBT technology.

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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Electrical Specifications at 25°C and 36mA, unless noted

Parameter		Min.	Typ.	Max.	Units
Frequency Range*		DC		1	GHz
Gain	f=0.1 GHz f=1 GHz	— 22[2]	31.5 24.4		dB
Input Return Loss	f=0.1 to 1 GHz		13		dB
Output Return Loss	f=0.1 to 1 GHz		11		dB
Output Power @ 1 dB compression	f=1 GHz		12.6		dBm
Output IP3	f=1 GHz		+24.4		dBm
Noise Figure	f=1 GHz		2.6		dB
Recommended Device Operating Current			36		mA
Device Operating Voltage			3.7		V
Thermal Resistance, junction-to-case[1]			145		°C/W

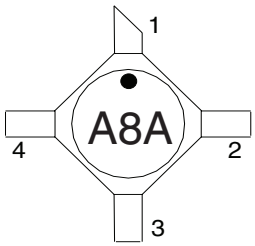
*Guaranteed specification DC-1 GHz. Low frequency cut off determined by external coupling capacitors.

Absolute Maximum Ratings

Parameter	Ratings
Operating Temperature	-54°C to 100°C
Storage Temperature	-65°C to 150°C
Operating Current	65mA
Power Dissipation	310mW
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



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
Ceramic surface-mount, .083 body diameter

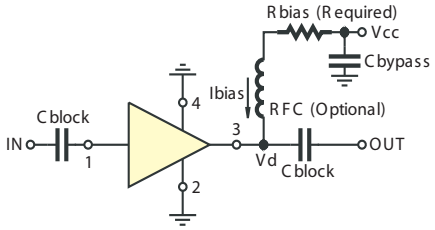
Tape & Reel: F14
7" inch reels with 20, 50, 100, 200, 500, 1000 devices.

Suggested Layout for PCB Design: PL-254

Evaluation Board: TB-414-8A+

Environmental Ratings: ENV08T6

Recommended Application Circuit



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

R BIAS[1]	
Vcc	**Bias Resistor Value[2]**
7	88.7
8	118
9	143
10	174
11	200
12	226
13	255
14	280
15	309

[1] When being used as a substitute for MAR-8SM or MSA-0866, the bias resistor values must be changed to the values in this table.
[2] 1% Resistor values (ohms) for optimum bias.

ESD Rating

Human Body Model (HBM): Class 2 (2000 to <4000V) in accordance with ANSI/ESD STM 5.1 - 2001
Machine Model (MM): Class M1 (<500V) in accordance with ANSI/ESD STM 5.2-1999

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