Surface Mount

Monolithic Amplifier DC-3 GHz

Product Features

- Wideband, DC to 3 GHz
- Cascadable
- Internally Matched to 50 Ohms
- Aqueous washable
- Protected under US Patent 6,943,629

VAM-93+

CASE STYLE: MMM168
PRICE: Contact Sales Dept.

+ 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.

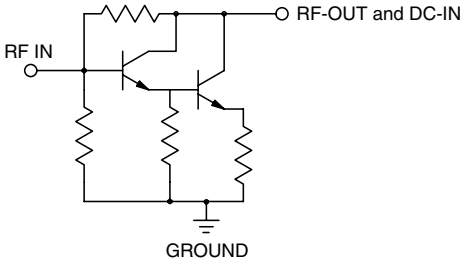
Typical Applications

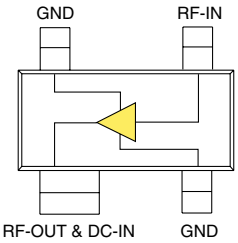
- Cellular
- PCN
- Instrumentation
- UHF/VHF

General Description

VAM-93+ (RoHS compliant) is a wideband amplifier offering high dynamic range. It has repeatable performance from lot to lot. It is enclosed in an SOT143 style package. It 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.

Electrical Specifications at 25°C and 35mA, unless noted

Parameter	Condition (GHz)	Min.	Typ.	Max.	Units
Frequency Range*		DC		3	GHz
Gain	0.1 1 2 3	 17 	22.3 21.2 19.1 17.1		dB
Input Return Loss	DC to 2 2 to 3		14 8.1		dB
Output Return Loss	DC to 3		18		dB
Output Power @ 1 dB compression	2	10.0	12.7		dBm
Output IP3	2		+27		dBm
Noise Figure	2		3.7		dB
Recommended Device Operating Current			35		mA
Device Operating Voltage		3.0	3.2	4.1	V
Device Voltage Variation vs. Temperature at 35 mA			-2.3		mV/°C
Device Voltage Variation vs. Current at 25°C			3.6		mV/mA
Thermal Resistance, junction-to-case[1]			159		°C/W

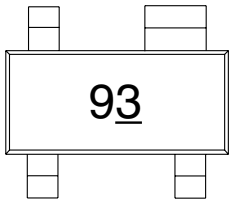
Low frequency cut off determined by external coupling capacitors.

Absolute Maximum Ratings

Parameter	Ratings
Operating Temperature*	-45°C to 85°C
Storage Temperature	-65°C to 150°C
Operating Current	75mA
Power Dissipation	330mW
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.
*Based on typical case temperature rise 5°C above ambient.

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)

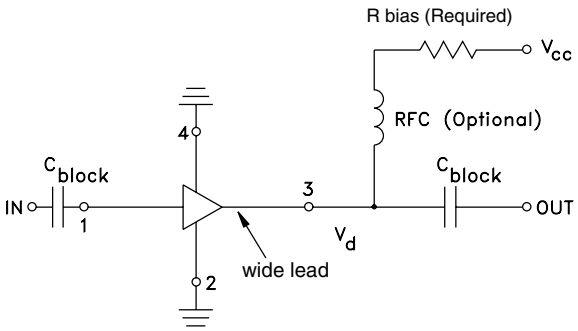
Case Style: MMM168

VAM-93+: Plastic molded SOT143 style package, lead finish: tin/silver/nickel

Tape & Reel: F59

Suggested Layout for PCB Design: PL-251

Recommended Application Circuit



R bias	
Vcc (V)	"1%" Res. Values (ohms) for Optimum Biasing
7	107
8	133
9	162
10	191
11	221
12	251
13	280
14	309
15	340
16	365
17	392
18	422
19	453
20	475

ESD Rating

Human Body Model (HBM): Class 1A (250 v to < 500 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

MSL Rating

Moisture Sensitivity: MSL1 in accordance with IPC/JEDECJ-STD-020

MSL Test Flow Chart