

Surface Mount

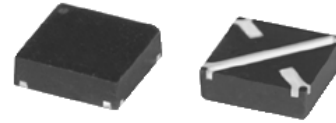
NON-CATALOG

Monolithic Amplifier

0.05-2 GHz

Product Features

- Medium gain
- Output power, 18.5 dBm typ.
- Aqueous washable



MAV-11A+

CASE STYLE: DH820
PRICE: Contact Sales Dept.

+RoHS Compliant

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

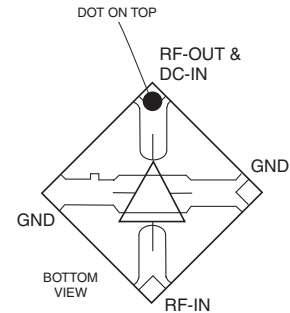
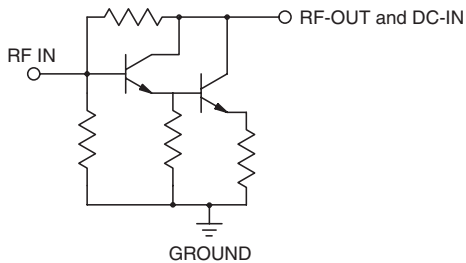
Typical Applications

- Cellular
- Cable
- Defense communications
- UHF TV

General Description

MAV-11A+ (RoHS compliant) is a wideband amplifier offering high dynamic range. It has repeatable performance from lot to lot. It is enclosed in a plastic molded package. MAV-11A+ uses Darlington configuration and is fabricated using silicon technology. Expected MTBF is 300 years at 85°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.

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
 C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



Electrical Specifications at 25°C and 60mA, unless noted

Parameter	Min.	Typ.	Max.	Units
Frequency Range*	0.05		2	GHz
Gain				
	f=0.1 GHz	12.5		dB
	f=1 GHz	11.5		
	f=2 GHz	10.2		
Input Return Loss	f=0.05 to 2 GHz	9.0 ²	15.5	dB
Output Return Loss	f=0.05 to 2 GHz		26.5	dB
Output Power @ 1 dB compression	f=1 GHz		+18.5	dBm
Output IP3	f=1 GHz		+35	dBm
Noise Figure	f=1 GHz		4.8	dB
Recommended Device Operating Current		60		mA
Device Operating Voltage		5.5		V
Thermal Resistance, junction-to-case ¹		130		°C/W

*Guaranteed specification 0.05-2 GHz. Low frequency cut off determined by external coupling capacitors.

Absolute Maximum Ratings

Parameter	Ratings
Operating Temperature*	-25°C to 85°C
Storage Temperature	-65°C to 100°C
Operating Current	80mA
Power Dissipation	550mW
Input Power	13dBm

Note: Permanent damage may occur if any of these limits are exceeded. These ratings are not intended for continuous normal operation.

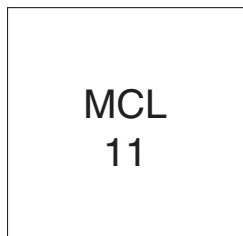
¹Case is defined as ground leads.
²Full operating temperature range

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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: DH820

Plastic molded 5x5 mm package, lead finish: tin/silver/nickel

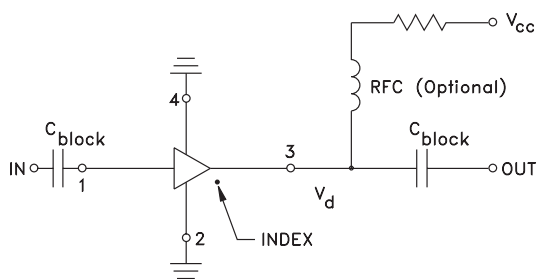
Tape & Reel: F59

Suggested Layout for PCB Design: PL-169

Evaluation Board: TB-412-11A+

Environmental Ratings: ENV08T7

Recommended Application Circuit



R BIAS	
Vcc	"1%" Res. Values (ohms) for Optimum Biasing
7	28.0
8	45.3
9	61.9
10	78.7
11	95.3
12	113
13	127
14	143
15	158

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ESD Rating

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

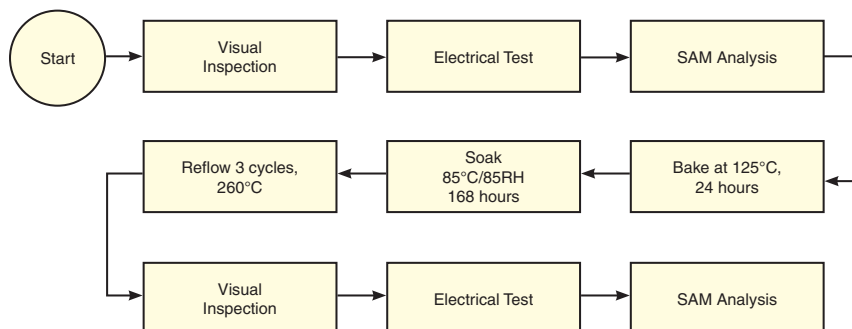
Machine Model (MM): Class M1 (< 100 v) in accordance with ANSI/ESD STM 5.2 - 1999

MSL Rating

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

No.	Test Required	Condition	Standard	Quantity
1	Visual Inspection	Low Power Microscope Magnification 40x	MIP-IN-0003 (MCT spec)	92 units
2	Electrical Test	Room Temperature	SCD (MCL spec)	92 units
3	SAM Analysis	Less than 10% growth in term of delamination	J-Std-020C (Jedec Standard)	92 units
4	Moisture Sensitivity Level 1	Bake at 125°C for 24 hours Soak at 85°C/85%RH for 168 hours Reflow 3 cycles at 250°C peak	J-Std-020C (Jedec Standard)	92 units

MSL Test Flow Chart



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