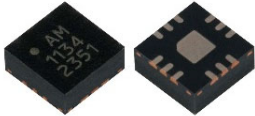


AM1134 – Amplifier

6 to 26.5 GHz Gain Block

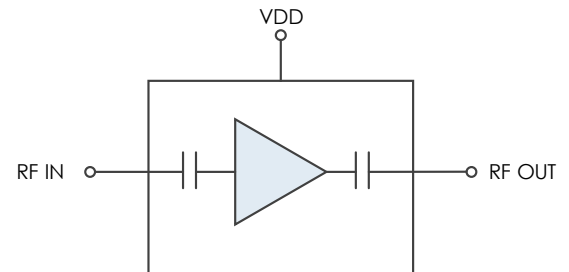


The **AM1134 is a wideband, cascadable amplifier servicing the 6 to 26.5 GHz frequency range.** The device exhibits moderate gain and excellent noise figure over a wide frequency range which makes the AM1134 a useful component for many broadband applications. Packaged in a 3mm QFN with internal 50Ω matching, the AM1134 represents a compact total PCB footprint.

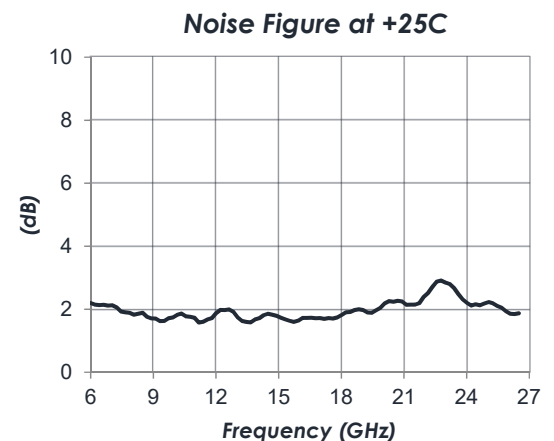
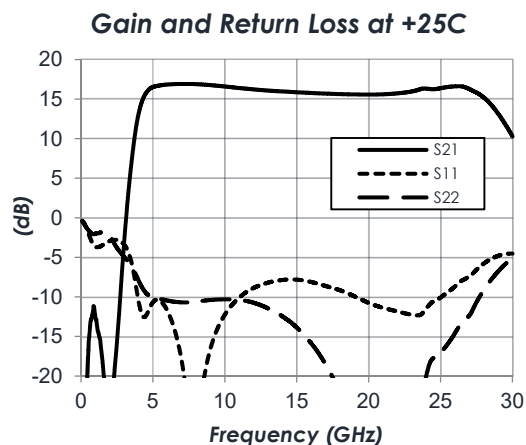
FEATURES

- 16 dB Gain
- 2 dB Noise Figure
- +25 dBm OIP3
- +15 dB P1dB
- +3.3V Operation
- 0.4 W Power Consumption
- 3mm QFN Package
- -40C to +85C Operation
- Unconditionally Stable

FUNCTIONAL DIAGRAM



CHARACTERISTIC PERFORMANCE





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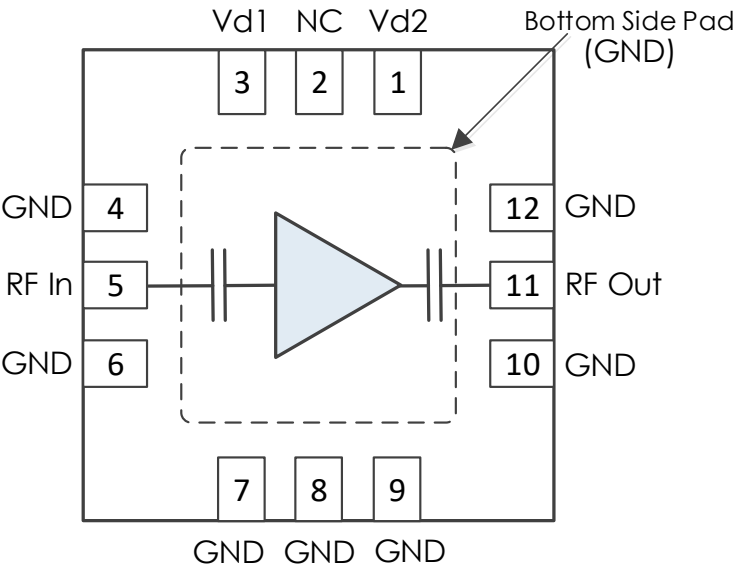
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REVISION HISTORY

Date	Revision	Notes
April 13, 2021	1	Initial Release.
June 20, 2024	2	Changed to Mercury branding. No content changes.

PIN LAYOUT AND DEFINITIONS

Note: All Un-Labeled Pins are NC or Ground



Pin	Name	Function
1	Vd2	DC Power Input
2	NC	Not Connected
3	Vd1	DC Power Input
4	GND	Ground - Common
5	RF In	RF Input - 50 Ohms - DC Blocked
6-10	GND	Ground - Common
11	RF Out	RF Output - 50 Ohms - DC Blocked
12	GND	Ground - Common

Note: NC pins may be grounded or left open.

SPECIFICATIONS

Absolute Maximum Ratings

	Minimum	Maximum
Supply Voltage	-0.3 V	+3.5 V
RF Input Power		+20 dBm
Operating Junction Temperature	-40 C	+175 C
Storage Temperature Range	-55 C	+150 C

Note: Any device operation beyond the Absolute Maximum Ratings may result in permanent damage to the device. The values listed in this table are extremes and do not imply functional operation of the device at these or any other conditions beyond what is listed under Recommended Operating Conditions. Any part subjected to conditions outside of what is recommended for an extended amount of time may suffer from reliability concerns.

Handling Information

	Minimum	Maximum
Moisture Sensitivity Level	MSL 3	



Mercury products are electrostatic sensitive.
Follow safe handling practices to avoid damage.

Recommended Operating Conditions

	Minimum	Typical	Maximum
Supply Voltage	+3.0 V	+3.3 V	
Operating Case Temperature	-40 C		+85 C

Thermal Information

	Thermal Resistance (°C / W)
Junction to Case Thermal Resistance (θ_{JC})	172 C/W
Nominal Junction Temperature at +85C Ambient	+156 C
Channel Temperature to Maintain 1 Million Hour MTTF	+175 C

DC Electrical Characteristics

(T = 25 °C unless otherwise specified)

Param	Testing Conditions	Min	Typical	Max
DC Supply Voltage	VD1 = VD2		+3.3 V	
DC Supply Current	VD1 = VD2 = +3.3V		126 mA	
Power Dissipated	VD1 = VD2 = +3.3V		0.4 W	

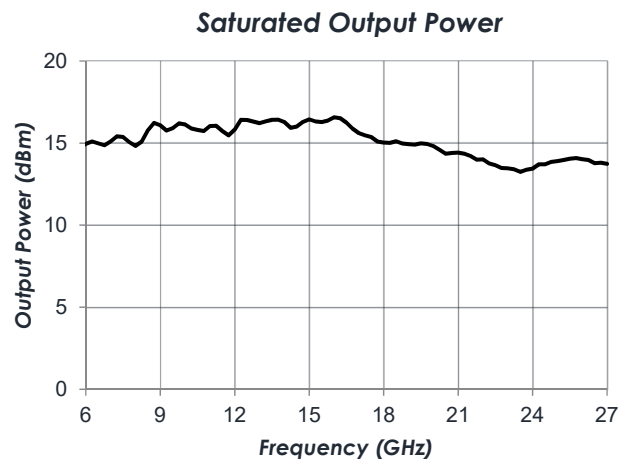
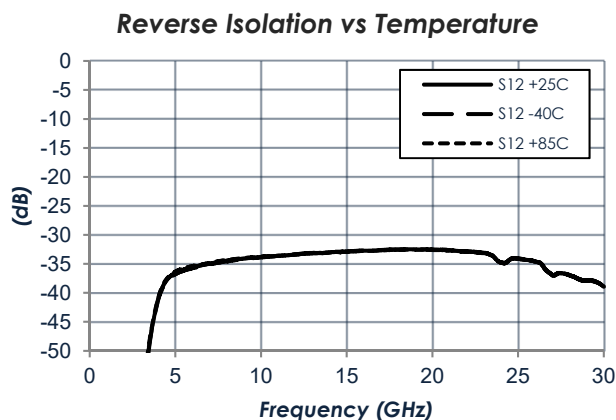
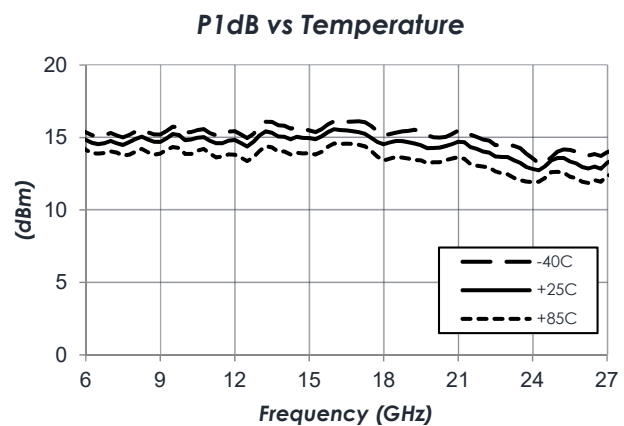
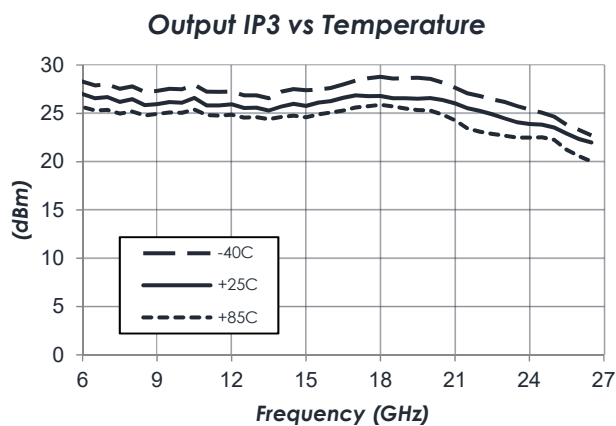
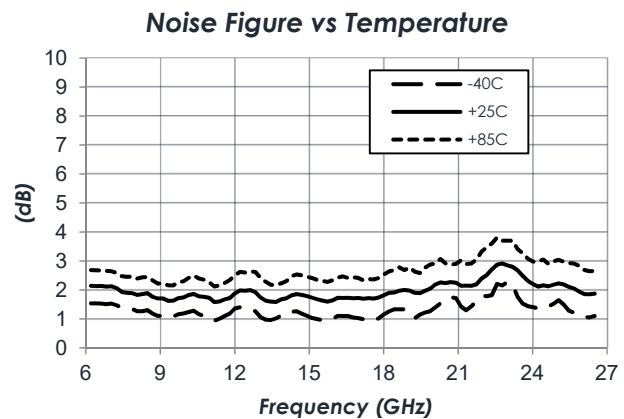
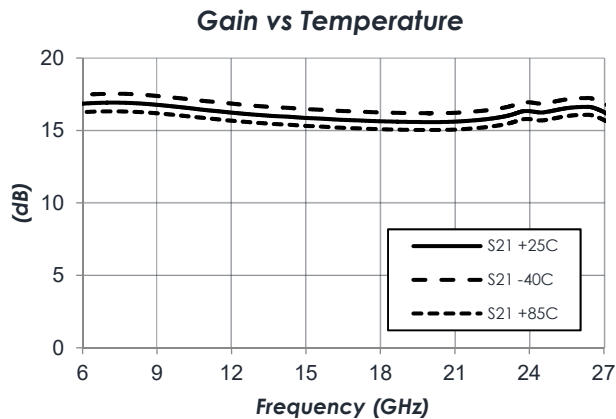
RF Performance

(T = 25 °C unless otherwise specified)

Param	Testing Conditions	Min	Typical	Max
Frequency Range		6 GHz		26.5 GHz
Gain	f = 6 GHz		16 dB	
	f = 15 GHz		15 dB	
	f = 26.5 GHz		16 dB	
Return Loss	f = 6 GHz		10 dB	
	f = 15 GHz		8 dB	
	f = 26.5 GHz		8 dB	
Output IP3	f = 15 GHz		25 dBm	
Output P1dB	f = 15 GHz		15 dBm	
Noise Figure	f = 15 GHz		2 dB	

TYPICAL PERFORMANCE

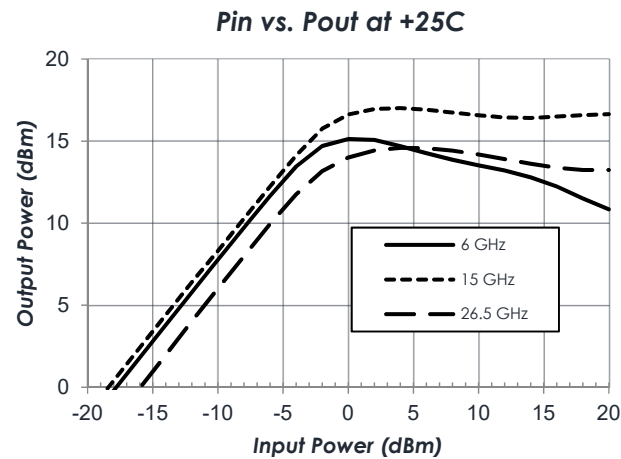
(VD1 = VD2 = +3.3V, T = 25°C unless otherwise specified)



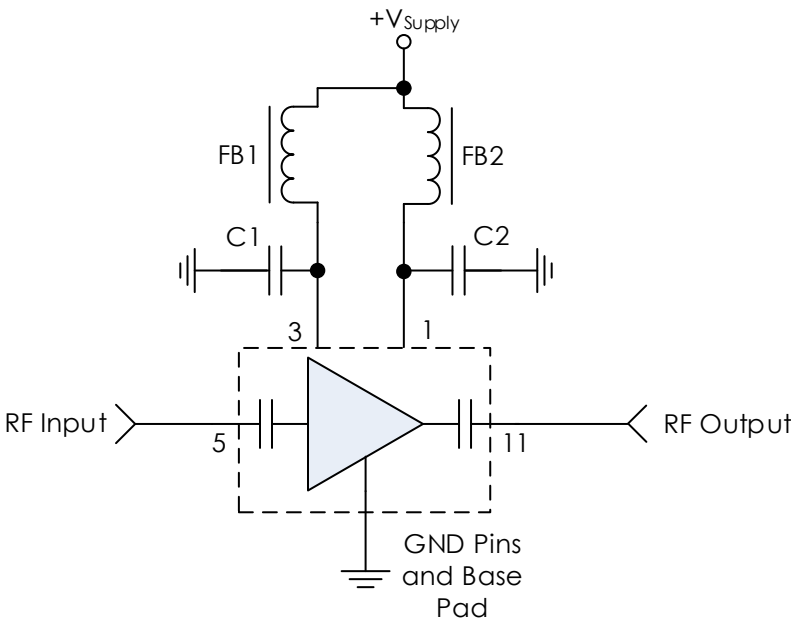
OIP3 Test Conditions: Two -15dBm tones at input with 10 MHz spacing.

TYPICAL PERFORMANCE (CONTINUED)

(VD1 = VD2 = +3.3V, T = 25°C unless otherwise specified)



TYPICAL APPLICATION



Note: NC pins may be grounded or left open.

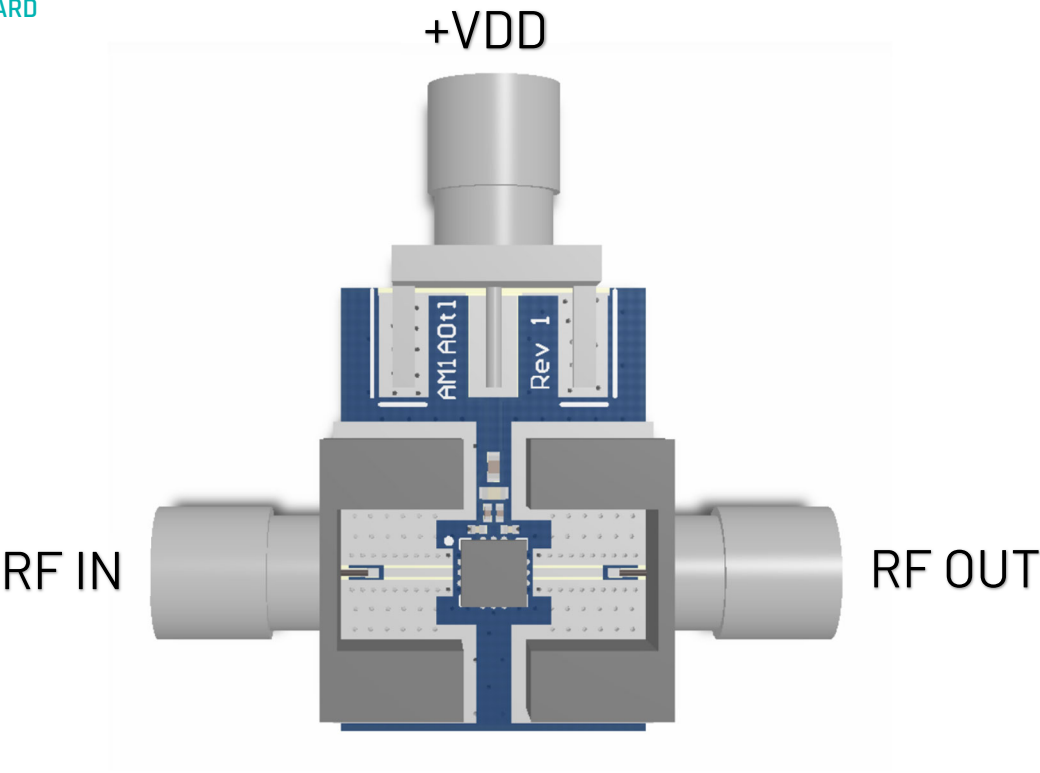
Recommended Component List (or Equivalent)

Part	Value	Part Number	Manufacturer
C1, C2	0.1 μ F	GRM155R71C104KA88	Murata
FB1, FB2		MMZ1005A222E	TDK

Notes:

1. RF F Input and Output pins are internally DC blocked.

EVALUATION PC BOARD



Note: Not all components shown may be installed.

RELATED PARTS

Part Number		Description
AM1053	5 GHz to 20 GHz	Gain Block
AM1067	5 GHz to 20 GHz	Bypassable Gain Block
AM1070	DC to 18 GHz	Broadband Gain Block
AM1071	DC to 18 GHz	Broadband Gain Block
AM1077	5 GHz to 20 GHz	Bypassable Gain Block w/ Isolation State
AM1100	2 GHz to 26.5 GHz	Low Noise Amplifier
AM1101	2 GHz to 26.5 GHz	Bypassable Amplifier
AM1102	DC to 22 GHz	Low Noise Amplifier

COMPONENT COMPLIANCE INFORMATION

RoHS: Mercury Systems, Inc. hereby certifies that all products comply with the EC Directive 2011/65/EC on the Restriction of Hazardous Substances, commonly known as EU-RoHS 6 and 10. All products supplied by Mercury shall be compliant with the European Directive 2011/65/EC based on the following substance list.

Substance List	Allowable Maximum Concentration
Lead (Pb)	<1000 PPM (0.1% by weight)
Mercury (Hg)	<1000 PPM (0.1% by weight)
Cadmium (Cd)	<75 PPM (0.0075% by weight)
Hexavalent Chromium (CrVI)	<1000 PPM (0.1% by weight)
Polybrominated Biphenyls (PBB)	<1000 PPM (0.1% by weight)
Polybrominated Diphenyl ethers (PBDE)	<1000 PPM (0.1% by weight)
Decabromodiphenyl Deca BDE	<1000 PPM (0.1% by weight)
Bis (2-ethylhexyl) Phthalate (DEHP)	<1000 PPM (0.1% by weight)
Butyl Benzyl Phthalate (BBP)	<1000 PPM (0.1% by weight)
Dibutyl Phthalate (DBP)	<1000 PPM (0.1% by weight)
Diisobutyl Phthalate (DIBP)	<1000 PPM (0.1% by weight)

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Mercury takes its responsibility as a global partner seriously and will use due diligence within our supply chain to ensure all standards are met to the best of our knowledge.



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