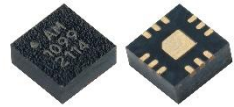


# AM1099 – Amplifier

## 26 GHz to 32 GHz Gain Block

### Description

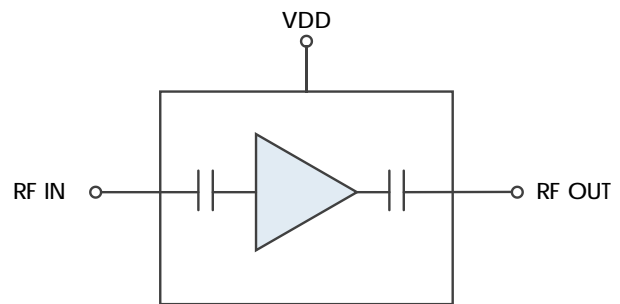
AM1099 is a high frequency, cascadable amplifier servicing the 26 to 32 GHz frequency range. The device exhibits moderate gain and noise figure which makes the AM1099 a useful component for applications such as 5G wireless and Ka-band satcom. Packaged in a 3mm QFN with internal 50Ω matching, the AM1099 represents a compact total PCB footprint.



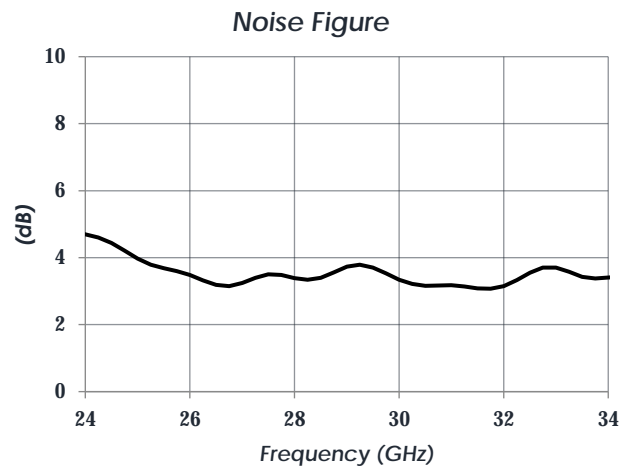
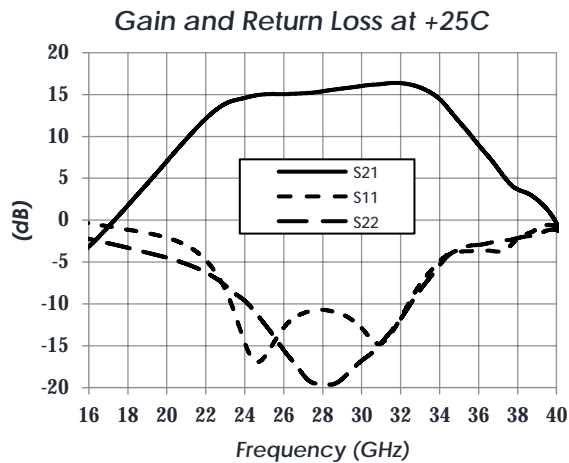
### Features

- 15 dB Gain
- 3.5 dB Noise Figure
- +25 dBm OIP3
- +14 dBm P1dB
- +3.3V Operation
- 205 mW Power Consumption
- 3mm QFN
- -40C to +85C Operation

### Functional Diagram



### Characteristic Performance



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## Revision History

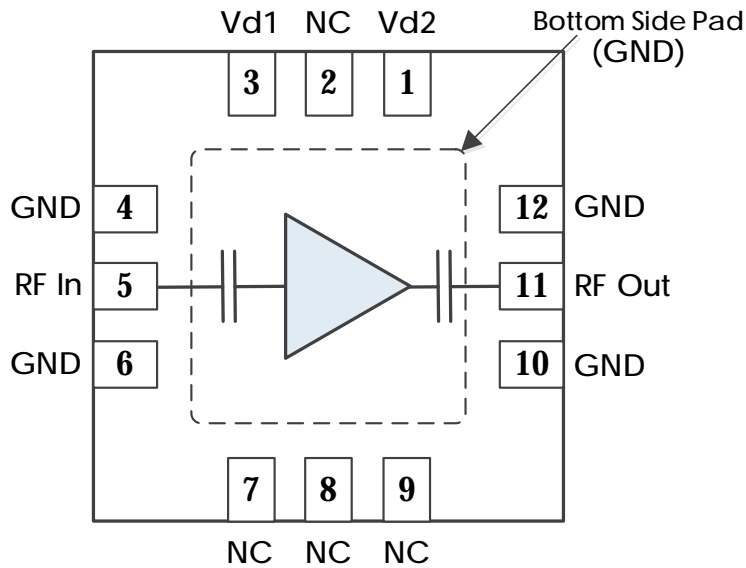
Date	Revision Number	Notes
July 30, 2021	1	Initial Datasheet Release

# AM1099 – Amplifier

26 GHz to 32 GHz Gain Block

## Pin Layout and Definitions

Note: All Un-Labeled Pins are NC or Ground



Pin Number	Pin Name	Pin Function
1	Vd2	DC Power Input 2
2	NC	Not Connected
3	Vd1	DC Power Input 1
4	GND	Ground - Common
5	RF In	RF Input - 50 Ohms - DC Blocked
6	GND	Ground - Common
7-9	NC	Not Connected
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

# AM1099 – Amplifier

26 GHz to 32 GHz Gain Block

## Specifications

### Absolute Maximum Ratings

	Minimum	Maximum
Supply Voltage	-0.3 V	+3.5 V
RF Input Power		+10 dBm
Operating Junction Temperature	-40 C	+150 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
Storage Temperature Range (Recommended)	-50 C	+125 C
Moisture Sensitivity Level	MSL 3	



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

### Recommended Operating Conditions

	Minimum	Typical	Maximum
Supply Voltage (VDD)	+3.0 V	+3.3 V	
Operating Case Temperature	-40 C		+85 C
Operating Junction Temperature	-40 C		+125 C

## AM1099 – Amplifier

### 26 GHz to 32 GHz Gain Block

#### DC Electrical Characteristics

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

Parameter	Testing Conditions	Minimum	Typical	Maximum
DC Supply Voltage			+3.3 V	
DC Supply Current			60 mA	
Power Dissipated			198 mW	

#### RF Performance

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

Parameter	Testing Conditions	Minimum	Typical	Maximum
Frequency Range		26 GHz		32 GHz
Gain	f = 26 GHz		15.1 dB	
	f = 29 GHz		15.7 dB	
	f = 32 GHz		16.4 dB	
Return Loss	f = 26 GHz		12.9 dB	
	f = 29 GHz		11.2 dB	
	f = 32 GHz		11.7 dB	
Output IP3	f = 29GHz		25 dBm	
Output P1dB	f = 29 GHz		14 dBm	
Noise Figure	f = 29 GHz		3.7 dB	

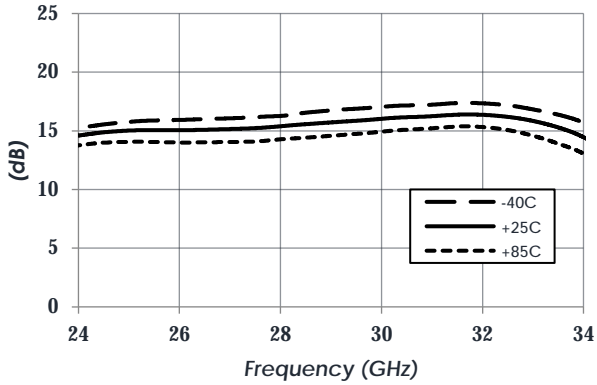
# AM1099 – Amplifier

## 26 GHz to 32 GHz Gain Block

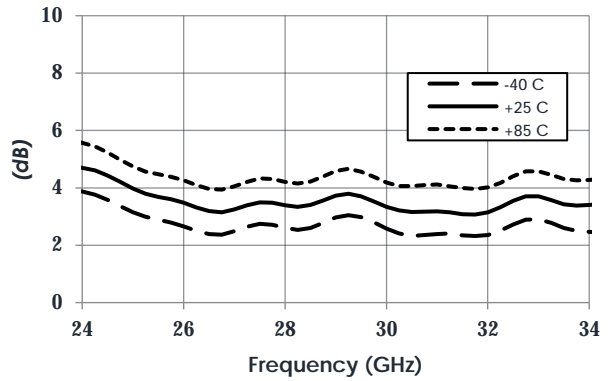
### Typical Performance

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

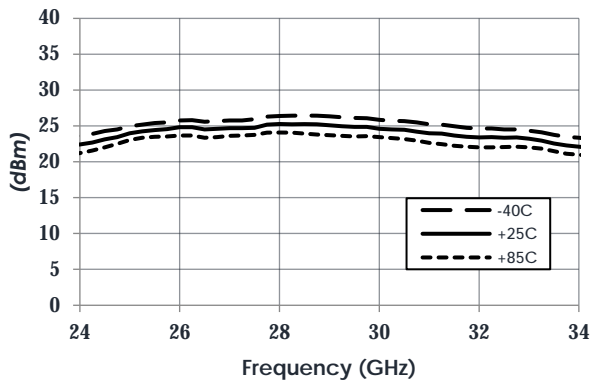
Gain vs Temperature



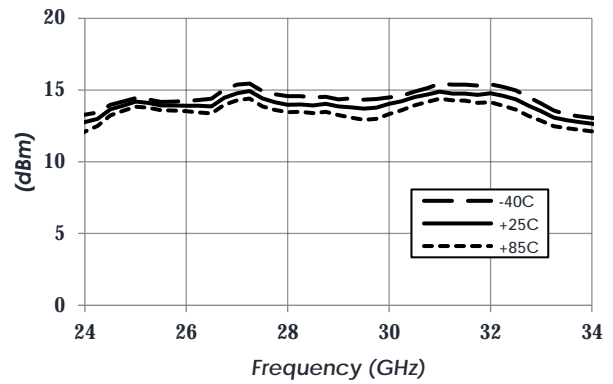
Noise Figure vs Temperature



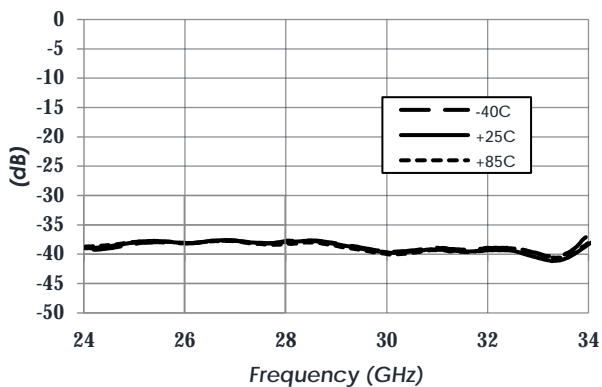
Output IP3 vs Temperature



P1dB vs Temperature



Reverse Isolation vs Temperature

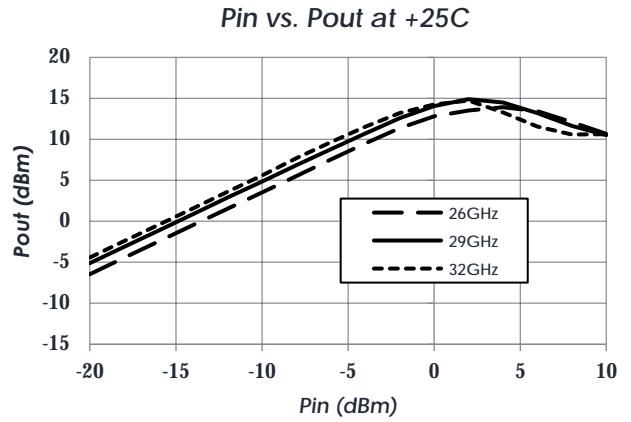
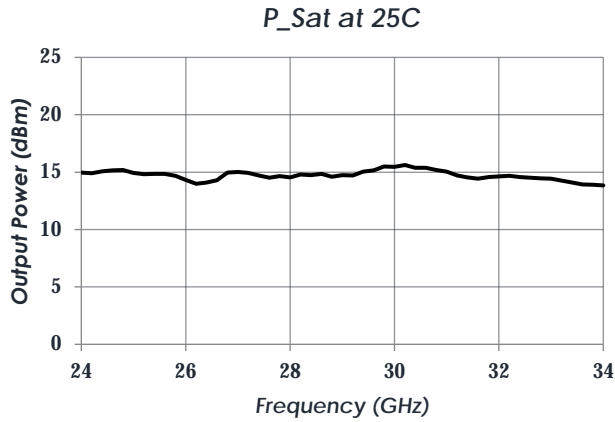


# AM1099 – Amplifier

## 26 GHz to 32 GHz Gain Block

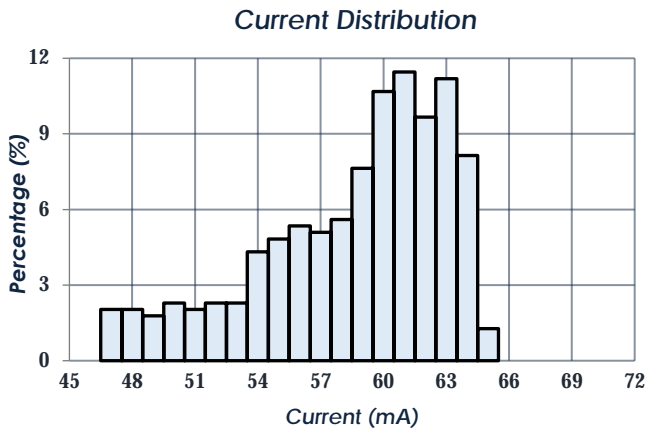
### Typical Performance (continued)

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

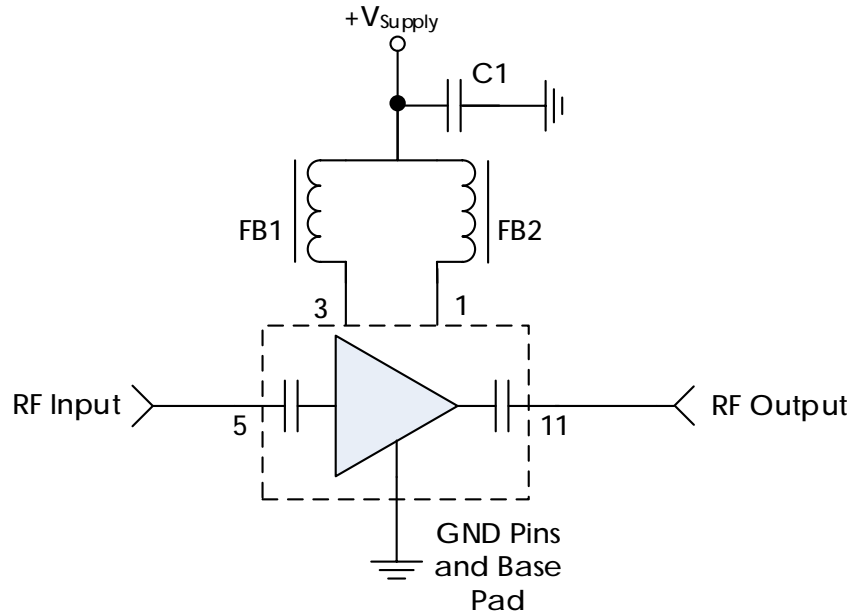


### Typical Device Characteristics

(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	0.1 uF	GRM155R71C104KA88	Murata
FB1, FB2	-	MMZ1005A222E	TDK

**Notes:**

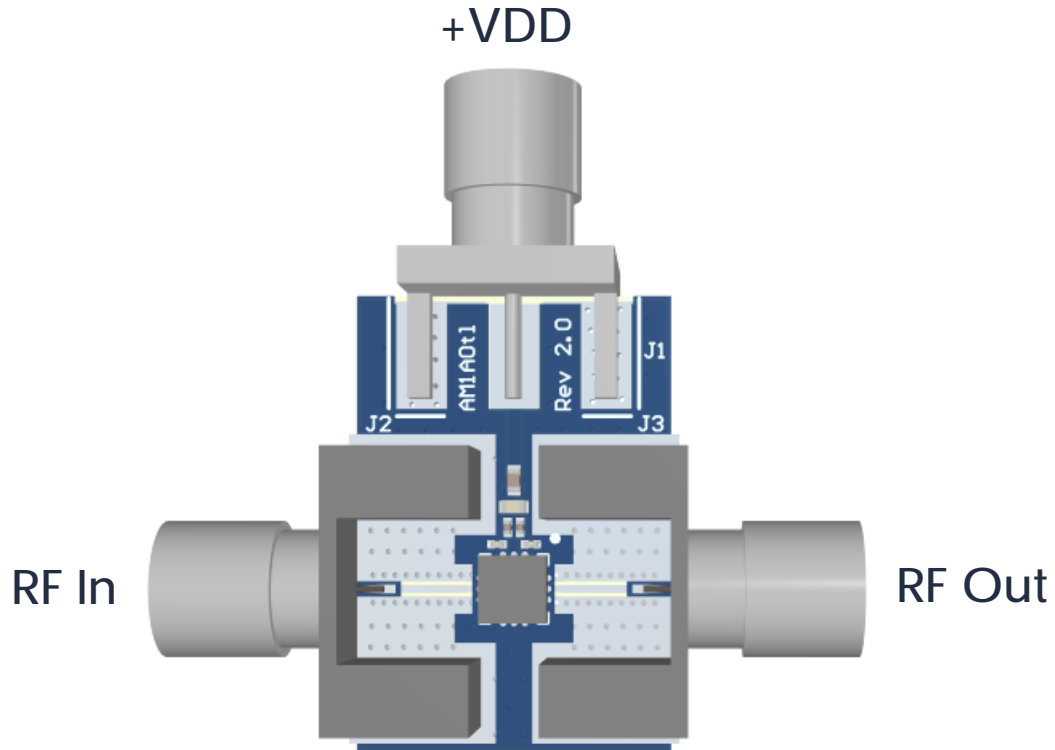
1. RF Input and Output pins are internally DC blocked



# AM1099 – Amplifier

26 GHz to 32 GHz Gain Block

## Evaluation PC Board



Note: Not all components shown may be installed.

## Related Parts

Part Number	Description
AM1053	5 GHz to 20 GHz Driver Amplifier
AM1071	DC to 18 GHz Broadband Gain Block
AM1082	5 GHz to 17 GHz Driver Amplifier

# AM1099 – Amplifier

## 26 GHz to 32 GHz Gain Block

### Component Compliance Information

**RoHS:** Atlanta Micro, 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 Atlanta Micro 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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Atlanta Micro 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.