

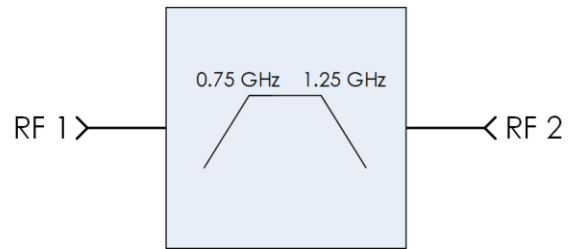
### Description

AM3232 is a passive bandpass filter implemented on chip that provides low loss and high rejection in a small 3 mm package. With a center frequency of 1.0 GHz, 1.1 GHz, or 1.2 GHz and a bandwidth of 500 MHz, AM3232 is useful as an IF filter in any RF system for image, LO, and spur rejection. AM3232 is AC coupled and matched to 50 ohms and operates over the -40C to +100C temperature range.

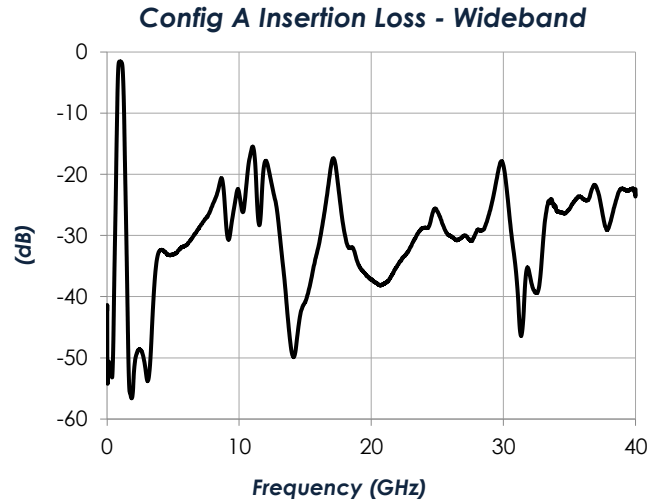
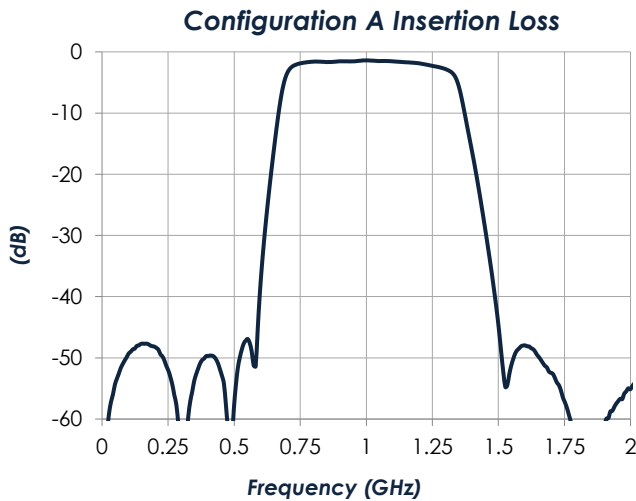
### Features

- 1 GHz Center Frequency
- 500 MHz Bandwidth
- -1.4 dB Loss at 1 GHz typ.
- 45 dBc Rejection in Stopband typ.
- 0.9 dB Passband Flatness typ.
- 1.0 W Power Handling
- 3 mm QFN Package
- -40C to +100C Operation

### Functional Diagram



### Characteristic Performance



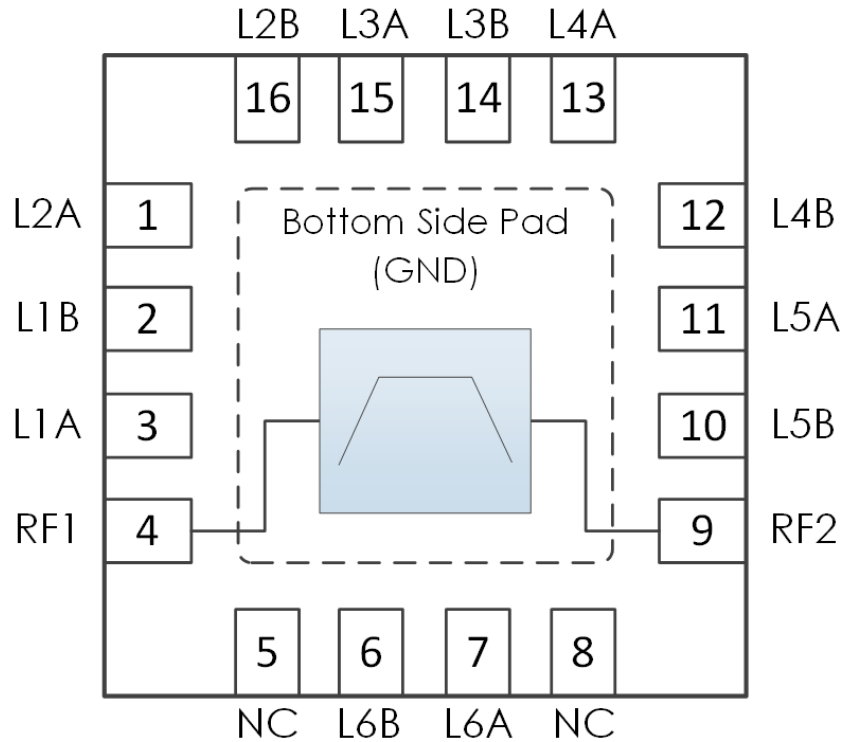
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**Revision History**

<b>Date</b>	<b>Revision Number</b>	<b>Notes</b>
January 3, 2024	1	Initial release
January 10, 2024	1.1	Added Wideband Insertion Loss Plot

**Pin Layout and Definitions**



Pin Number	Pin Name	Pin Function
1	L2A	External inductor L2 connection
2	L1B	External inductor L1 connection
3	L1A	External inductor L1 connection
4	RF1	RF Port 1 – 50 ohms, AC coupled
5	NC	Not Connected
6	L6B	External inductor L6 connection
7	L6A	External inductor L6 connection
8	NC	Not Connected
9	RF2	RF Port 2 – 50 ohms, AC coupled
10	L5B	External inductor L5 connection
11	L5A	External inductor L5 connection
12	L4B	External inductor L4 connection
13	L4A	External inductor L4 connection
14	L3B	External inductor L3 connection
15	L3A	External inductor L3 connection
16	L2B	External inductor L2 connection

**Notes:**

\* NC pins may be left open or connected to ground

### Specifications

#### Absolute Maximum Ratings

	Minimum	Maximum
RF Input Power		+27 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 1	



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

#### Recommended Operating Conditions

	Minimum	Typical	Maximum
Operating Case Temperature	-40 C		+100 C

#### RF Performance – Configuration A: 1.0 GHz Center

(T = 25 °C unless otherwise specified)

Parameter	Testing Conditions	Minimum	Typical	Maximum
Passband Range		0.75 GHz		1.25 GHz
Bandwidth			500 MHz	
Passband Flatness			0.9 dB	
Stopband Rejection	f < 550 MHz		45 dB	
	1.6 GHz < f < 3.4 GHz		45 dB	
	f > 3.4 GHz		30 dB	
Insertion Loss	f = 0.75 GHz		1.9 dB	
	f = 1.0 GHz		1.4 dB	
	f = 1.25 GHz		2.3 dB	
Return Loss	f = 0.75 GHz		21 dB	
	f = 1.0 GHz		16 dB	
	f = 1.25 GHz		13 dB	

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## 1 GHz Bandpass Filter

### RF Performance – Configuration B: 1.1 GHz Center

(T = 25 °C unless otherwise specified)

Parameter	Testing Conditions	Minimum	Typical	Maximum
Passband Range		0.85 GHz		1.35 GHz
Bandwidth			500 MHz	
Passband Flatness			1.1 dB	
Stopband Rejection	f < 600 MHz		42 dB	
	1.6 GHz < f < 3.4 GHz		44 dB	
	f > 3.4 GHz		31 dB	
Insertion Loss	f = 0.85 GHz		1.8 dB	
	f = 1.1 GHz		1.6 dB	
	f = 1.35 GHz		2.6 dB	
Return Loss	f = 0.85 GHz		17 dB	
	f = 1.1 GHz		15 dB	
	f = 1.35 GHz		12 dB	

### RF Performance – Configuration C: 1.2 GHz Center

(T = 25 °C unless otherwise specified)

Parameter	Testing Conditions	Minimum	Typical	Maximum
Passband Range		0.95 GHz		1.45 GHz
Bandwidth			500 MHz	
Passband Flatness			1.4 dB	
Stopband Rejection	f < 700 MHz		36 dB	
	1.8 GHz < f < 3.5 GHz		40 dB	
	f > 3.4 GHz		31 dB	
Insertion Loss	f = 0.95 GHz		2.2 dB	
	f = 1.2 GHz		1.8 dB	
	f = 1.45 GHz		3.2 dB	
Return Loss	f = 0.95 GHz		13 dB	
	f = 1.2 GHz		11 dB	
	f = 1.45 GHz		9.8 dB	

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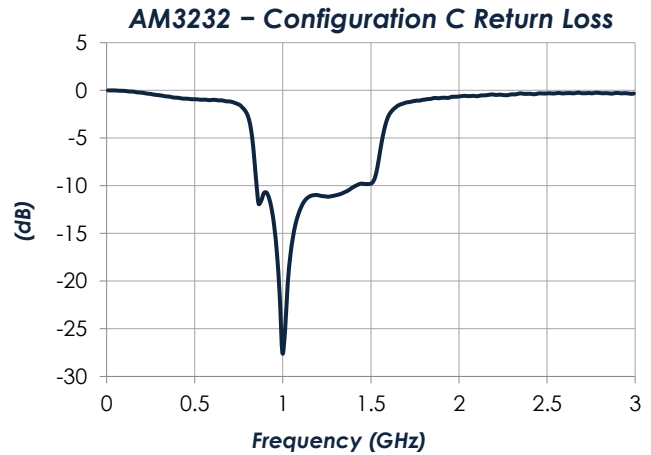
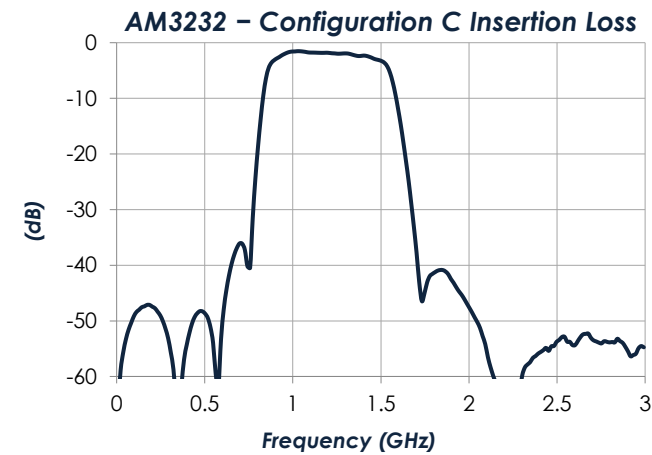
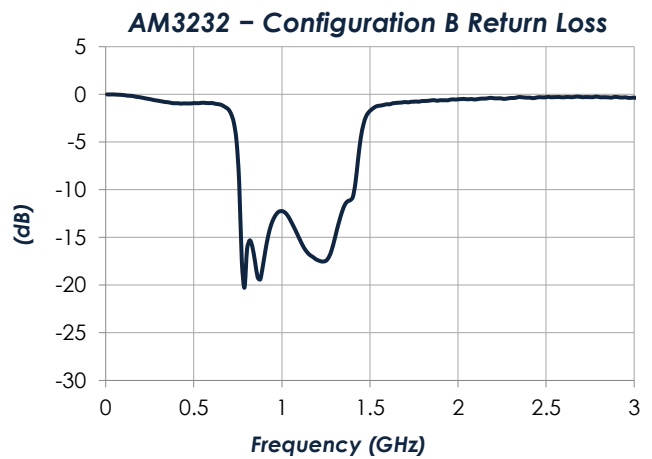
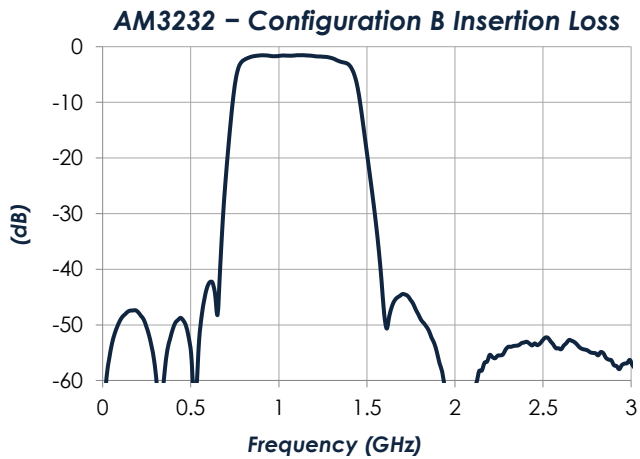
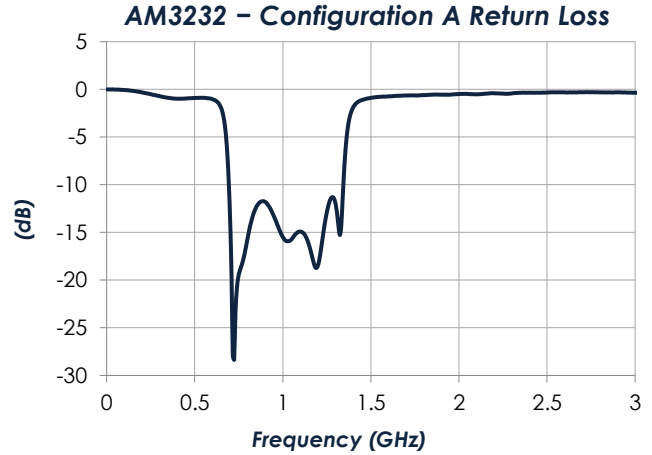
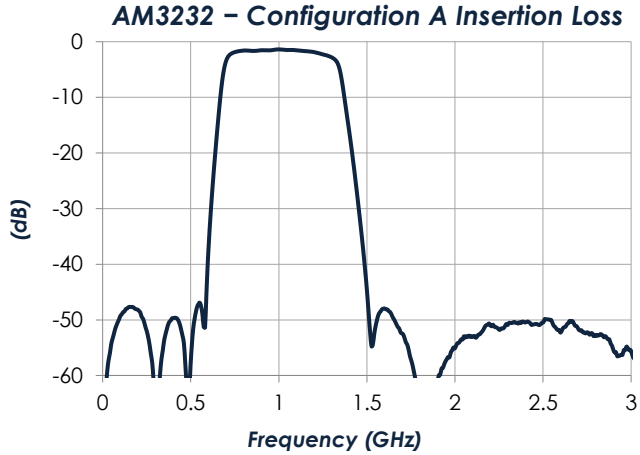
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# AM3232 – Filter

## 1 GHz Bandpass Filter

### Typical Performance

(T = 25 °C unless otherwise specified. Refer to s-parameters available for download on Atlanta Micro website for more information)

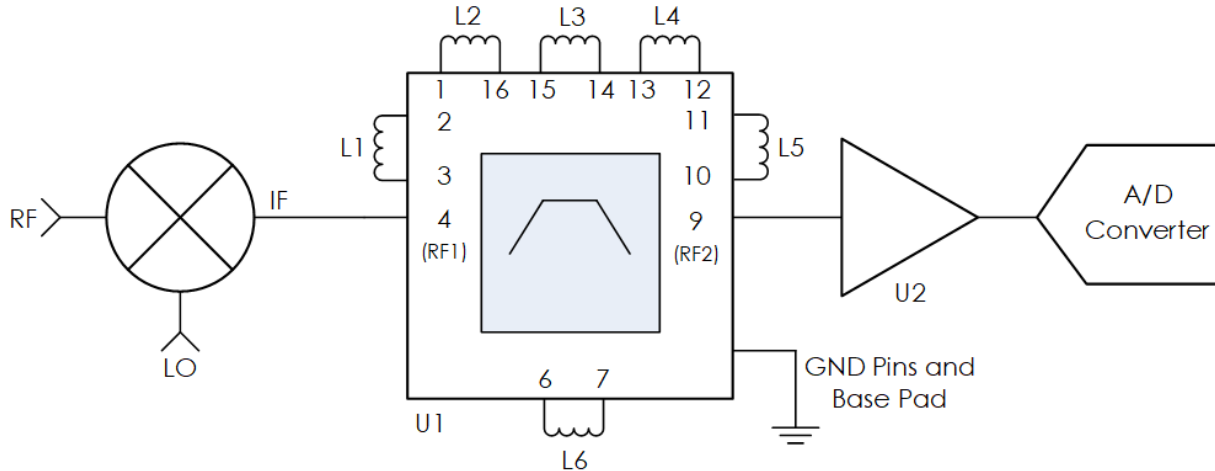


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# AM3232 – Filter

## 1 GHz Bandpass Filter

### Typical Application



### Configuration A Recommended Component List (or equivalent): 1.0 GHz Center

Part	Value	Part Number	Manufacturer
U1		AM3232	Atlanta Micro
U2		AM1025B	Atlanta Micro
L1	8.2 nH	0402DC-8N2XGRW	Coilcraft
L2	5.3 nH	0402DC-5N3XGRW	Coilcraft
L3	6.9 nH	0402DC-6N9XGRW	Coilcraft
L4, L5	10.0 nH	0402DC-10NXGRW	Coilcraft
L6	15.0 nH	0402DC-15NXGRW	Coilcraft

### Configuration B Recommended Component List (or equivalent): 1.1 GHz Center

Part	Value	Part Number	Manufacturer
U1		AM3232	Atlanta Micro
U2		AM1025B	Atlanta Micro
L1	7.0 nH	0402DC-7N0XGRW	Coilcraft
L2	4.5 nH	0402DC-4N5XGRW	Coilcraft
L3	5.8 nH	0402DC-5N8XGRW	Coilcraft
L4, L5	8.1 nH	0402DC-8N1XGRW	Coilcraft
L6	11.0 nH	0402DC-11NXGRW	Coilcraft

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# AM3232 – Filter

## 1 GHz Bandpass Filter

### Configuration C Recommended Component List (or equivalent): 1.2 GHz Center

Part	Value	Part Number	Manufacturer
U1		AM3232	Atlanta Micro
U2		AM1025B	Atlanta Micro
L1	5.5 nH	0402DC-5N5XGRW	Coilcraft
L2	3.5 nH	0402DC-3N5XGRW	Coilcraft
L3	4.5 nH	0402DC-4N5XGRW	Coilcraft
L4, L5	6.6 nH	0402DC-6N6XGRW	Coilcraft
L6	8.1 nH	0402DC-8N1XGRW	Coilcraft

### Notes:

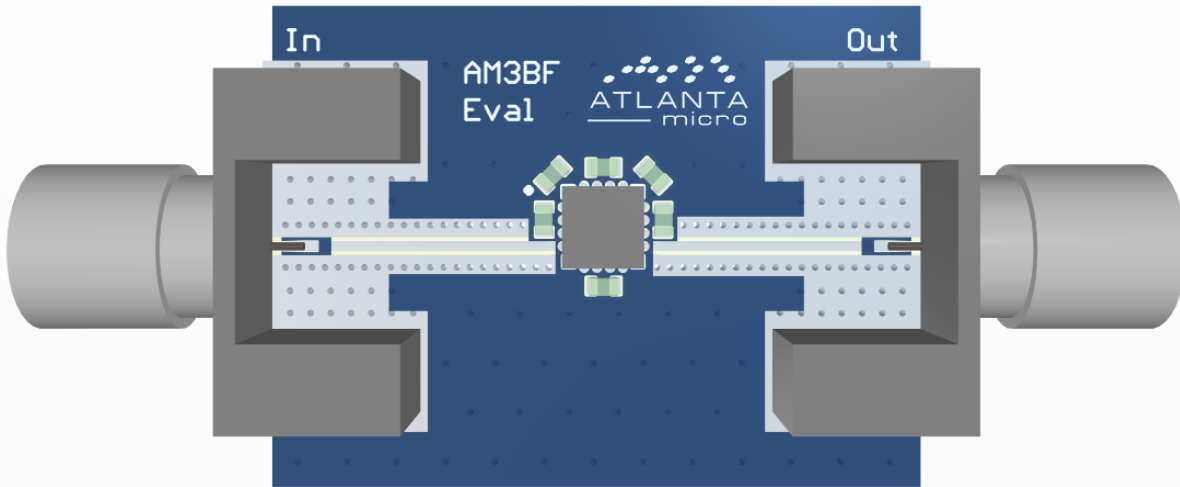
1. L1-L6 should be placed close to AM3232.



# AM3232 – Filter

1 GHz Bandpass Filter

## Evaluation PC Board



## Part Ordering Details

Description	Part Number
3.1 mm x 3.1 mm x 0.5 mm QFN package	AM3232
AM3232 Evaluation Board with Connectors, Configuration A	AM3232 Eval-A
AM3232 Evaluation Board with Connectors, Configuration B	AM3232 Eval-B
AM3232 Evaluation Board with Connectors, Configuration C	AM3232 Eval-C

## Related Parts

Part Number	Description
AM3056	0.75 GHz to 1.25 GHz Bandpass
AM3188	2.5 GHz to 3.5 GHz Bandpass
AM3187	3.25 GHz to 4.25 GHz Bandpass
AM3231	1.5 GHz to 2.5 GHz Bandpass
AM3103	1 GHz to 3 GHz Digitally Tunable Bandpass

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## Component Compliance Information

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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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