AM3230 – Filter

9 GHz Center, 1 GHz IBW Bandpass Filter

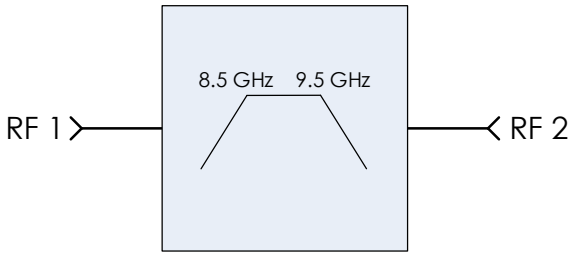
Description

AM3230 is a passive bandpass filter implemented on chip that provides low loss and high rejection in a small 4mm package. With a center frequency of 9 GHz and a bandwidth of 1 GHz, AM3230 is useful as an IF filter in any RF system for image, LO, and spur rejection. AM3230 is AC coupled and matched to 50 oms and operates over the -40C to +100C temperature range.

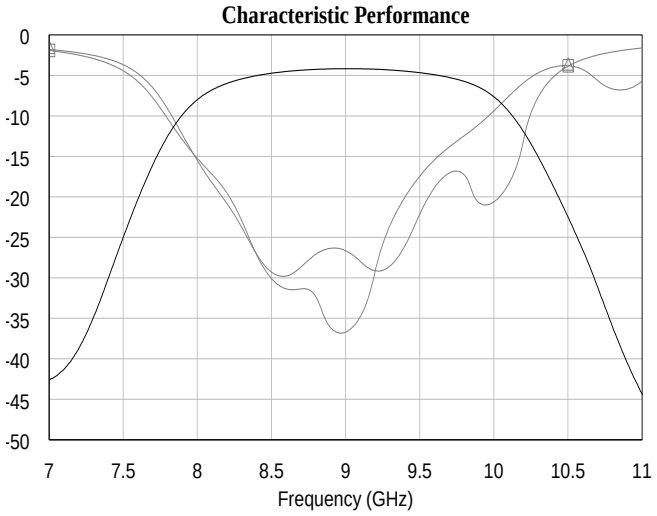
Features

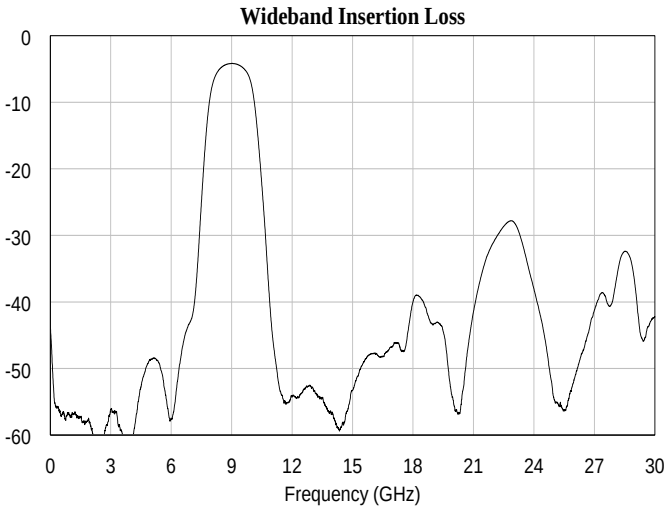
- 9 GHz Center Frequency
- 1 GHz Bandwidth
- 4 dB Loss at 9 GHz typ.
- >40 dB Rejection in Stopband typ.
- ~0.5 dB Passband Flatness typ.
- 0.5 W Power Handling
- 4mm QFN Package
- -40C to +100C Operation

Functional Diagram



Characteristic Performance





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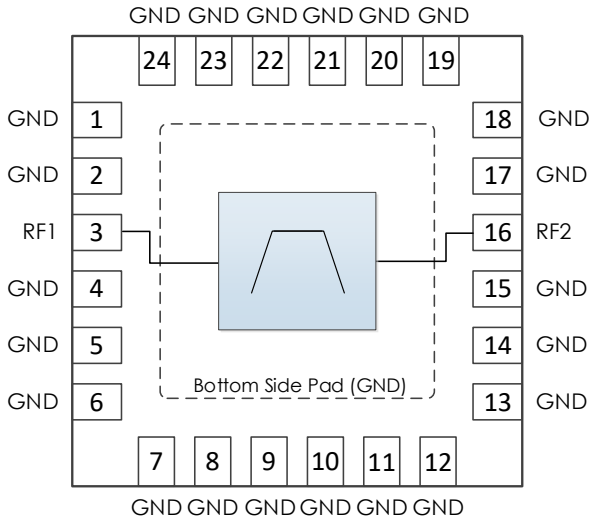
Revision History

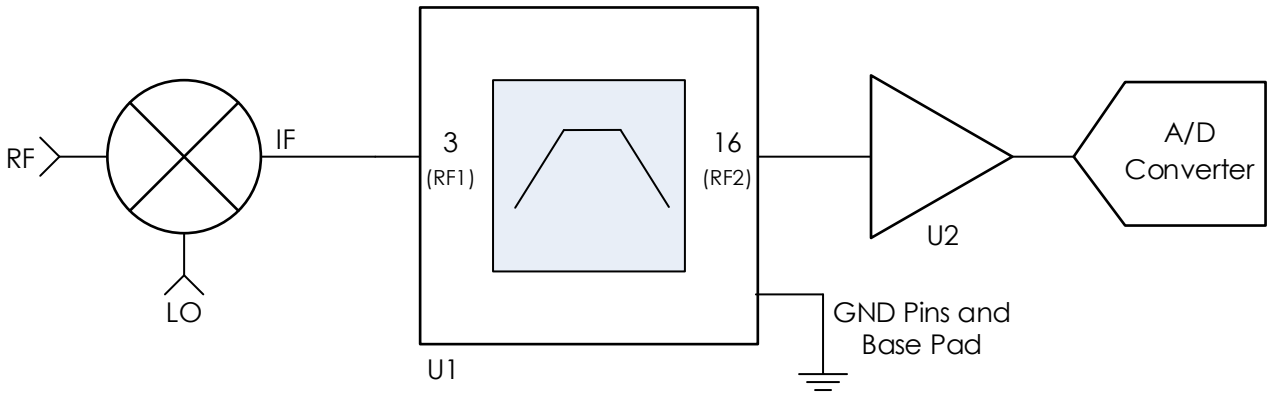
Date	Revision Number	Notes
January 5, 2024	1	Initial release

Pin Layout and Definitions



Pin Number	Pin Name	Pin Function
1 – 2	GND	Ground - Common
3	RF1	RF Port 1 – 50 ohms
4 – 15	GND	Ground – Common
16	RF2	RF Port 2 – 50 ohms
17 – 24	GND	Ground – Common

Typical Application



Recommended Component List (or equivalent):

Part	Value	Part Number	Manufacturer
U1		AM3230	Atlanta Micro
U2		AM1163	Atlanta Micro

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 3	

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
Operating Junction Temperature	-40 C		+125 C

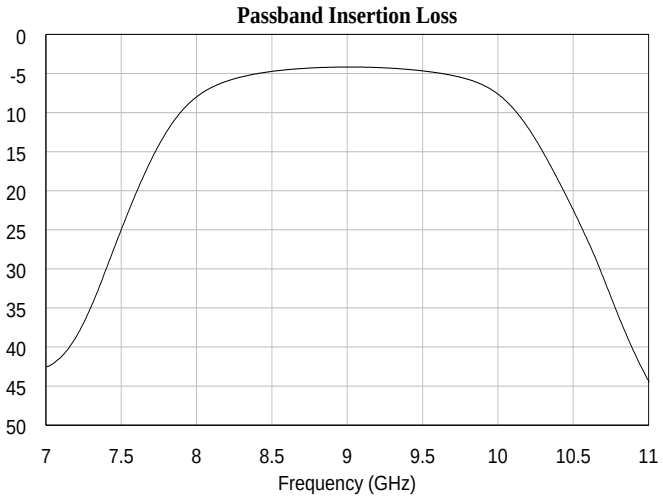
RF Performance

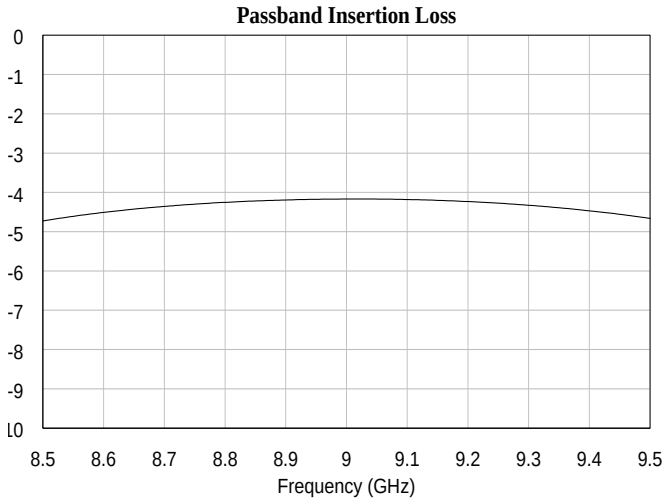
(T = 25 °C unless otherwise specified)

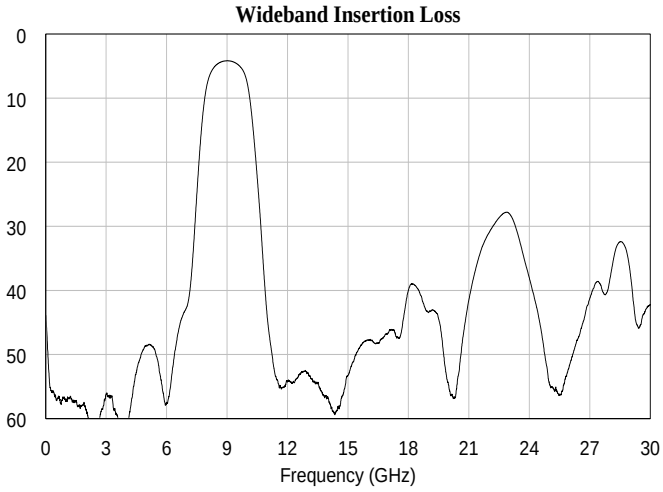
Parameter	Testing Conditions	Minimum	Typical	Maximum
Passband Range		8.5 GHz		9.5 GHz
Bandwidth			1 GHz	
Passband Flatness			0.55 dB	
Stopband Rejection	f = 3.0 GHz		55 dB	
	f = 6.0 GHz		57 dB	
	f = 12.0 GHz		55 dB	
	f = 15.0 GHz		54 dB	
	18.0 GHz < f < 30 GHz	28 dB	40 dB	
Insertion Loss	f = 8.5 GHz		4.7 dB	
	f = 9.0 GHz		4.2 dB	
	f = 9.5 GHz		4.7 dB	
Return Loss	f = 8.5 GHz		30 dB	
	f = 9.0 GHz		27 dB	
	f = 9.5 GHz		17 dB	

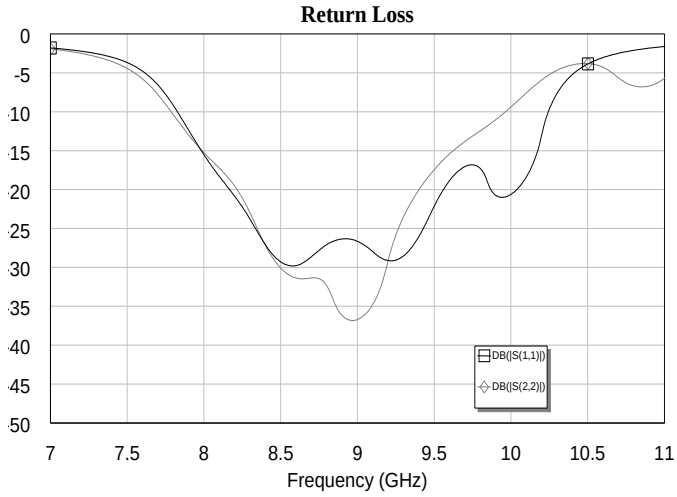
Typical Performance

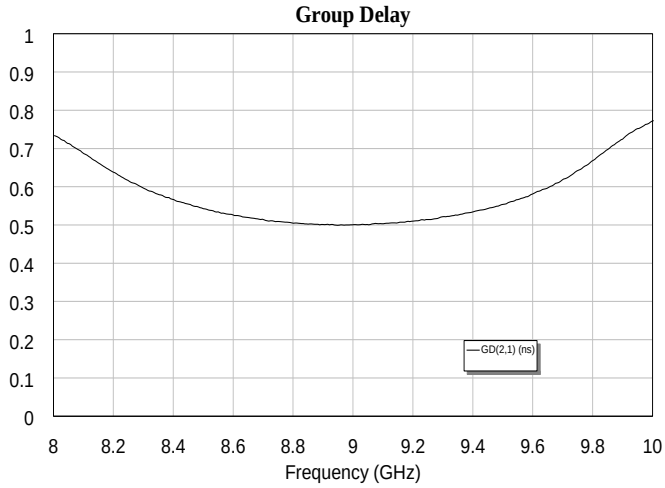
(T = 25 °C unless otherwise specified. Refer to s-parameters available for download on Atlanta Micro website for more information)



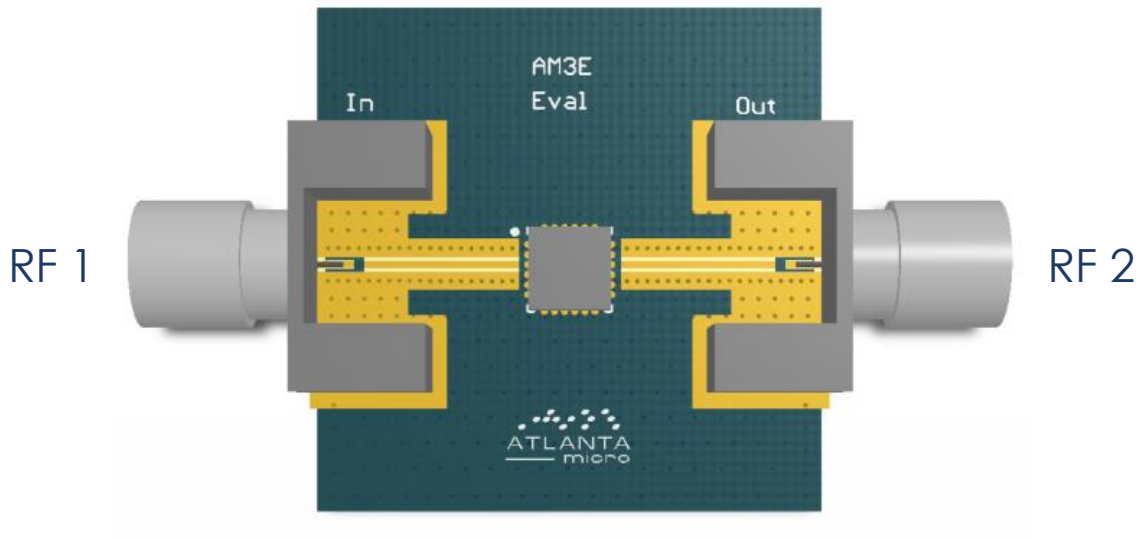








Evaluation PC Board



Part Ordering Details

Description	Part Number
4mm x 4mm x 1.2mm QFN package	AM3230
AM3230 Evaluation Board with Connectors	AM3230 Eval

Related Parts

Part Number				Description
AM3187	3.25 GHz	to	4.25 GHz	Fixed Bandpass
AM3188	2.5 GHz	to	3.5 GHz	Fixed Bandpass
AM3189	9.0 GHz	to	10.0 GHz	Fixed Bandpass
AM3235	8.0 GHz	to	12.0 GHz	Fixed Bandpass
AM3065	6.0 GHz	to	12.0 GHz	Digitally Tunable Bandpass
AM3136	8.0 / 12.0 GHz	to	13.5 / 19.0 GHz	Dual Analog Tunable Bandpass

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-ethylheyl) 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)

REACH: Atlanta Micro, Inc. neither uses nor intentionally adds any of the substances considered to be a Substance of Very High Concern (SVHC) as defined by the EU Regulation (EC) No. 1907-2006 on Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH).

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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.