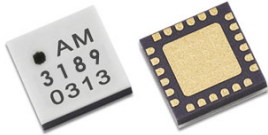


# AM3189 – Filter

## 9 GHz to 10 GHz Bandpass Filter

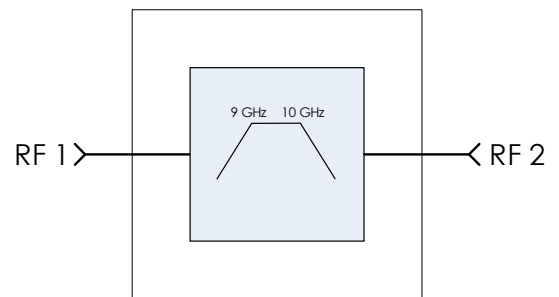


The AM3189 is a passive bandpass filter implemented on chip that provides low loss and high rejection in a small 4mm package. With a center frequency of 9.5 GHz and a bandwidth of 1 GHz, AM3189 is useful as an IF filter in any RF system for image, LO, and spur rejection. AM3189 is AC-coupled and matched to 50 ohms while operating over the -40°C to +100°C temperature range.

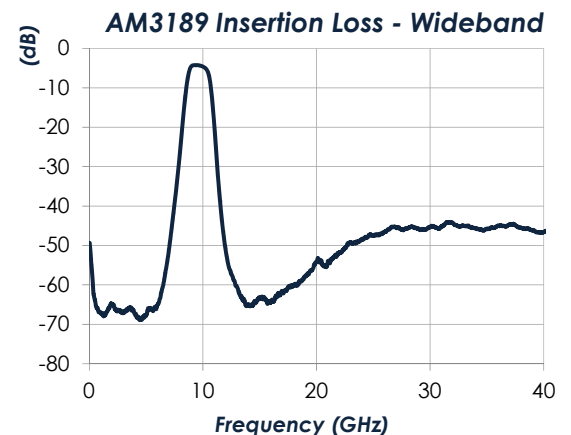
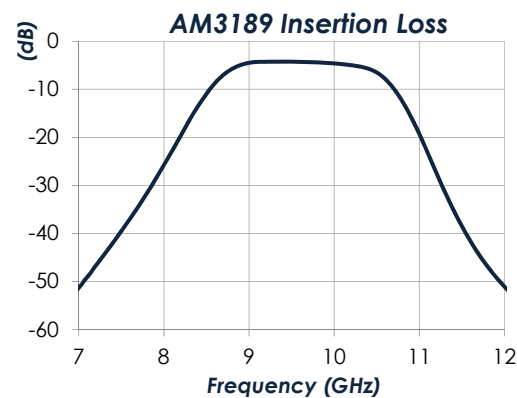
### FEATURES

- 9.5 GHz Center Frequency
- 1 GHz Bandwidth
- 0.3 dB Passband Flatness Typical
- >40 dB Stopband Rejection
- 0.5 W Power Handling
- 4mm QFN Package
- -40°C to +100°C Operation

### FUNCTIONAL DIAGRAM



### CHARACTERISTIC PERFORMANCE



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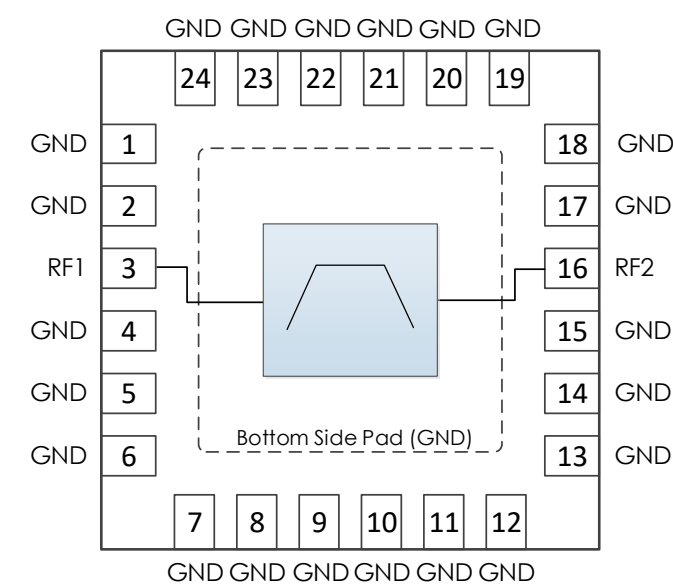
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REVISION HISTORY

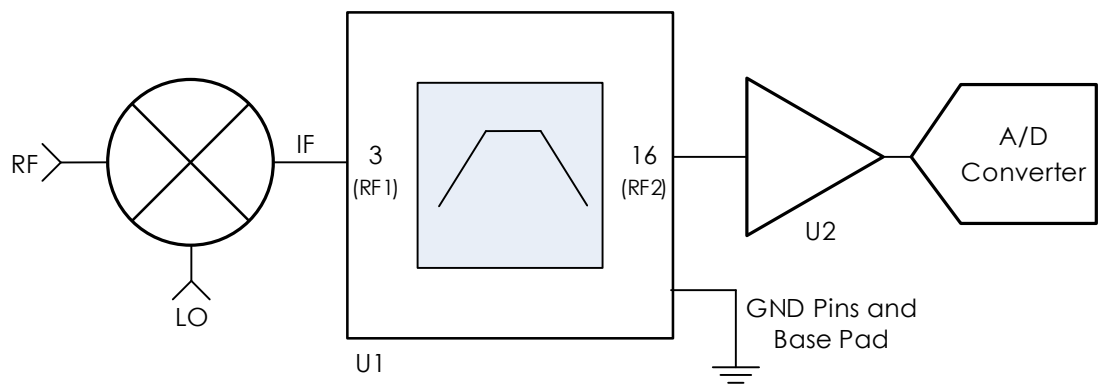
Date	Revision	Notes
June 22, 2021	1	Initial Release.
June 25, 2024	2	Changed to Mercury branding. No content changes.

PIN LAYOUT AND DEFINITIONS



Pin	Name	Function
1, 2	GND	Ground - Common
3	RF1	RF Port 1 - 50 ohms, AC coupled.
4-15	GND	Ground - Common
16	RF2	RF Port 2 - 50 ohms, AC coupled.
17-24	GND	Ground - Common

TYPICAL APPLICATION



RECOMMENDED COMPONENT LIST (OR EQUIVALENT)

Part	Value	Part Number	Manufacturer
U1		AM3189	Mercury
U2		AM1082	Mercury

## 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. Devices subjected to conditions outside of what is recommended for extended periods may affect device reliability.

## Handling Information

	Minimum	Maximum
Storage Temperature Range (Recommended)	-50 C	+125 C
Moisture Sensitivity Level	MSL 1	



Mercury 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

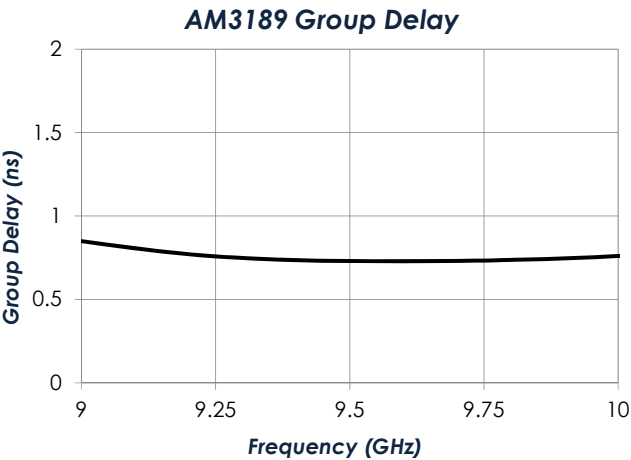
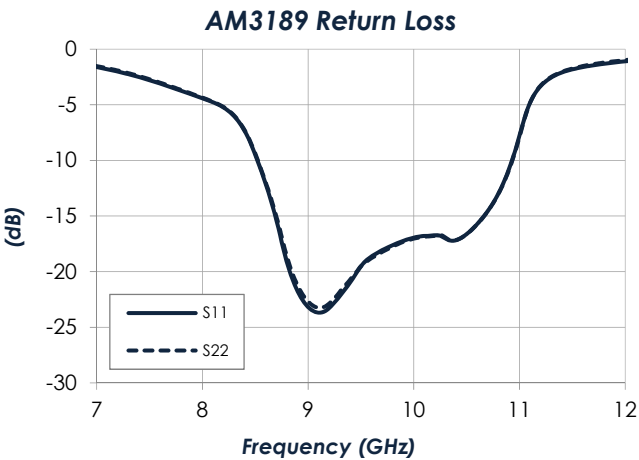
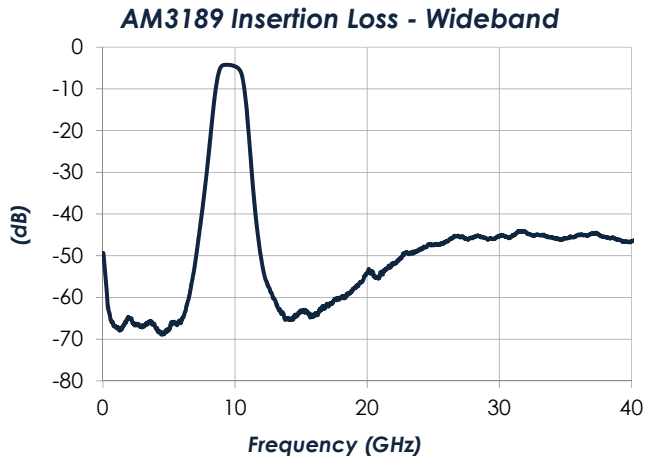
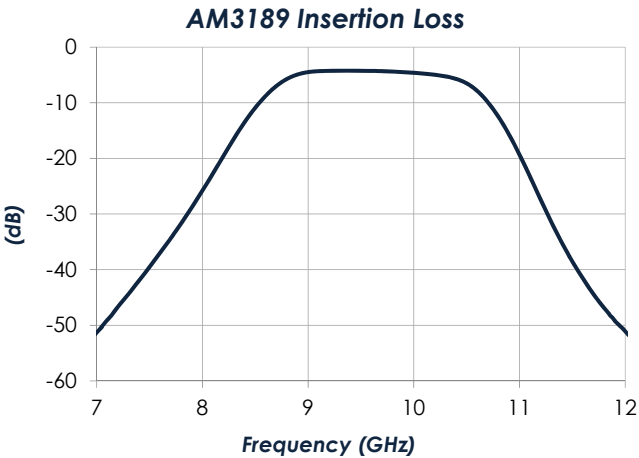
## RF Performance

(T = 25 °C unless otherwise specified)

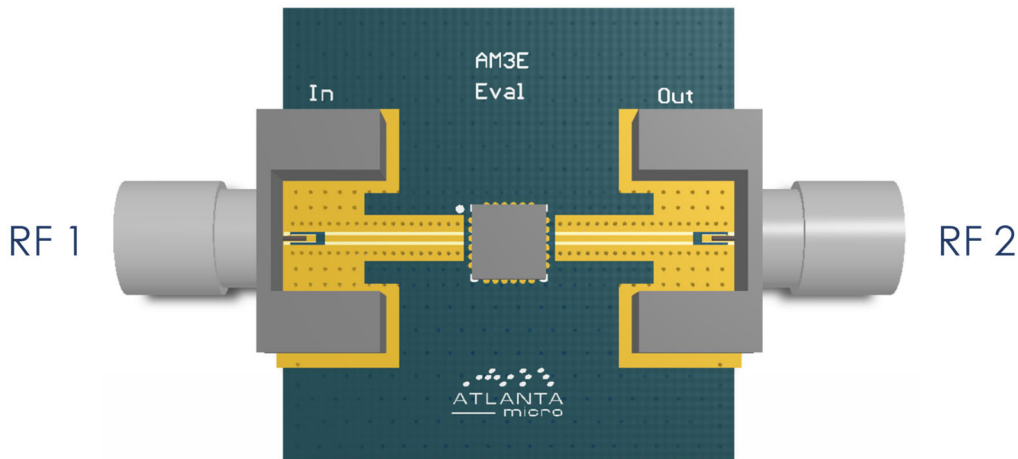
Param	Testing Conditions	Min	Typical	Max
Passband Range		9 GHz		10 GHz
Bandwidth			1 GHz	
Passband Flatness			0.2 dB	
Stopband Rejection		35 dB		
Insertion Loss	f = 9.0 GHz		4.5 dB	
	f = 9.5 GHz		4.2 dB	
	f = 10.0 GHz		4.6 dB	
Return Loss	f = 9.0 GHz		23 dB	
	f = 9.5 GHz		20 dB	
	f = 10.0 GHz		17 dB	

TYPICAL PERFORMANCE

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



EVALUATION PC BOARD



PARTS ORDERING DETAILS

Description	Part Number
4mm x 4mm x 0.9mm QFN package	AM3189
AM3189 with Connectorized Evaluation Board	AM3189 Eval

RELATED PARTS

Part Number	Description
AM1082	5 GHz to 17 GHz Amplifier
AM3056	750 MHz to 1250 MHz Bandpass Filter
AM3055	1.5 GHz to 2.5 GHz Bandpass Filter
AM3188	2.5 GHz to 3.5 GHz Bandpass Filter
AM3187	3.25 GHz to 4.25 GHz Bandpass Filter
AM3134	2 GHz to 4.5 GHz Dual Analog Tunable Bandpass
AM3104	2.5 GHz to 6.5 GHz Digitally Tunable Bandpass
AM3045	3 GHz to 6 GHz Digitally Tunable Bandpass

## 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)

**REACH:** Mercury Systems, 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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**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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