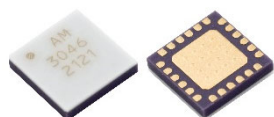


AM3046 –Filter

7 GHz Lowpass Filter

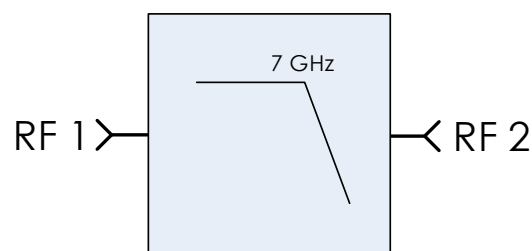


AM3046 is a passive lowpass filter implemented on chip that provides low loss and high rejection in a small 4mm package. With a cutoff frequency of 7 GHz, AM3046 is useful as an IF filter in any RF system for image, LO, and spur rejection. AM3046 is matched to 50 ohms and operates from -40C to +100C.

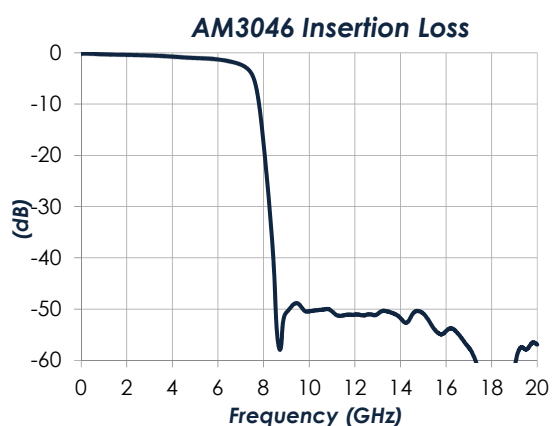
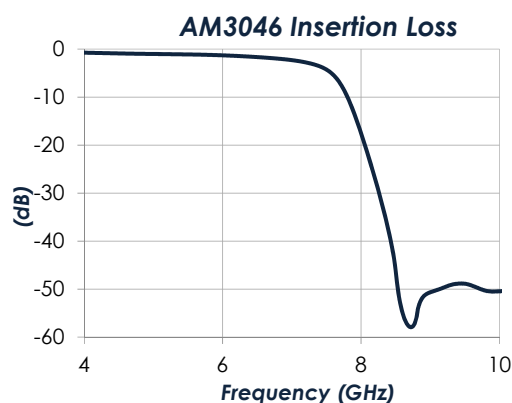
FEATURES

- 7 GHz Cutoff Frequency
- >45 dB Rejection in Stopband Typical
- <2dB Loss in Passband Typical
- 0.5 W Power Handling
- 4mm QFN Package
- -40C to +100C Operation

FUNCTIONAL DIAGRAM



CHARACTERISTIC PERFORMANCE





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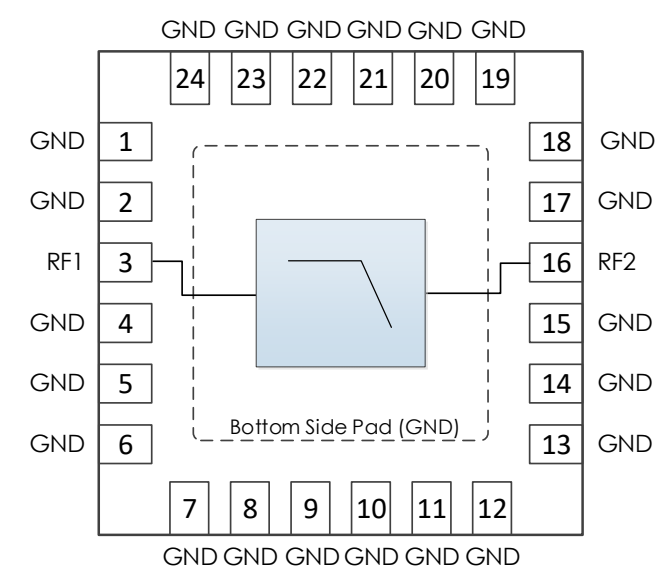
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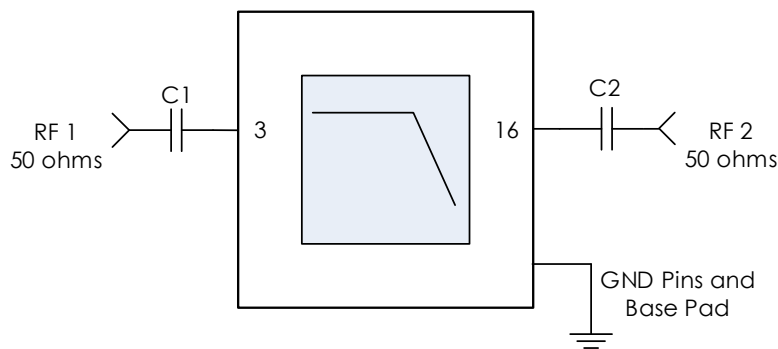
Date	Revision	Notes
June 22, 2021	1	Initial Release.
June 20, 2024	2	Changed to Mercury branding. No content changes.

PIN LAYOUT AND DEFINITIONS



Pin	Name	Function
1 - 2	GND	Ground - Common
3	RF1	RF Port 1 - 50 ohms
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
C1, C2	0.1 uF	0402BB104KW160	Passives Plus

Note: AM3046 is not DC blocked therefore any voltage present on the input/output will feed through to the output/input. DC blocking capacitors are recommended if two different voltages are needed on either side and if used the capacitors should be high performance, low-loss, broadband capacitors for optimum performance. Otherwise, DC blocking capacitors can be omitted.

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	



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

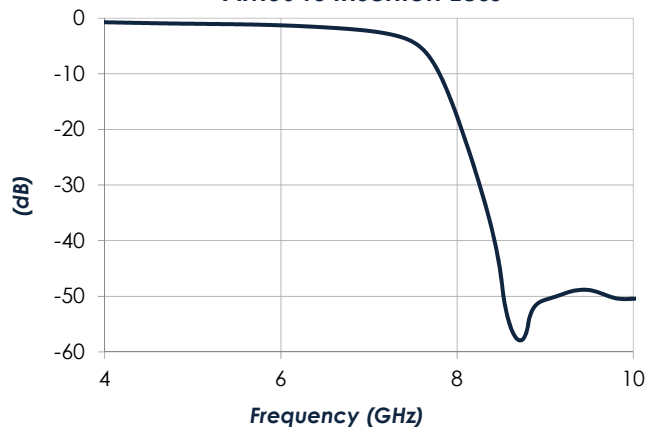
(T = 25 °C unless otherwise specified)

Param	Testing Conditions	Min	Typical	Max
Frequency Range		DC		7 GHz
Passband Flatness			2.1 dB	
Stopband Rejection		45 dB		
Insertion Loss	f = 3 GHz		0.5 dB	
	f = 5 GHz		1.0 dB	
	f = 7 GHz		2.3 dB	
Return Loss	f = 3 GHz		26 dB	
	f = 5 GHz		17 dB	
	f = 7 GHz		17 dB	

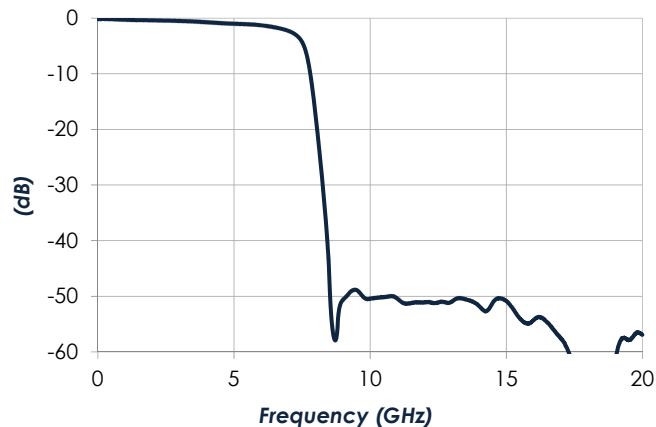
TYPICAL PERFORMANCE

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

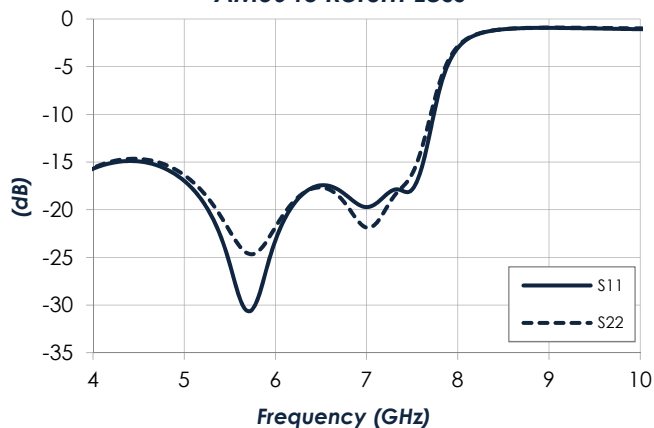
AM3046 Insertion Loss



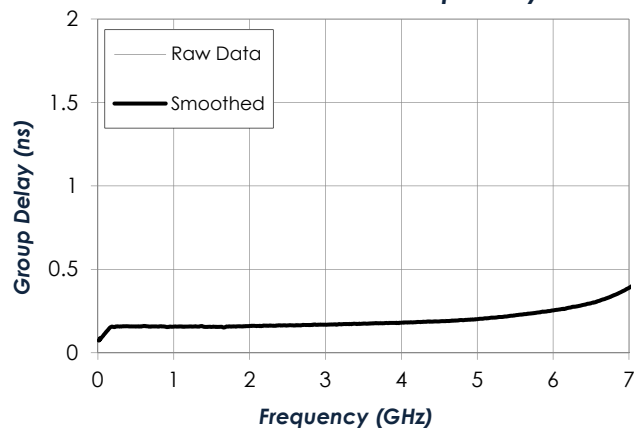
AM3046 Insertion Loss - Wideband



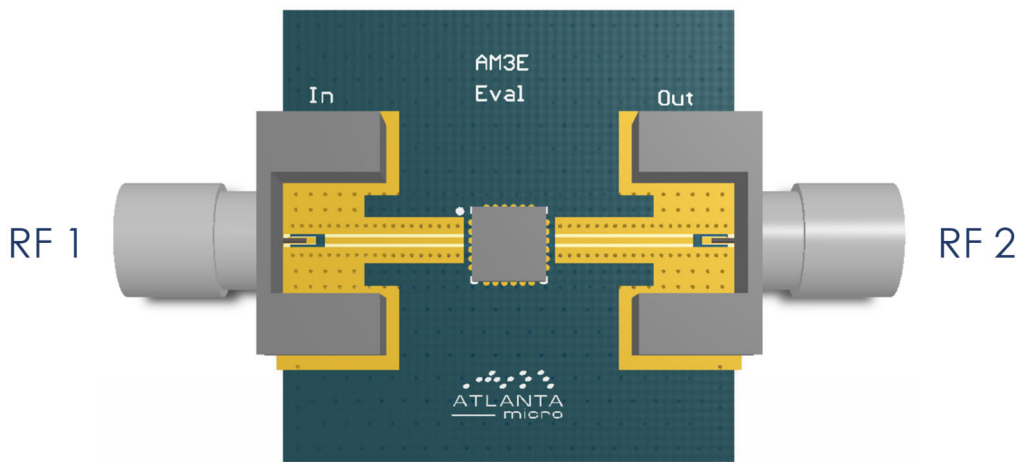
AM3046 Return Loss



AM3046 Group Delay



EVALUATION PC BOARD



PART ORDERING DETAILS

Description	Part Number
4mm x 4mm x 0.9mm QFN package	AM3046
AM3046 Evaluation Board with Connectors	AM3046 Eval

RELATED PARTS

Part Number		Description
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
AM3089	9 GHz to 10 GHz	Bandpass Filter
AM3029	1.5 GHz to 3.0 GHz	Digitally Tunable Lowpass
AM3030	3.5 GHz to 6.5 GHz	Digitally Tunable Lowpass
AM3107	6 GHz to 12 GHz	Digitally Tunable Lowpass

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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