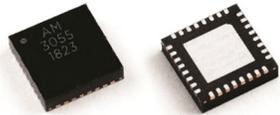


AM3055 – Filter

2 GHz Bandpass Filter

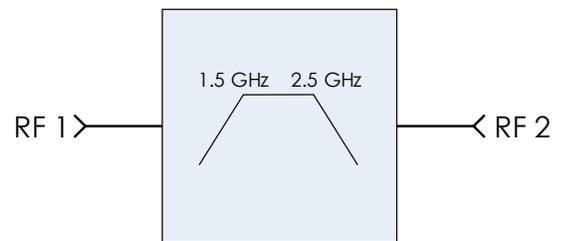


AM3055 is a passive bandpass filter implemented on chip that provides low loss and high rejection in a small 5mm package. With a center frequency of 2 GHz and a bandwidth of 1 GHz, AM3055 is useful as an IF filter in any RF system for image, LO, and spur rejection. AM3055 is AC coupled and matched to 50 ohms and operates over the -40C to +100C temperature range.

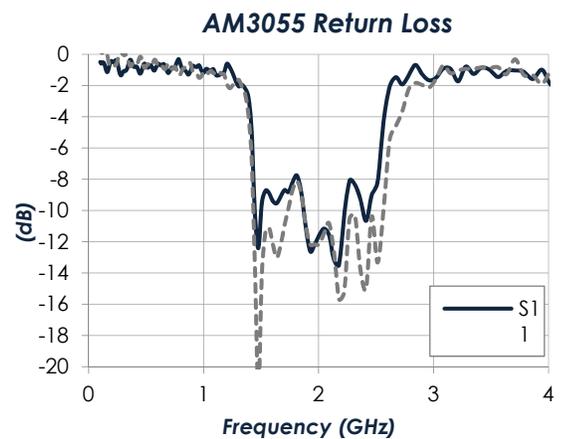
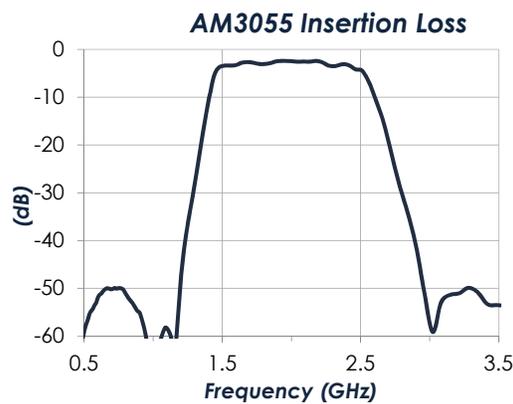
FEATURES

- 2 GHz Center Frequency
- 1 GHz Bandwidth
- <2.5 dB Loss at 2 GHz typ.
- >40 dB Rejection in Stopband typ.
- <1.5 dB Passband Flatness typ.
- 0.5 W Power Handling
- 5mm QFN Package
- -40C to +100C Operation

FUNCTIONAL DIAGRAM



CHARACTERISTIC PERFORMANCE



CONTENTS

FEATURES 1

FUNCTIONAL DIAGRAM 1

CHARACTERISTIC PERFORMANCE 1

REVISION HISTORY 2

PIN LAYOUT AND DEFINITIONS 3

SPECIFICATIONS..... 4

TYPICAL PERFORMANCE 5

TYPICAL APPLICATION..... 6

EVALUATION PC BOARD..... 7

PART ORDERING DETAILS 7

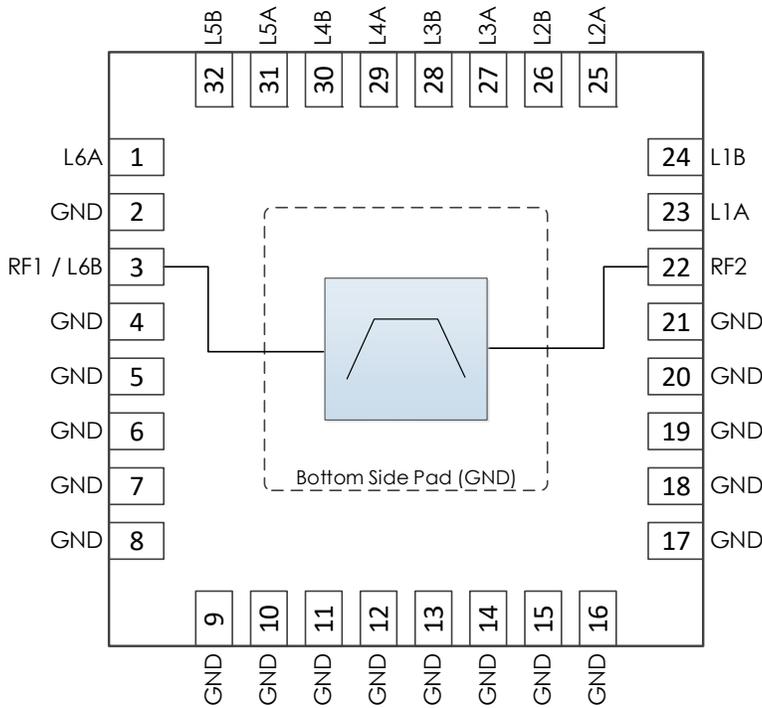
RELATED PARTS..... 7

COMPONENT COMPLIANCE INFORMATION 8

REVISION HISTORY

Date	Revision	Notes
June 11, 2021	1	Initial Release.
July 22, 2021	2	Extended Wideband Insertion Loss plot to show performance to 50 GHz. Added relevant stopband rejection points in RF Performance.
August 13, 2021	3	Updated Max Rated Power to +33dBm.
June 19, 2024	4	Changed to Mercury branding. No content changes.

PIN LAYOUT AND DEFINITIONS



Pin	Name	Function
1	L6A	External Inductor L6 connection
2	GND	Ground - Common
3	RF1 / L6B	RF Port 1 and external inductor L6 connection. RF1 is 50 ohms, AC coupled. See Typical Application for connection details.
4 - 21	GND	Ground - Common
22	RF2	RF Port 2 - 50 ohms, AC coupled.
23	L1A	External inductor L1 connection
24	L1B	External inductor L1 connection
25	L2A	External inductor L2 connection
26	L2B	External inductor L2 connection
27	L3A	External inductor L3 connection
28	L3B	External inductor L3 connection
29	L4A	External inductor L4 connection
30	L4B	External inductor L4 connection
31	L5A	External inductor L5 connection
32	L5B	External inductor L5 connection

SPECIFICATIONS

Absolute Maximum Ratings

	Minimum	Maximum
RF Input Power		+33 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	-50 C	+125 C
Moisture Sensitivity Level	MSL 3	



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

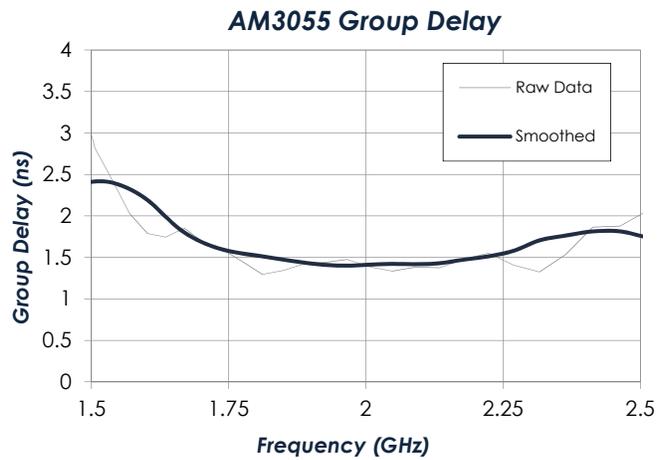
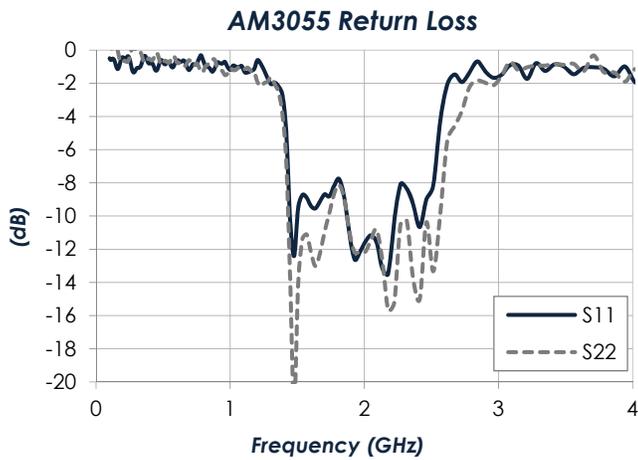
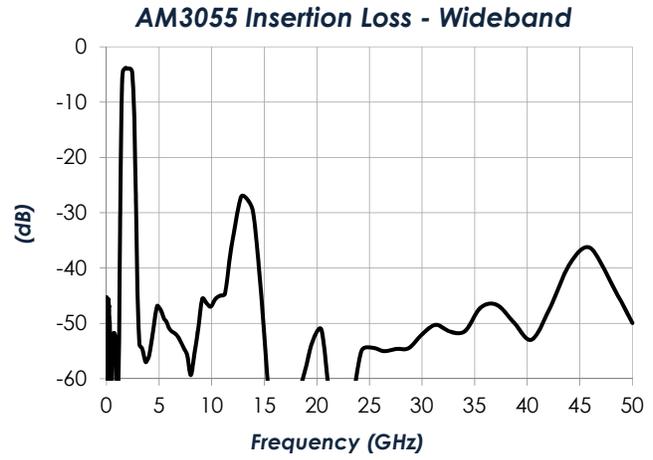
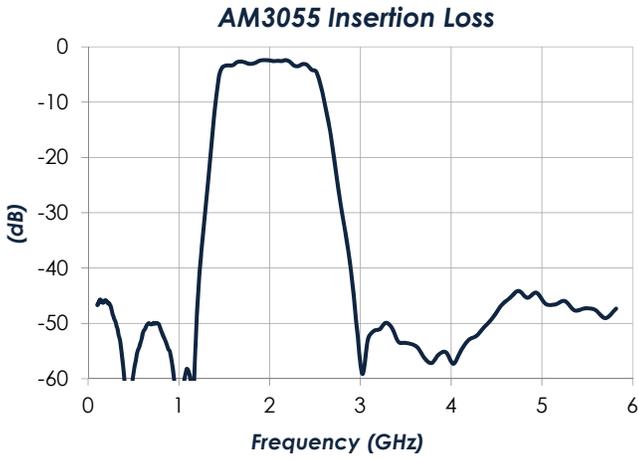
RF Performance

(T = 25 °C unless otherwise specified)

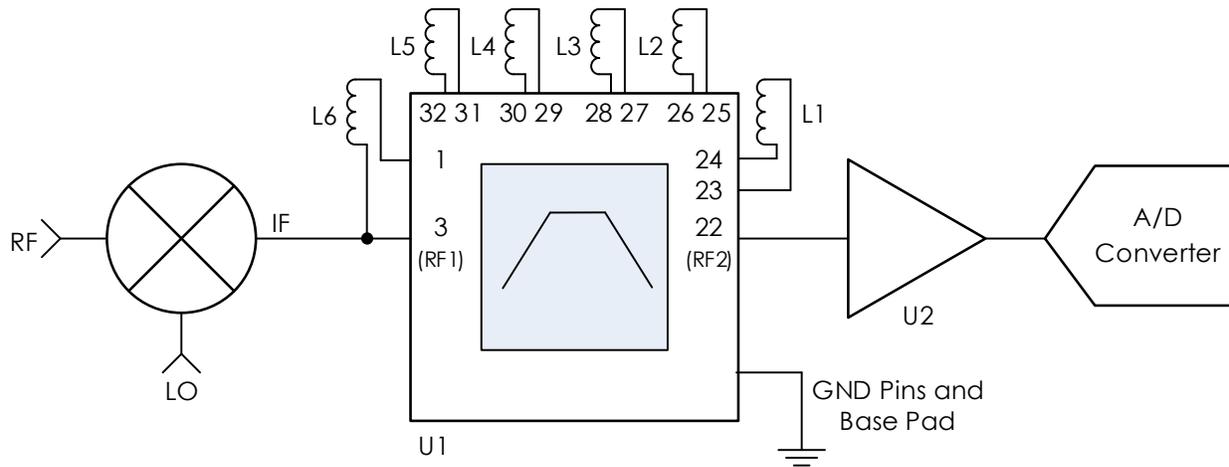
Param	Testing Conditions	Min	Typical	Max
Passband Range		1.5 GHz		2.5 GHz
Bandwidth			1 GHz	
Passband Flatness			1.1 dB	
Stopband Rejection	f = 4.0 GHz		55 dB	
	f = 6.0 GHz		50 dB	
	f = 8.0 GHz		58 dB	
	f = 10.0 GHz		45 dB	
Insertion Loss	15.0 GHz < f < 40 GHz		50 dB	
	f > 40.0 GHz	35 dB		
	f = 1.5 GHz		3.8 dB	
Return Loss	f = 2.0 GHz		2.4 dB	
	f = 2.5 GHz		4.2 dB	
	f = 1.5 GHz		12 dB	
Return Loss	f = 2.0 GHz		12 dB	
	f = 2.5 GHz		9.0 dB	

TYPICAL PERFORMANCE

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



TYPICAL APPLICATION

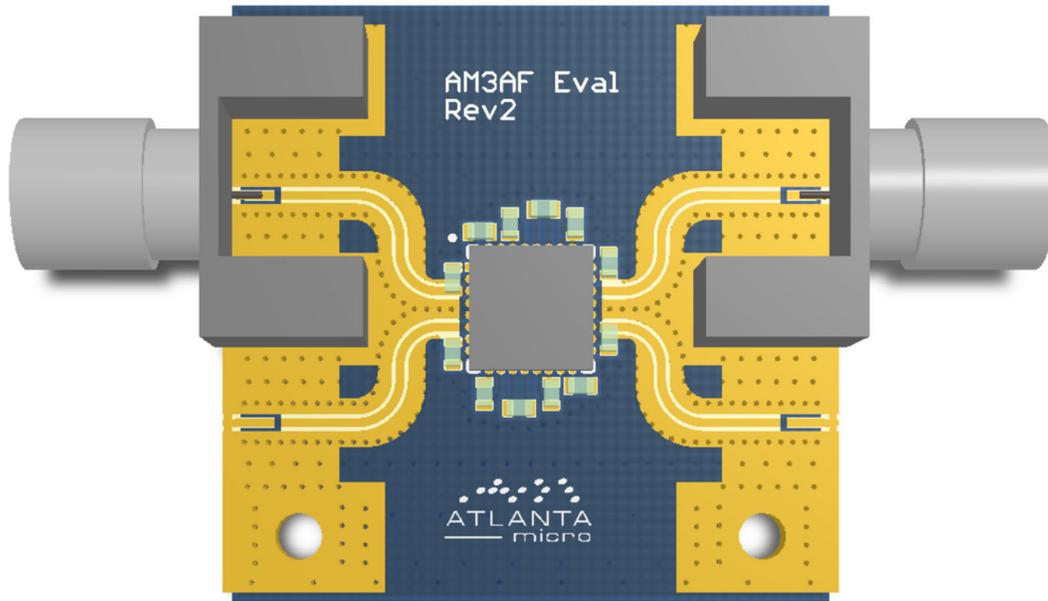


Recommended Component List (or Equivalent)

Part	Value	Part Number	Manufacturer
U1		AM3055	Mercury
U2		AM1025B	Mercury
L1, L4	2.1 nH	0402DC-2N1XGRU	Coilcraft
L2	2.0 nH	0402DC-2N0XGRU	Coilcraft
L3	1.2 nH	0402DC-1N2XGRU	Coilcraft
L5	6.4 nH	0402DC-6N4XGRU	Coilcraft
L6	4.5 nH	0402DC-4N5XGRU	Coilcraft

Note: L1 - L6 should be placed close to AM3055 for best performance.

EVALUATION PC BOARD



PART ORDERING DETAILS

Description	Part Number
5mm x 5mm x 1.2mm QFN package	AM3055
AM3055 Evaluation Board with Connectors	AM3055 Eval

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
AM3103	1 GHz to 3 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).

Conflict Materials: Mercury does not knowingly use materials that are sourced from the Democratic Republic of Congo (DRC) or any other known conflict regions. Mercury's supply chain is comprised of sources that are both environmentally and socially responsible. We periodically review this requirement with our vendors to ensure continued compliance.

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.



Corporate Headquarters

50 Minuteman Road
 Andover, MA 01810 USA
 +1 978.967.1401 tel
 +1 866.627.6951 tel
 +1 978.256.3599 fax

International Headquarters

Mercury International

Avenue Eugène-Lance, 38
 PO Box 584
 CH-1212 Grand-Lancy 1
 Geneva, Switzerland
 +41 22 884 5100 tel

Learn more

Visit: mrcy.com

For pricing details, contact: MMICsales@mrcy.com

For technical details, contact: MMICsupport@mrcy.com



The Mercury Systems logo is a registered trademark of Mercury Systems, Inc. Other marks used herein may be trademarks or registered trademarks of their respective holders. Mercury products identified in this document conform with the specifications and standards described herein. Conformance to any such standards is based solely on Mercury's internal processes and methods. The information contained in this document is subject to change at any time without notice.

