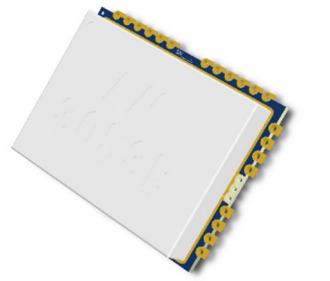
AM3073A – Amplifier Module

1.0 GHz A/D Driver, 500 MHz Bandwidth

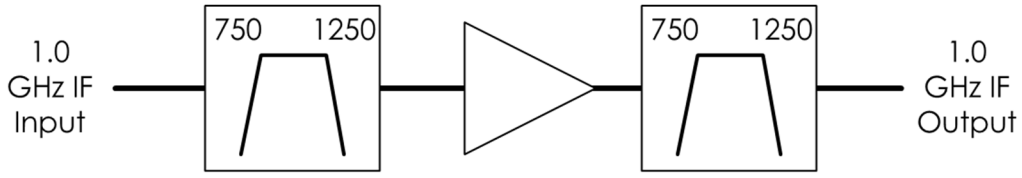


AM3073A is a shielded A/D driver module that provides amplification and anti-aliasing filtering of the 1.0 GHz IF output of the AM9017 tuner module. The AM3073A offers 500 MHz of bandwidth and 25 dB of gain packaged in an 18mm x 24mm x 4.0mm package while operating on +5.0V from -40C to +85C.

FEATURES

- 500 MHz Bandwidth
- 1.0 GHz Center Frequency
- 25 dB Gain
- 7 dB Noise Figure
- +37 dBm OIP 3
- +5.0 V Supply
- 0.83W Power Consumption
- 18mm x 24mm x 4.0mm Package
- -40C to +85C Operation

FUNCTIONAL DIAGRAM



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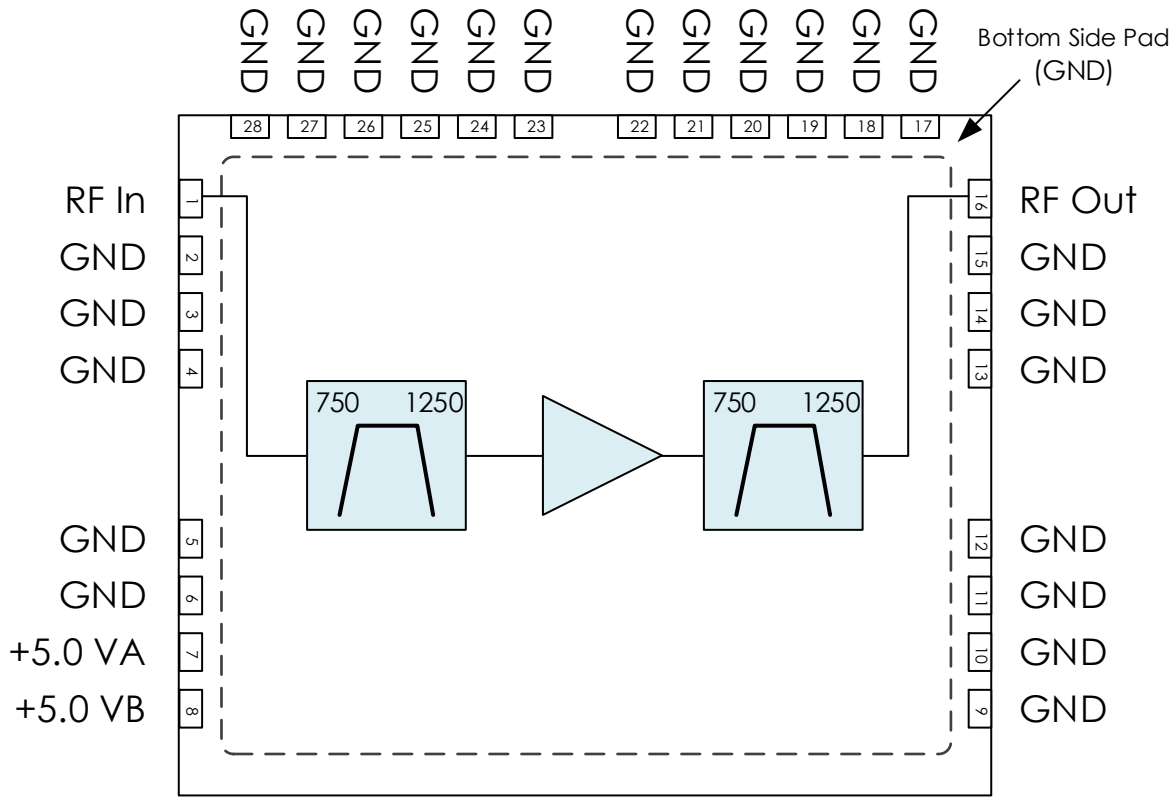
REVISION HISTORY

Date	Revision	Notes
October 10, 2019	1	Initial Release
October 7, 2020	2	Updated to latest datasheet format.
September 1, 2021	3	Updated plot in Typical performance section.
June 27, 2024	4	Changed to Mercury branding. No content changes.

PIN LAYOUT AND DEFINITIONS



Pin Number	Pin Name	Pin Function
1	RF In	1 GHz RF Input Port – 50 Ohms – AC Coupled
2-6	GND	Ground – Common
7	+5.0 VA	+5.0V DC Power Input
8	+5.0 VB	+5.0V DC Power Input
9-15	GND	Ground – Common
16	RF Out	1 GHz RF Output Port – 50 Ohms – AC Coupled
17-28	GND	Ground – Common
Bottom Pad	GND	Ground – Common

SPECIFICATIONS

Absolute Maximum Ratings

	Minimum	Maximum
Supply Voltage	-0.3 V	+6.0 V
RF Input Power		+17 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	

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

Recommended Operating Conditions

	Minimum	Typical	Maximum
Supply Voltage	+4.8 V	+5.0 V	+5.2 V
Operating Case Temperature	-40 C		+85 C
Operating Junction Temperature	-40 C		+125 C

DC Electrical Characteristics

(T = 25 °C unless otherwise specified)

Param	Testing Conditions	Min	Typical	Max
DC Supply Voltage		+4.8 V	+5.0 V	+5.2 V
DC Supply Current			166 mA	200 mA
Power Dissipated			0.83 W	1.0 W

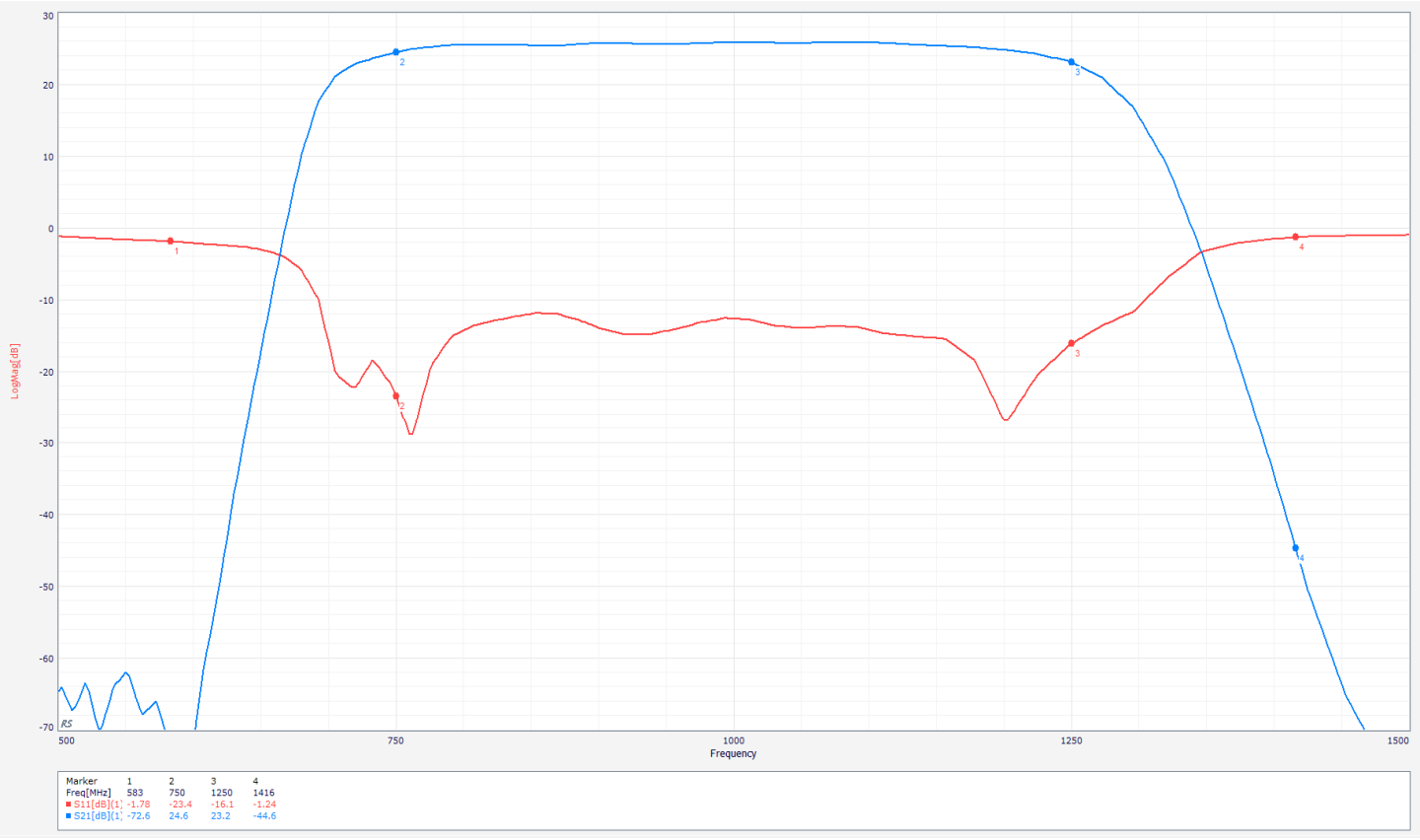
RF Performance

(T = 25 °C unless otherwise specified)

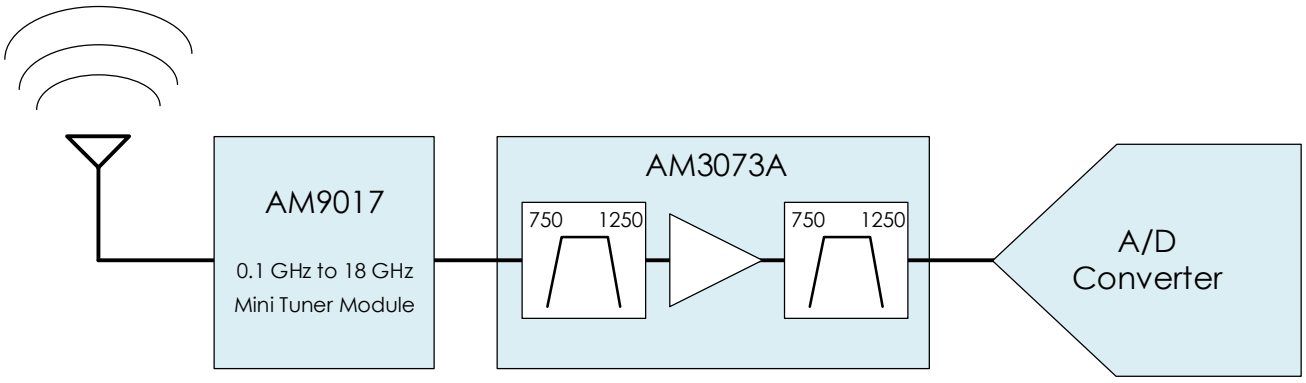
Param	Testing Conditions	Min	Typical	Max
Frequency Range		750 MHz		1250 MHz
Gain			25 dB	
Return Loss			15 dB	
Output IP3	Output tones at 0 dBm each		+37 dBm	
Output P1dB			+17 dBm	
Noise Figure			7 dB	
Alias Rejection	Assuming 1.333 GHz clock	60 dBc	75 dBc	

TYPICAL PERFORMANCE

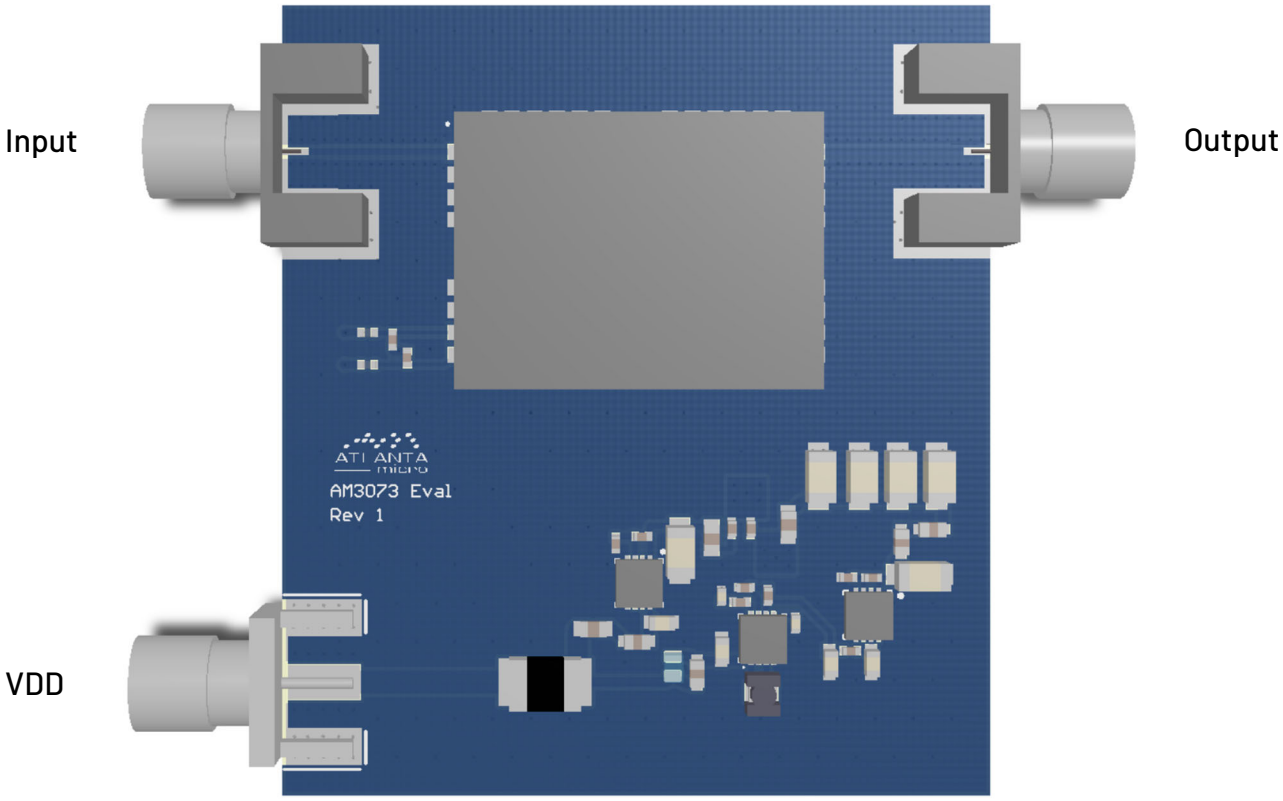
(VDD = +5.0V, T = 25 °C)



TYPICAL APPLICATION



EVALUATION PC BOARD



PART ORDERING DETAILS

Description	Part Number
18mm x 24mm x 4.0mm RF Shielded Package	AM3073A
AM3037A Evaluation Board with Connectors	AM3073A Eval

RELATED PARTS

Part Number		Description
AM9017	0.1 GHz to 18 GHz	Miniature Tuner Module

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 (CrVl)	<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: 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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