

AM3265 – Filter Bank

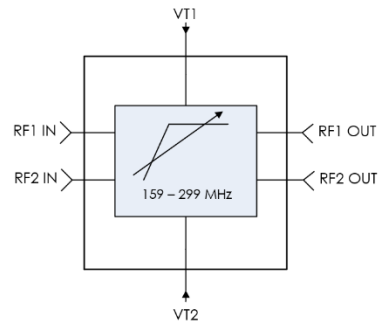
Analog Tunable 159.0 to 299.0 MHz Highpass

AM3265 is an analog voltage-tuned high pass filter with an adjustable corner between 159.0 and 299.0 MHz. AM3265 contains two different frequency bands controlled by respective analog voltage inputs. Band 1 has a variable corner frequency between 159.0 and 237.0 MHz, and band 2 has a variable corner frequency between 205.0 and 299.0 MHz. The tunable high pass filter can be combined with one of Mercury’s tunable lowpass filters to provide a flexible bandpass filter solution.

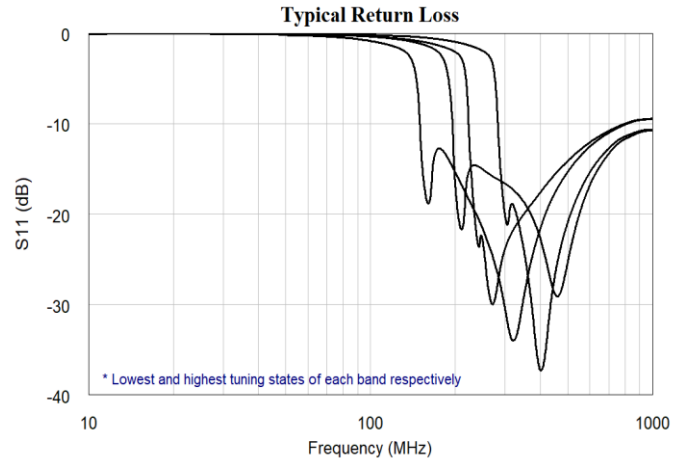
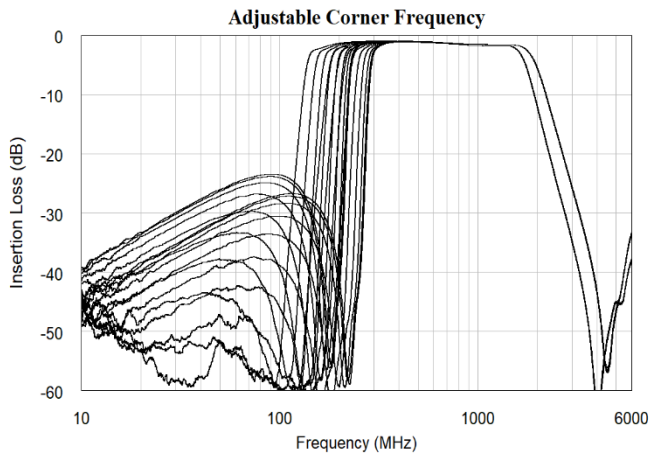
FEATURES

- Analog Tuning
- 1.3 dB typical insertion loss
- 1 V to 8 V tuning voltage range
- -40 °C to 85 °C operation
- 4 mm QFN package
- Wide operational Bandwidth up to 1.8 GHz

FUNCTIONAL DIAGRAM



CHARACTERISTIC PERFORMANCE



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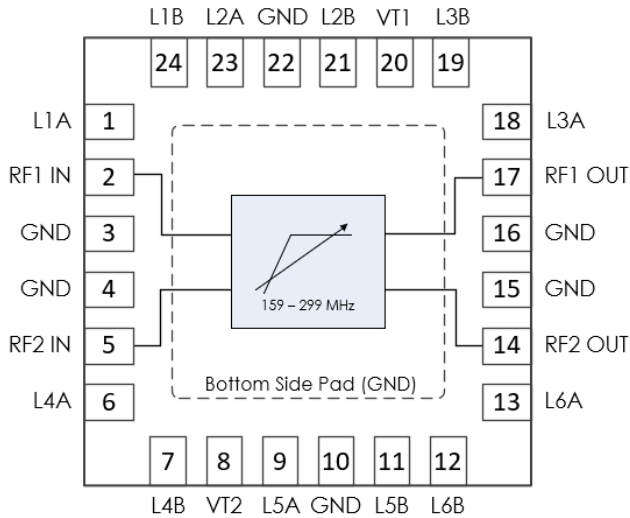
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REVISION HISTORY

Date	Revision	Notes
6/30/2025	1	Initial Revision

PIN LAYOUT AND DEFINITIONS



Pin	Name	Function
1, 24	L1A, L1B	L1 connection
2	RF1 IN	Band 1 RF Input - 50 Ohms - AC Coupled
3-4	GND	Ground - Common
5	RF2 IN	Band 2 RF Input - 50 Ohms - AC Coupled
6-7	L4A, L4B	L4 connection
8	VT2	Band 2 tuning voltage input
9, 11	L5A, L5B	L5 connection
10	GND	Ground - Common
12-13	L6B, L6A	L6 connection
14	RF2 OUT	Band 2 RF Output - 50 Ohms - AC Coupled
15-16	GND	Ground - Common
17	RF1 OUT	Band 1 RF Output - 50 Ohms - AC Coupled
18-19	L3A, L3B	L3 connection
20	VT1	Band 1 tuning voltage input
21, 23	L2B, L2A	L2 connection
22	GND	Ground - Common

SPECIFICATIONS

Absolute Maximum Ratings

	Minimum	Maximum
Control Voltage	0.0 V	+12.0 V
RF Input Power		+27 dBm
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
Moisture Sensitivity Level	MSL 3	



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

Recommended Operating Conditions

	Minimum	Typical	Maximum
Control Voltage	1 V		8 V
Operating Case Temperature	-40 °C		85 °C

RF Performance

(T = 25 °C unless otherwise specified)

Param	Testing Conditions	Min	Typical	Max
Frequency Range	Band 1, 1-8 V	159 MHz		237 MHz
	Band 2, 1-8 V	205 MHz		299 MHz
Insertion Loss	Band 1		-1.3 dB	
	Band 2		-1.3 dB	
Return Loss	Band 1		-18 dB	
	Band 2		-20 dB	

Timing Characteristics

(T = 25 °C unless otherwise specified)

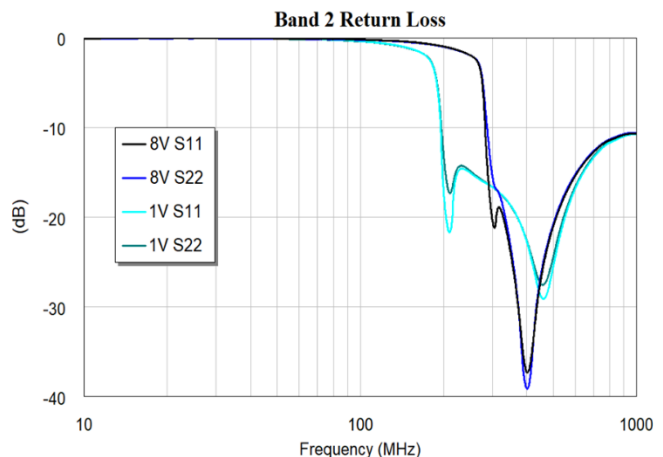
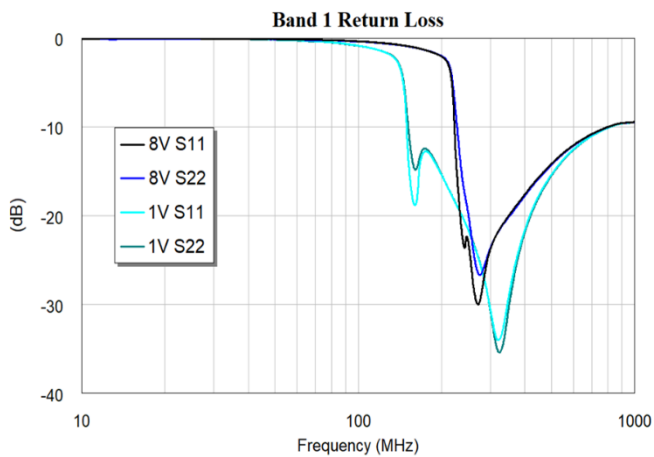
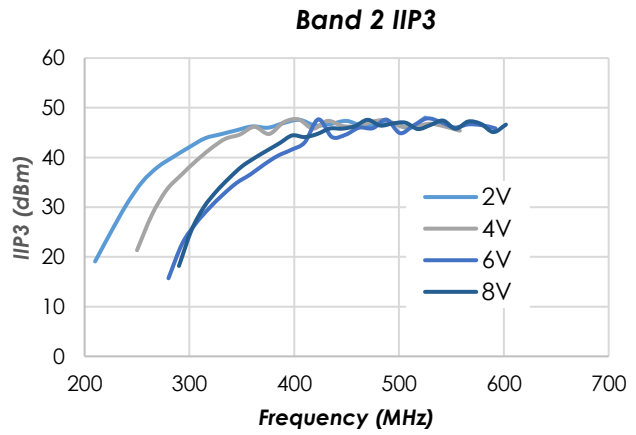
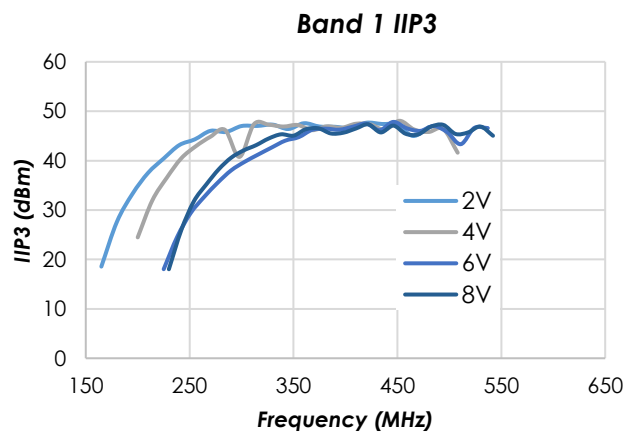
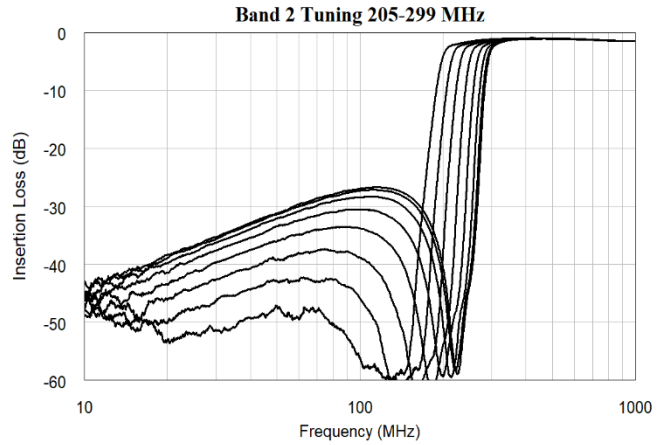
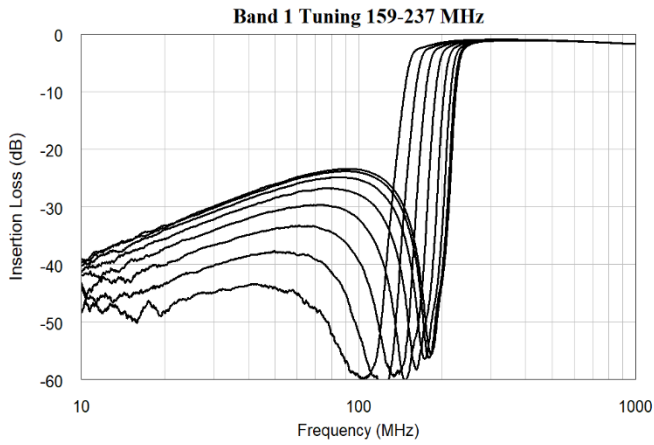
Param	Min	Typical	Max
Band 1 Tuning Rate ¹ , Rise ² (Out of Band -> In Band)		2.95 μ s/V	3.8 μ s/V ⁴
Band 1 Tuning Rate, Fall ³ (In Band -> Out of Band)		379 ns/V	
Band 2 Tuning Rate, Rise (Out of Band -> In Band)		393 ns/V	3.9 μ s/V ⁴
Band 2 Tuning Rate, Fall (In Band -> Out of Band)		295 ns/V	

Notes:

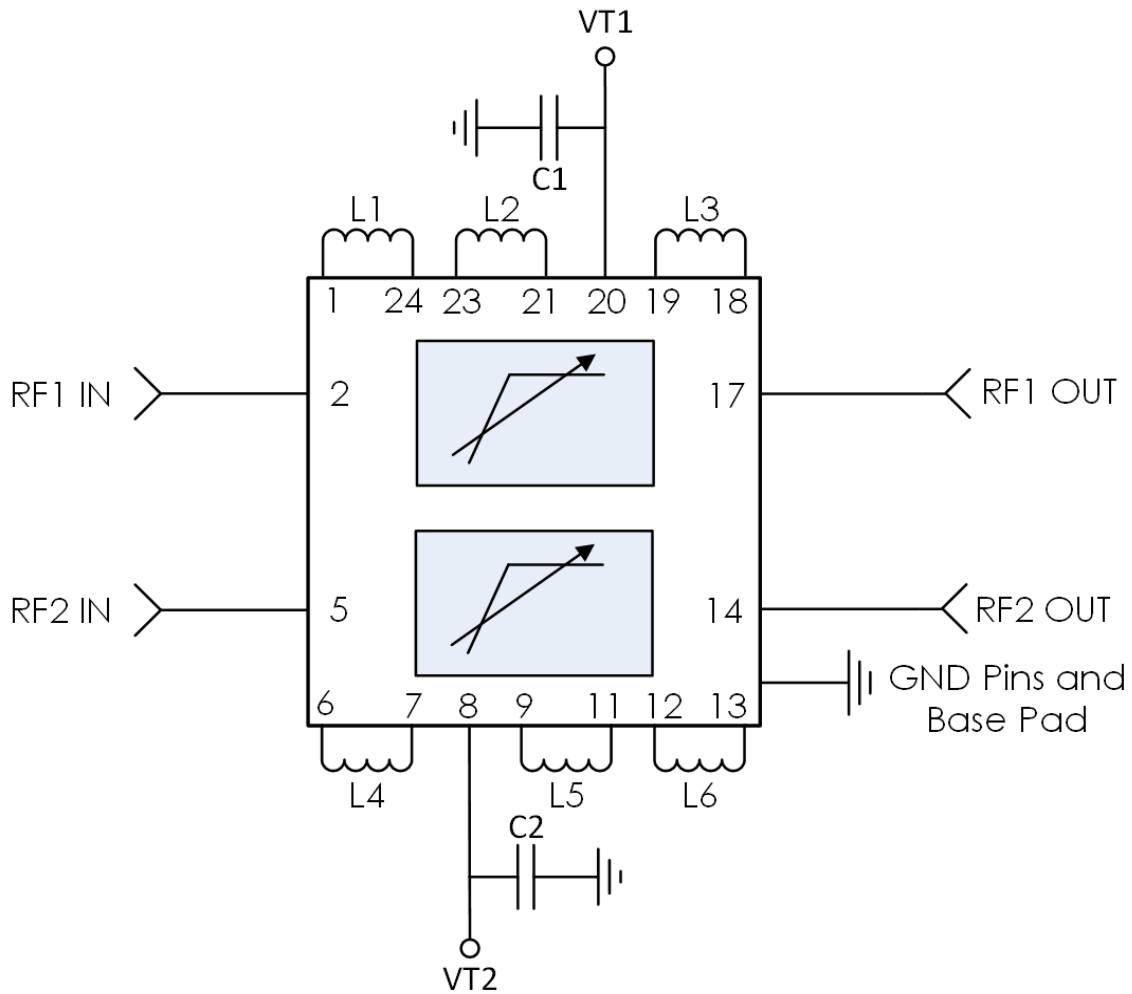
1. Tuning Rate = the time it takes the filter response to tune to the new corner frequency per unit change of the control voltage.
2. Tuning Rate Rise measured as 50% CTRL to over 90% RF.
3. Tuning Rate Fall measured as 50% CTRL to 10% RF.
4. Maximum value describes settling time to reach 100% RF in cases of prolonged settling.

TYPICAL PERFORMANCE

(T = 25 °C unless otherwise specified)



TYPICAL APPLICATION



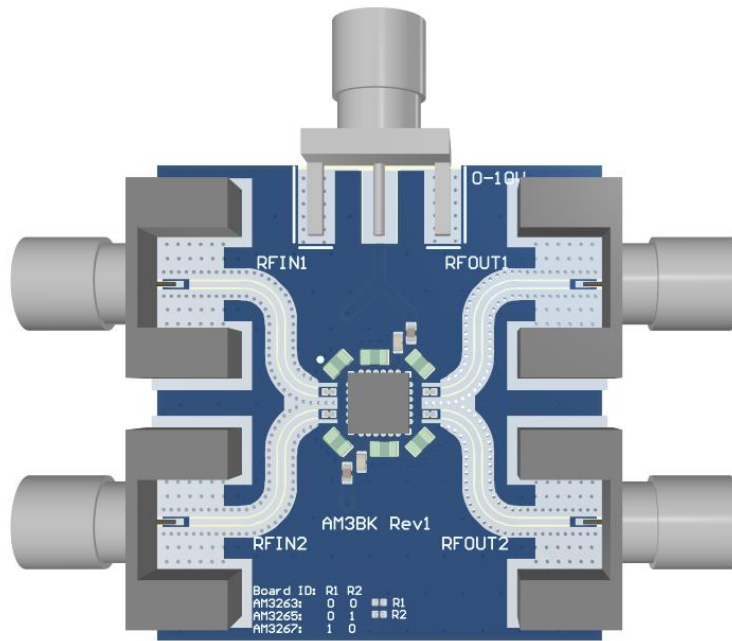
RECOMMENDED COMPONENT LIST (OR EQUIVALENT)

Part	Value	Part Number	Manufacturer
C1, C2	0.1 μ F	GRM155R71H104KE14D	Murata Electronics
L1, L2, L3	43 nH	0603DC-43NXGRW	Coilcraft
L4, L5, L6	33 nH	0603DC-33NXGRW	Coilcraft

Notes:

1. L1-L6 should be as close to the package as possible to minimize trace length between inductors and package.
2. Select C1 and C2 values based on desired logic source decoupling and tuning speed.
3. There is a 10.4 k Ω resistor internally in series for each band.

EVALUATION PC BOARD



RELATED PARTS

Part Number		Description		
AM3263	90 MHz to 167 MHz	Analog Tunable Highpass		
AM3264	103 MHz to 191 MHz	Analog Tunable Lowpass		
AM3266	177 MHz to 344 MHz	Analog Tunable Lowpass		
AM3267	269 MHz to 486 MHz	Analog Tunable Highpass		
AM3268	288 MHz to 578 MHz	Analog 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)

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.



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