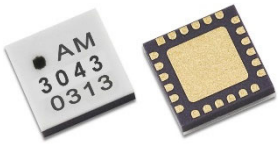
AM3043 – Tunable Filter

Digitally Tunable 6.5 to 17.0 GHz Bandpass

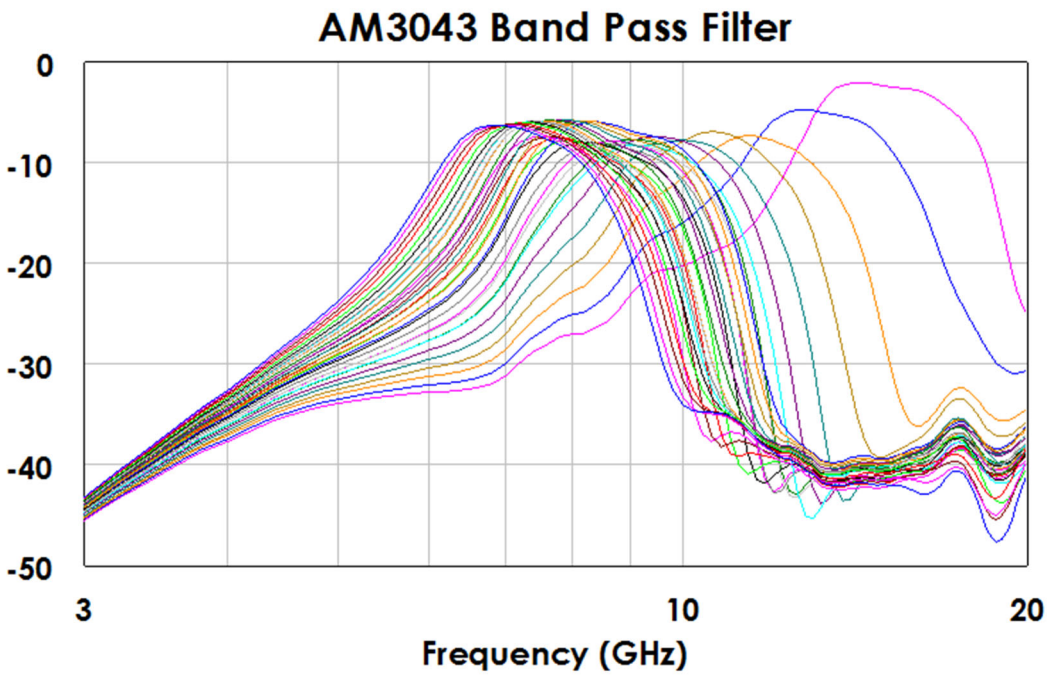


AM3043 is a miniature digitally tunable bandpass filter covering the 6.5 to 17.0 GHz frequency range. The filter provides 32 discrete tunable steps with 5 digital control bits. AM3043 is packaged in a 3mm QFN package and operates over the -40C to +85C temperature range.

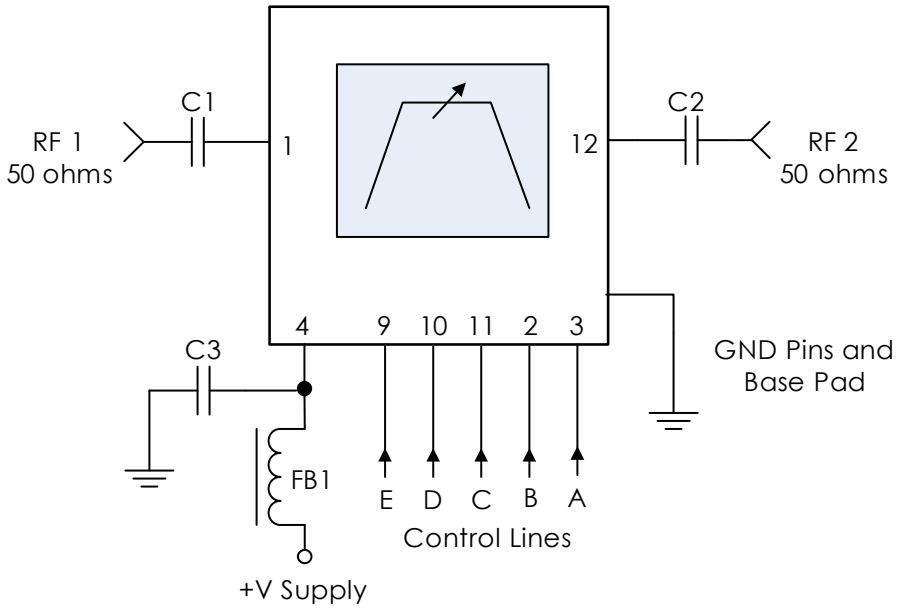
FEATURES

- Discrete frequency steps
- 5-bit control, 3V or 5V Logic
- No calibration required
- 3mm QFN Package
- +5V DC Supply
- -40C to +85C Operation

TYPICAL PERFORMANCE



TYPICAL APPLICATION CIRCUIT



Recommended Component List (or Equivalent)

Part	Value	Part Number	Manufacturer
C1, C2	0.1uF	0402BB104KW160	Passives Plus
C3	0.1uF	C1005X7R1H104K050BB	TDK
FB1	-	MMZ1005A222E	TDK

Notes:

1. RF blocking capacitors should be high performance, low-loss, broadband capacitors for optimum performance.
2. RC filtering on the control lines is recommended to prevent digital noise from coupling to the RF path.

SPECIFICATIONS

Specifications	Minimum	Typical	Maximum
Frequency Range	6.5 GHz		17.0 GHz
Center Frequency Range		7.0 to 15.5 GHz	
Insertion Loss		6 dB	
Input IP3		+40 dBm	
RF Input Level			+27 dBm
Switching Speed			1 us
Logic Level Low	-0.1V		+0.5V
Logic Level High	+2.0V		+5.0V
Package Size		3.0 x 3.0 x 1.0mm	
DC Supply Voltage	+4.7V	+5.0 V	+5.2V
DC Supply Current		1 mA	
Power Consumption		5 mW	
Operating Temperature	-40 C		+85 C
Storage Temperature	-50 C		+125 C

PIN DEFINITIONS

16 pin 3mm QFN Package

Pin	Name	Function
1	RF 1	RF Port 1 - 50 ohms, DC coupled. External AC coupling capacitor required.
2	B	Control Bit B
3	A	Control Bit A
4	Vcc	+5.0V DC Power Input
5-8	GND	Ground - Common
9	E	Control Bit E
10	D	Control Bit D
11	C	Control Bit C
12	RF 2	RF Port 2 – 50 ohms, DC coupled. External AC coupling capacitor required.
13-16	GND	Ground - Common

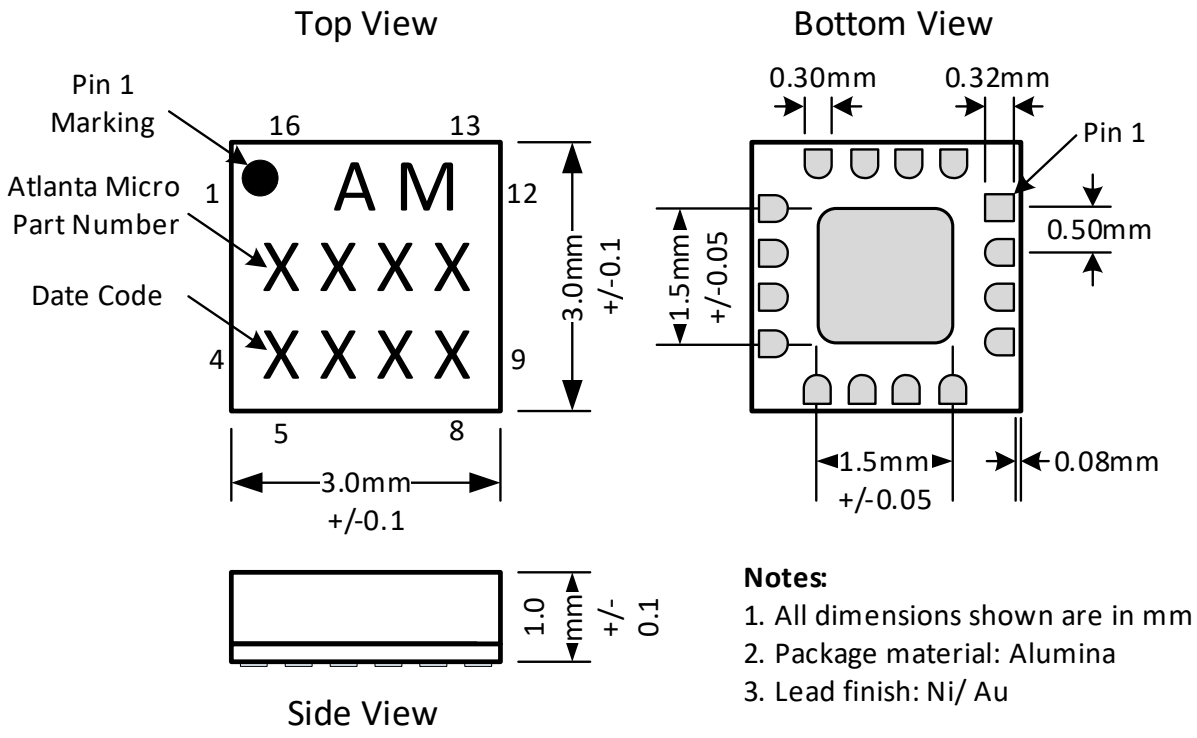
CONTROL TABLE

Band Select Control Line					Typical Center Freq. (GHz)	Typical Insertion Loss (dB)	Typical Bandwidth (GHz)
E	D	C	B	A			
L	L	L	L	L	7.16	-6.2	1.82
L	L	L	L	H	7.22	-6.1	1.82
L	L	L	H	L	7.31	-6	1.81
L	L	L	H	H	7.39	-6	1.82
L	L	H	L	L	7.48	-5.9	1.82
L	L	H	L	H	7.58	-5.8	1.84
L	L	H	H	L	7.67	-5.8	1.84
L	L	H	H	H	7.76	-5.8	1.85
L	H	L	L	L	7.67	-5.7	1.82
L	H	L	L	H	7.80	-5.7	1.89
L	H	L	H	L	7.94	-5.7	1.95
L	H	L	H	H	8.07	-5.7	2.05
L	H	H	L	L	8.25	-5.6	2.14
L	H	H	L	H	8.43	-5.6	2.3
L	H	H	H	L	8.62	-5.6	2.36
L	H	H	H	H	8.77	-5.6	2.36

CONTROL TABLE (CONTINUED)

Band Select Control Line					Typical Center Freq. (GHz)	Typical Insertion Loss (dB)	Typical Bandwidth (GHz)
E	D	C	B	A			
H	L	L	L	L	7.71	-7.3	1.67
H	L	L	L	H	7.86	-7.4	1.73
H	L	L	H	L	8.03	-7.4	1.82
H	L	L	H	H	8.22	-7.6	1.94
H	L	H	L	L	8.50	-7.7	2.09
H	L	H	L	H	8.75	-7.8	2.15
H	L	H	H	L	9.04	-7.7	2.19
H	L	H	H	H	9.31	-7.9	2.2
H	H	L	L	L	8.88	-7.4	2.03
H	H	L	L	H	9.22	-7.3	2.07
H	H	L	H	L	9.65	-7.2	2.24
H	H	L	H	H	10.04	-7.8	2.46
H	H	H	L	L	10.60	-7	2.55
H	H	H	L	H	11.64	-7.5	2.79
H	H	H	H	L	13.26	-5.2	3.23
H	H	H	H	H	15.28	-2.4	4.44

PACKAGE DETAILS



Notes:

1. All dimensions shown are in mm
2. Package material: Alumina
3. Lead finish: Ni/ Au

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