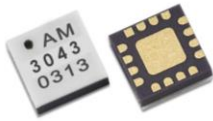


AM3043 – Tunable Filter **mercury**

Digitally Tunable 6.5 to 17.0 GHz Bandpass



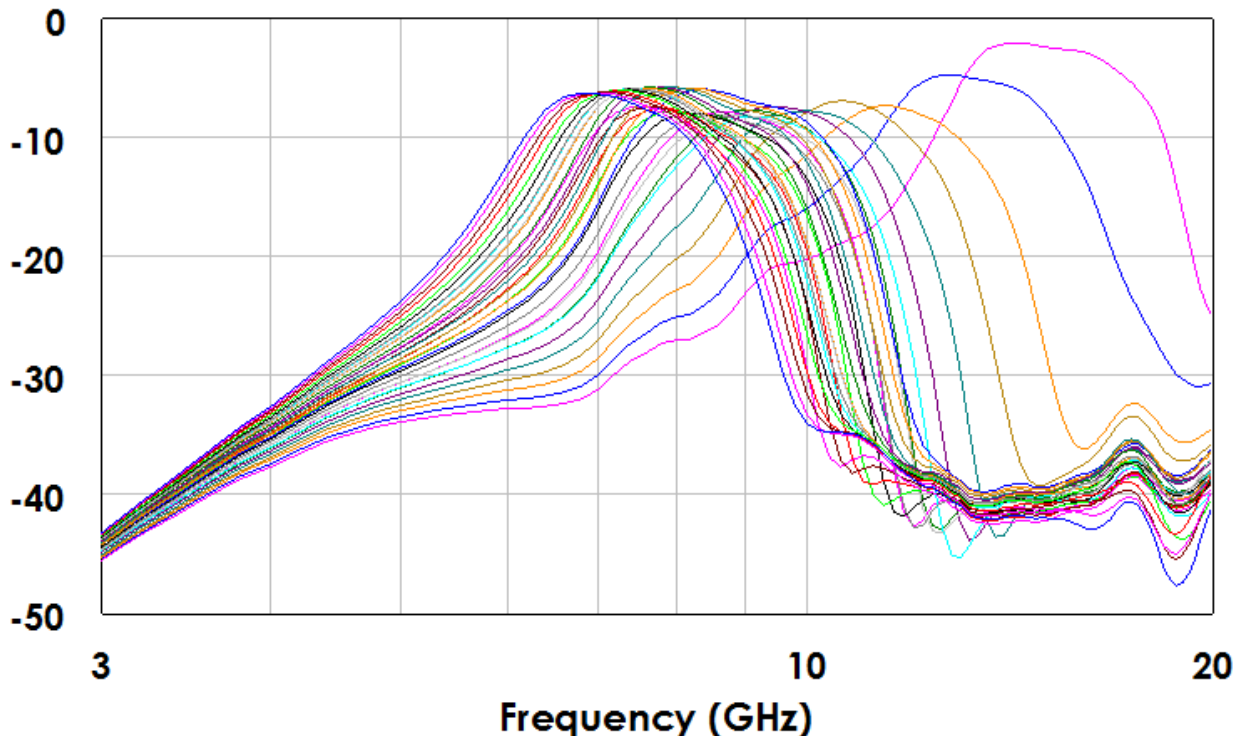
AM3043 is a miniature digitally tunable bandpass filter covering the 6.5 to 17.0 GHz frequency range. The filter provides 32 discrete tunable steps with 5 digital control bits. AM3043 is packaged in a 3mm QFN package and operates over the -40C to +85C temperature range.

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

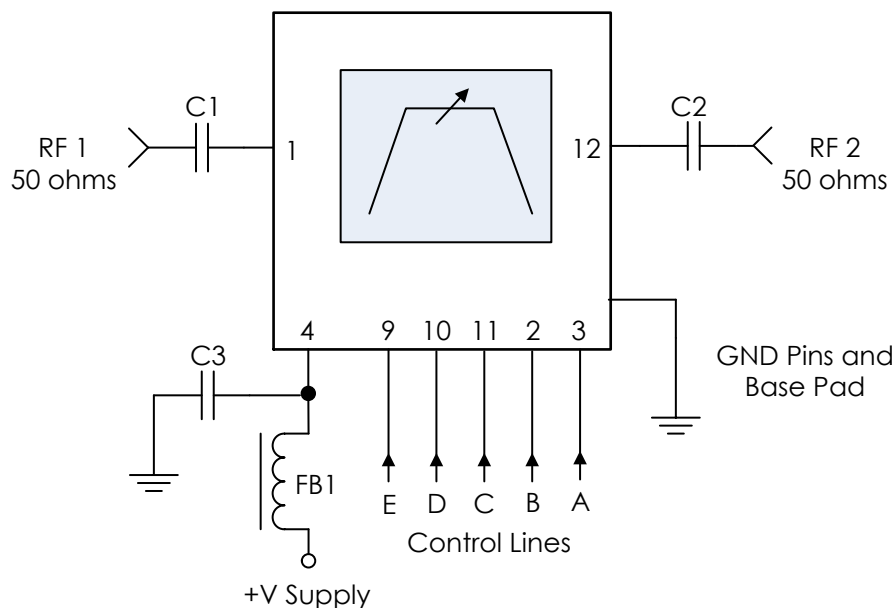
AM3043 Band Pass Filter



AM3043 – Tunable Filter

Digitally Tunable 6.5 to 17.0 GHz Bandpass

Typical Application Circuit



Recommended Component List (or equivalent):

Part Type	Value	Part Number	Manufacturer
C1, C2	0.1 μ F	0402BB104KW160	Passives Plus
C3	0.1 μ F	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.

AM3043 – Tunable Filter

Digitally Tunable 6.5 to 17.0 GHz Bandpass

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

AM3043 – Tunable Filter

Digitally Tunable 6.5 to 17.0 GHz Bandpass

Pin Definitions – 16 pin 3mm QFN package

Pin Number	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

AM3043 – Tunable Filter

Digitally Tunable 6.5 to 17.0 GHz Bandpass

Control Table

Band Select Control Line					Typical Center Frequency (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

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AM3043 – Tunable Filter

Digitally Tunable 6.5 to 17.0 GHz Bandpass

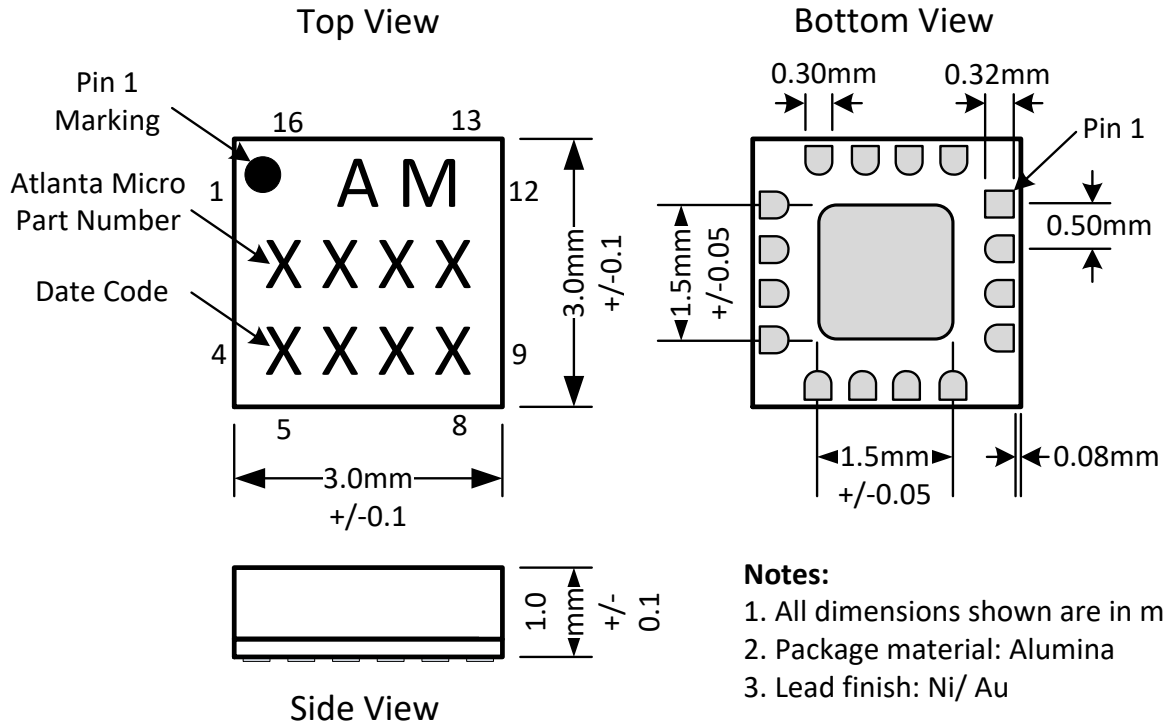
Control Table - Continued

Band Select Control Line					Typical Center Frequency (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

AM3043 – Tunable Filter

Digitally Tunable 6.5 to 17.0 GHz Bandpass

Package Details



Notes:

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