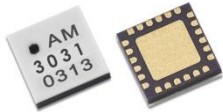


AM3031 – Tunable Filter

Digitally Tunable 1.0 to 1.8 GHz Highpass

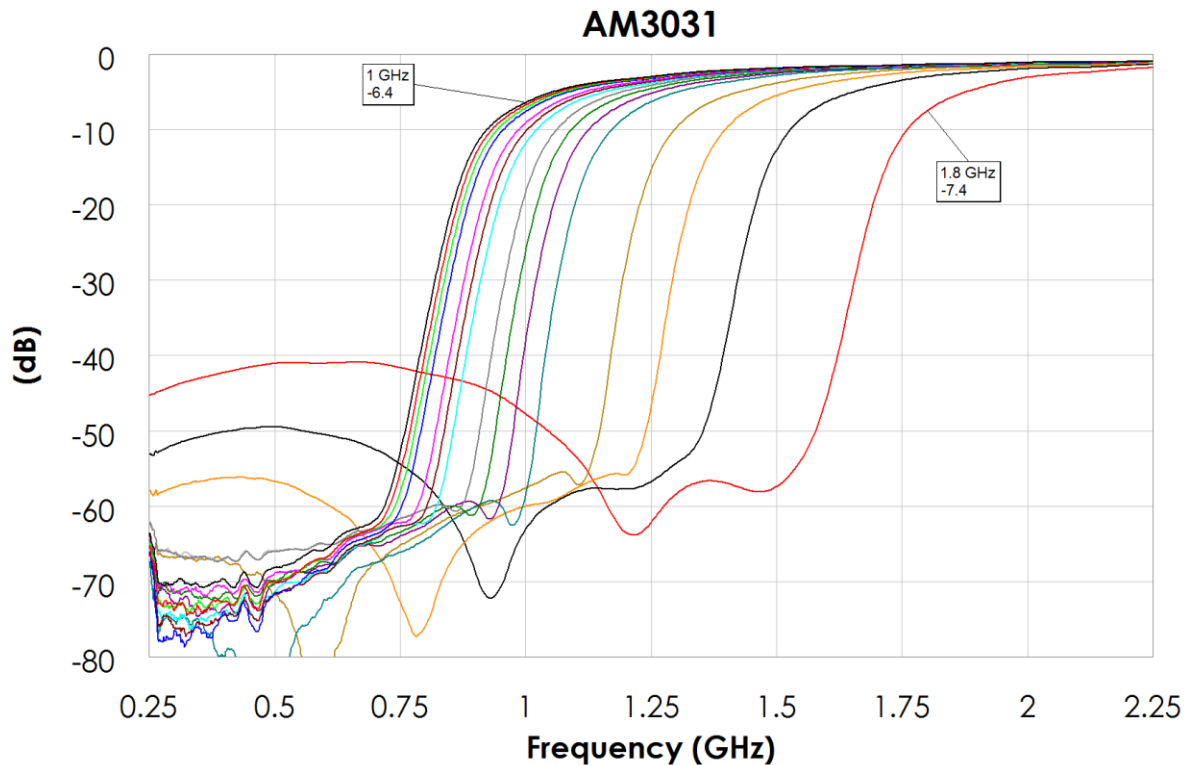


AM3031 is a miniature digitally tunable highpass filter covering the 1.0 to 1.8 GHz frequency range. The filter provides 16 selectable highpass cutoff states with 4 digital control bits. The tunable highpass filter can be combined with one of Atlanta Micro's tunable lowpass filters to provide a flexible tunable bandpass filter solution. AM3031 is packaged in a 4mm QFN package and operates over the -40C to +85C temperature range.

Features

- Discrete high pass cutoff steps
- 4-bit control, 3V or 5V Logic
- No calibration required
- +5V DC Supply
- 4mm QFN Package
- -40C to +85C Operation

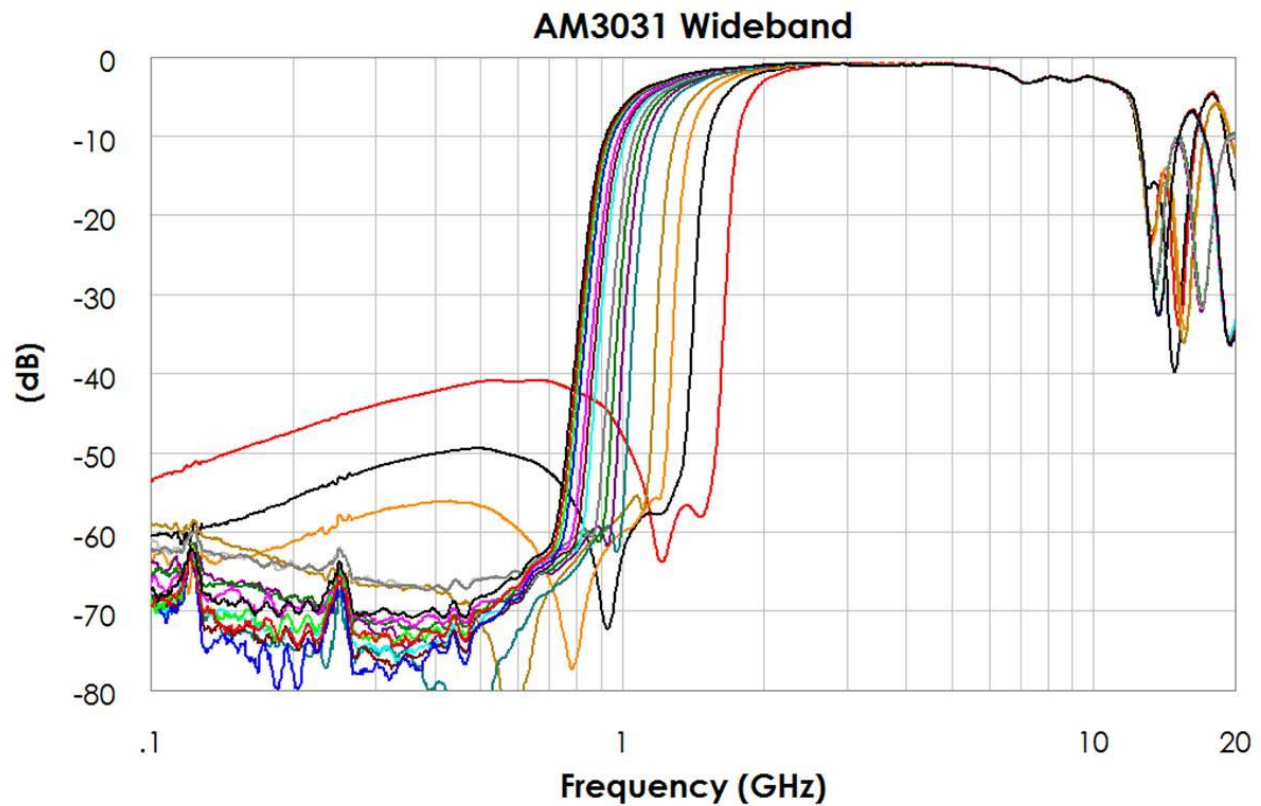
Typical Performance



AM3031 – Tunable Filter

Digitally Tunable 1.0 to 1.8 GHz Highpass

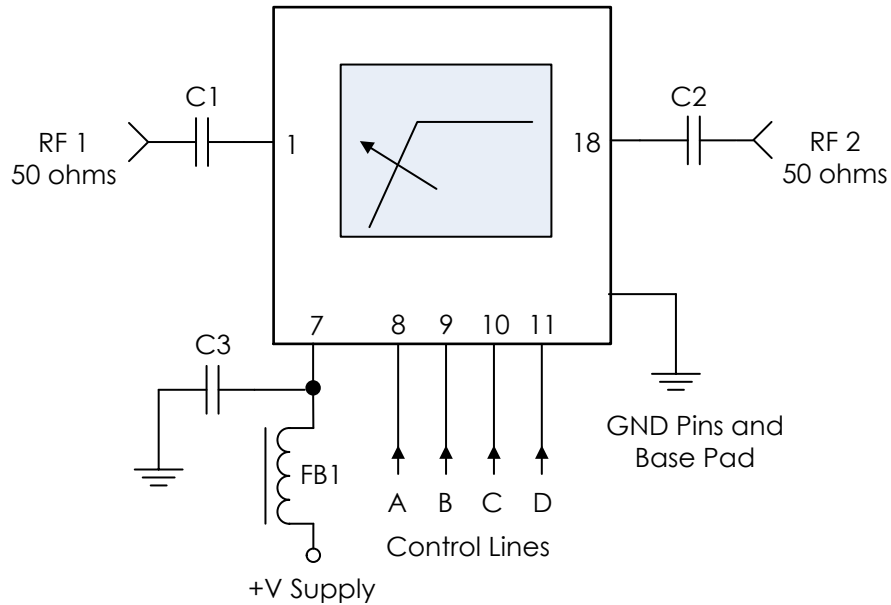
Typical Performance



AM3031 – Tunable Filter

Digitally Tunable 1.0 to 1.8 GHz Highpass

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.

AM3031 – Tunable Filter

Digitally Tunable 1.0 to 1.8 GHz Highpass

Specifications

Specifications	Minimum	Typical	Maximum
Cutoff Frequency Range	1.0 GHz		1.8 GHz
Insertion Loss		1 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		4.0 x 4.0 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

AM3031 – Tunable Filter

Digitally Tunable 1.0 to 1.8 GHz Highpass

Pin Definitions – 24 pin 4mm QFN package

Pin Number	Name	Function
1	RF 1	RF Port 1 - 50 ohms, DC coupled. External AC coupling capacitor required.
2-5	GND	Ground - Common
6	NC	Do Not Connect
7	Vcc	+3.3V to +5.0V DC Power Input
8	A	Filter Control Bit A
9	B	Filter Control Bit B
10	C	Filter Control Bit C
11	D	Filter Control Bit D
12 – 17	GND	Ground - Common
18	RF 2	RF Port 2 – 50 ohms, DC coupled. External AC coupling capacitor required.
19-24	GND	Ground - Common

AM3031 – Tunable Filter

Digitally Tunable 1.0 to 1.8 GHz Highpass

Control Table

Band Select Control Line				Typical Cutoff Frequency (GHz)
D	C	B	A	
L	L	L	L	1.00
L	L	L	H	1.01
L	L	H	L	1.02
L	L	H	H	1.03
L	H	L	L	1.06
L	H	L	H	1.08
L	H	H	L	1.10
L	H	H	H	1.12
H	L	L	L	1.14
H	L	L	H	1.16
H	L	H	L	1.20
H	L	H	H	1.25
H	H	L	L	1.37
H	H	L	H	1.47
H	H	H	L	1.60
H	H	H	H	1.82

AM3031 – Tunable Filter

Digitally Tunable 1.0 to 1.8 GHz Highpass

Package Details

