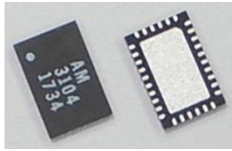


AM3104 – Filter Bank

Digitally Tunable 2.5 to 6.5 GHz Bandpass

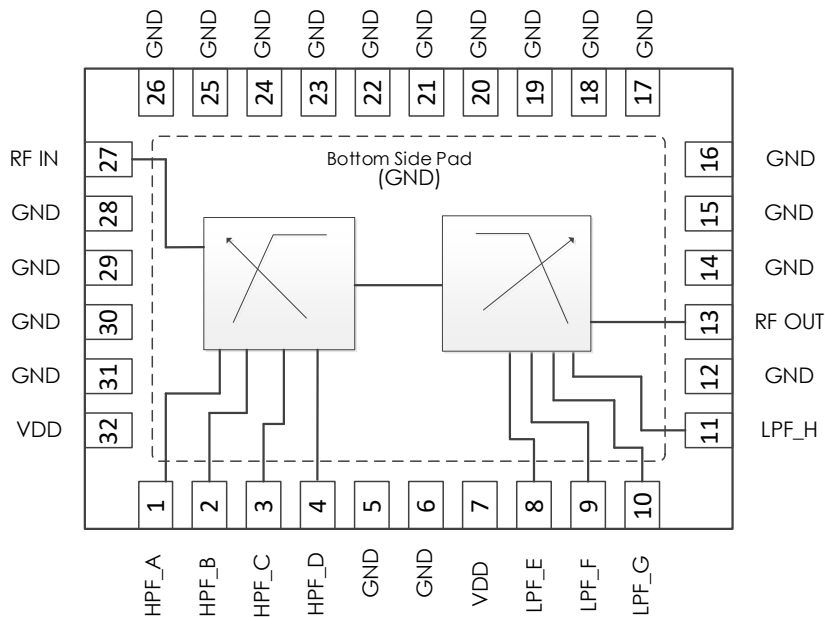


AM3104 is a miniature filter IC containing digitally tunable bandpass filters covering the 2.5 GHz to 6.5 GHz frequency range. Independent 4-bit digital control of the low-pass and high-pass corners provide control of both center frequency and bandwidth. AM3104 provides an excellent filtering solution for a receiver or transceiver requiring flexible center frequency and bandwidth, high dynamic range, and small size, weight, and power consumption.

Features

- Digitally Tunable Bandpass Filters
- Independent LP and HP control
- 4-bit Control, 3V or 5V Logic
- +3.3V to +5.0V Supply
- Integrated Control Line Filtering
- 2.5 dB Insertion Loss
- 4.0 x 6.0 mm QFN Package
- +40 dBm Input IP3
- -40C to +85C Operation

Functional Diagram

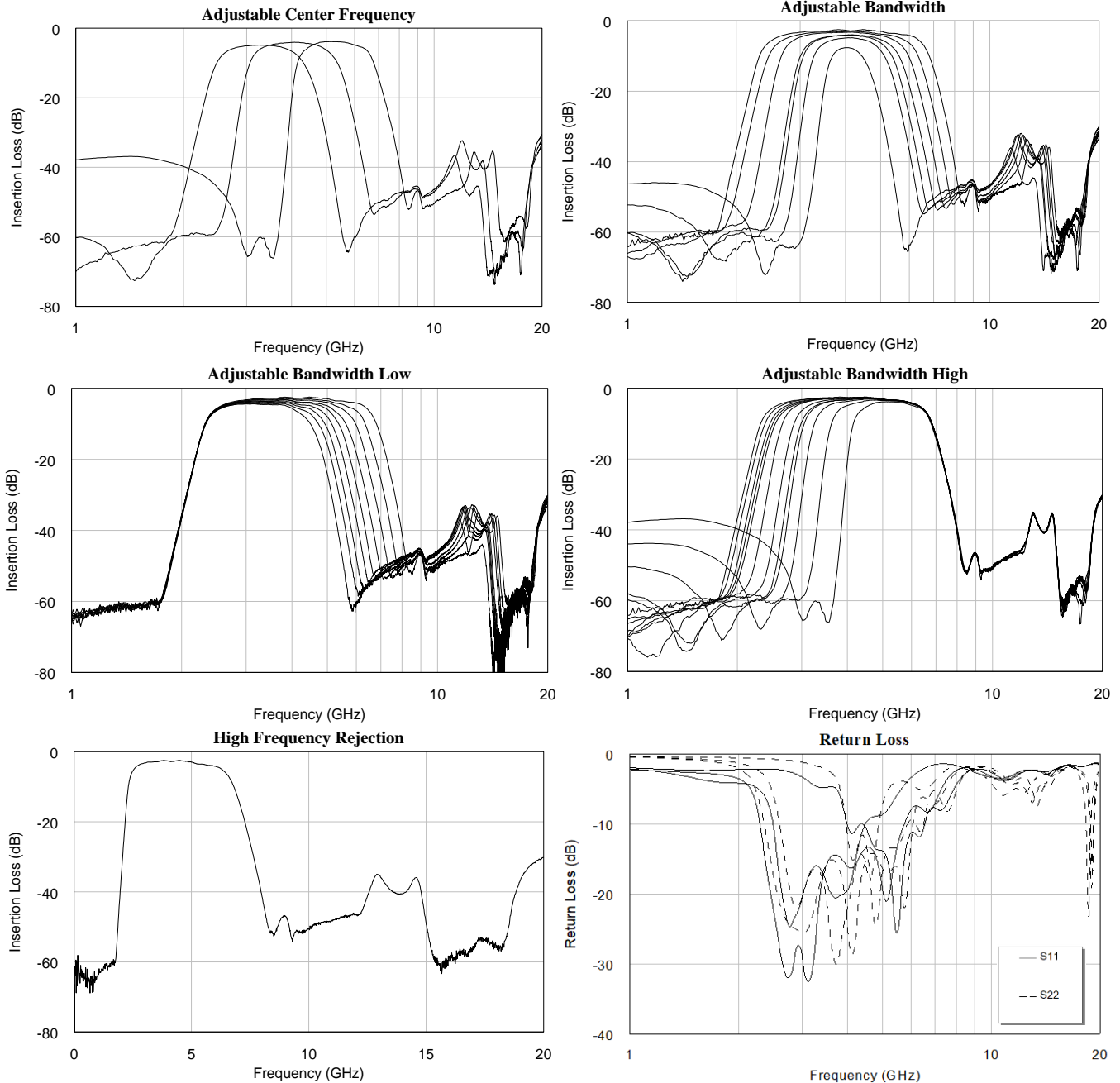


AM3104 – Filter Bank

Digitally Tunable 2.5 to 6.5 GHz Bandpass

Typical Performance

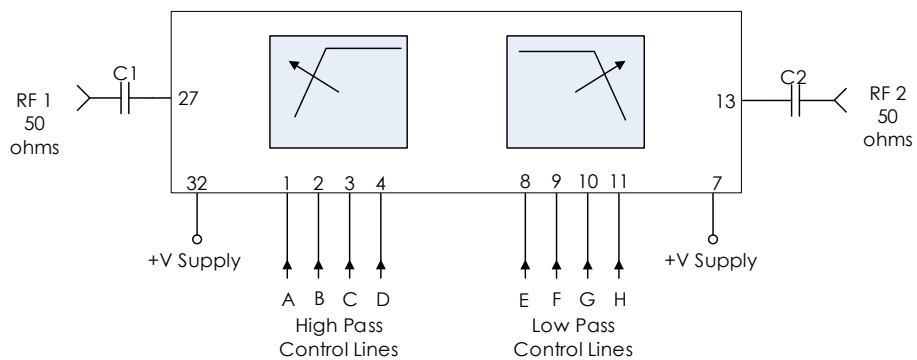
Note: Only some of the available states shown for simplicity.



AM3104 – Filter Bank

Digitally Tunable 2.5 to 6.5 GHz Bandpass

Typical Applications Schematic



Recommended Component List (or equivalent):

Part	Value	Part Number	Manufacturer
C1,C2	0.1 uF	0402BB104KW160	Passives Plus

Notes:

1. RF blocking capacitors should be high performance, low-loss, broadband capacitors for optimum performance.
2. VDD and control lines filtered internally providing high-frequency isolation to 20+ GHz.

AM3104 – Filter Bank

Digitally Tunable 2.5 to 6.5 GHz Bandpass

Pin Definitions

Pin Number	Name	Function
1	HPF_A	High pass filter control A
2	HPF_B	High pass filter control B
3	HPF_C	High pass filter control C
4	HPF_D	High pass filter control D
5,6	GND	Ground
7	VDD	DC Power Input
8	LPF_E	Low pass filter control E
9	LPF_F	Low pass filter control F
10	LPF_G	Low pass filter control G
11	LPF_H	Low pass filter control H
12	GND	Ground
13	RF OUT	RF Output – 50 ohms – DC coupled. External DC block required.
14-26	GND	Ground
27	RF IN	RF Input – 50 ohms – DC coupled. External DC block required.
28-31	GND	Ground
32	VDD	DC Power Input

Specifications

Specifications	Minimum	Typical	Maximum
Frequency Range	2.5 GHz		6.5 GHz
Insertion Loss		2.5dB	
Input IP3		+40dBm	
RF Input Level			+27dBm
Switching Speed			1 μ s
Logic Level Low	-0.1V		+0.5V
Logic Level High	+2.0V		+5.0V
Package Size		4.0 x 6.0 x 0.9 mm	
DC Supply Voltage	+3.1V		+5.2V
DC Supply Current		2mA	
Power Consumption		10mW	
Operating Temperature	-40 C		+85 C
Storage Temperature	-50 C		+125 C

AM3104 – Filter Bank

Digitally Tunable 2.5 to 6.5 GHz Bandpass

Control Table

High Pass Control Lines				Typical Cutoff Frequency (GHz)
D	C	B	A	
L	L	L	L	2.50
L	L	L	H	2.53
L	L	H	L	2.56
L	L	H	H	2.59
L	H	L	L	2.61
L	H	L	H	2.64
L	H	H	L	2.70
L	H	H	H	2.74
H	L	L	L	2.85
H	L	L	H	2.93
H	L	H	L	3.06
H	L	H	H	3.20
H	H	L	L	3.26
H	H	L	H	3.47
H	H	H	L	3.84
H	H	H	H	4.36

Low Pass Control Lines				Typical Cutoff Frequency (GHz)
H	G	F	E	
L	L	L	L	3.50
L	L	L	H	3.60
L	L	H	L	3.68
L	L	H	H	3.79
L	H	L	L	3.89
L	H	L	H	4.04
L	H	H	L	4.15
L	H	H	H	4.31
H	L	L	L	4.54
H	L	L	H	4.74
H	L	H	L	4.97
H	L	H	H	5.22
H	H	L	L	5.47
H	H	L	H	5.84
H	H	H	L	6.22
H	H	H	H	6.75

AM3104 – Filter Bank

Digitally Tunable 2.5 to 6.5 GHz Bandpass

Package Details

