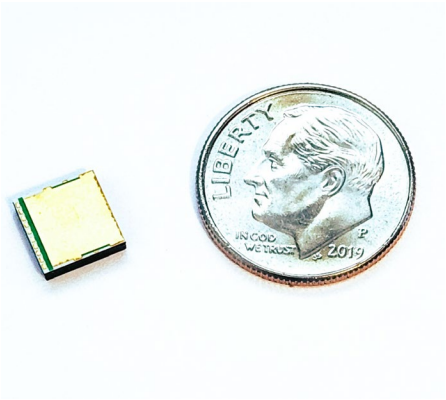
S-C Band IMF®
Preliminary

Revision X-
Document #1486861

Features

Frequency Coverage:	3-5 GHz, 4-6 GHz
Input/Output Impedance:	50 Ω
In-band Input/Output VSWR:	1.4:1 typ, 2:1 max
Insertion Loss:	5.5 dB typ. 7.5 dB max
3 dB Bandwidth:	7 % to 12%
Selectivity:	15[1] dBc typ. @ f_o ± 10%
Ultimate Attenuation:	35 dB @ 2 x f_o
In-band RF Power Handling:	+25 dBm (input)
IIP3 (input):	40 dBm min.
Noise Figure:	< IL +0.5 dB
Residual Phase Noise:	-127 dBc/Hz @ 10 kHz offset
Tuning Control:	GPIO and SPI
Tuning Speed (0 dBm input):	400 ns typ. 1 µs max.
DC Power Static:	+3.3 V_{DC} @ 0.7 mA typ.
DC Power Hopping:	6 mA max.
Operating Temperature:	-40 to +85 °C
Size:	0.280" x 0.280" x 0.090"
	(7.112 x 7.112 x 2.286 mm)



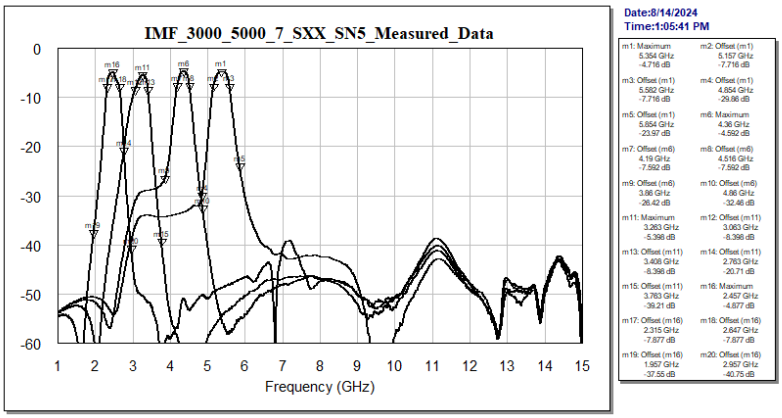
General Information

The Integrated Microwave Filter **IMF®** was designed for optimal size, DC consumption, RF power handling, insertion loss, signal purity and linearity. The **IMF®** provides a minimum center frequency step size of 50MHz typically.
The **IMF®** requires a +3.3V supply. The supply voltage should be adequately filtered as noise present on this pin will influence the RF signal purity.

Digital Interface

The digital interface can be selected on the fly to be either serial or GPIO. Please consult the demo control procedure (Document #1486860) for details. Note that serial data is +2.5V logic.

Measured Prototype Performance



Fc_GHz4: 2.457
IL_dB4: 4.877
percent_BW4: 13.5
ILBW4: 65.83
Selectivity: 0.5 GHz
dBc_Selectivity_Left4: 32.67
dBc_Selectivity_Right4: 35.87

Fc_GHz3: 3.263
IL_dB3: 5.398
percent_BW3: 10.58
ILBW3: 57.1
Selectivity: 0.5 GHz
dBc_Selectivity_Left3: 15.32
dBc_Selectivity_Right3: 33.82

Fc_GHz2: 4.36
IL_dB2: 4.592
percent_BW2: 7.482
ILBW2: 34.36
Selectivity: 0.5 GHz
dBc_Selectivity_Left2: 21.82
dBc_Selectivity_Right2: 27.87

Fc_GHz1: 5.354
IL_dB1: 4.716
percent_BW1: 7.941
ILBW1: 37.45
Selectivity: 0.5 GHz
dBc_Selectivity_Left1: 25.14
dBc_Selectivity_Right1: 19.26

[1] Selectivity is referenced to the loss of the filter at center frequency and will change depending upon 3 dB bandwidth.

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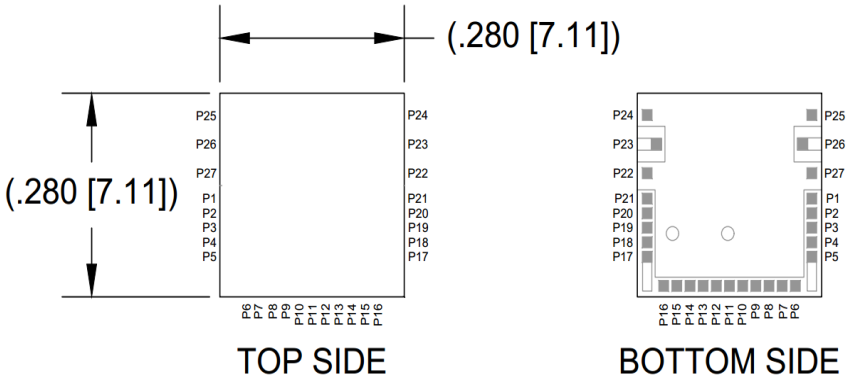
Mechanical Details



Pinout & Ratings

Pin #	Name	Description	Maximum Ratings
1-4, 18-21	GPIO	0V OFF, +3.3V ON control	0 to +3.6 V
6	V_{CC}	+3.3V Power Supply Input	
7	$\overline{RESET}$	Active low reset. Must be driven high 100µs after power on. May be toggled if unit is not responsive.	
5, 9, 10, 17, 22, 24, 25, 27	GND	Ground	0 V
8, 11, 16	N/C	No Connect[2]	-
12	SDATA_IN	Serial data in	0 to +2.5 V
13	CLK	Clock for serial data	0 to +2.5 V
14	GPIO_EN	Enables GPIO control	0 to +3.6 V
15	$\overline{STB}$	Active low tune initiation for serial data	0 to +2.5 V
23, 26	RF IN/OUT	RF Input/Output	+27 dBm In-band

IMF® Series Selection Guide

Series	Frequency (MHz)	Bandwidth (%)	Package Type
IMF	3000-5000	7	SXX
IMF	4000-6000	7	SXX

Part number example: IMF-3000-5000-7-SXX

[2] Leave floating for unit to function properly.

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