

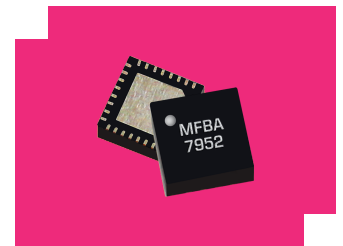
MFBA-00003PSM

Passive GaAs MMIC 10.10-14.10 GHz Bandpass Filter

DEVICE OVERVIEW

General Description

The MFBA-00003PSM family of passive MMIC surface mount bandpass filters are an ideal solution for small form factor, high rejection filtering. Passive GaAs MMIC technology allows production of smaller filter constructions that replace larger form factor circuit board constructions. Tight fabrication tolerances allow for less unit to unit variation than traditional filter technologies. The MFBA-00003PSM is available as a 5x5mm plastic QFN. Low unit to unit variation allows for accurate simulations using the provided S2P file taken from measured production units.



[Download s-parameters here](#)

Features

- Excellent Return Loss
- High Stop Band Suppression
- Wide Stop Band with Fast Roll-Off

Applications

N/A

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Packing Size	Green Status	Product Lifecycle	Export Classification
MFBA-00003PSM	Passive GaAs MMIC 10.10-14.10 GHz Bandpass Filter	PSM	-	RoHS REACH	Released	EAR99
EVB-MFBA-00003P	Evaluation Board, Passive GaAs MMIC 10.10-14.10 GHz Bandpass Filter	-	-	RoHS REACH	Released	EAR99

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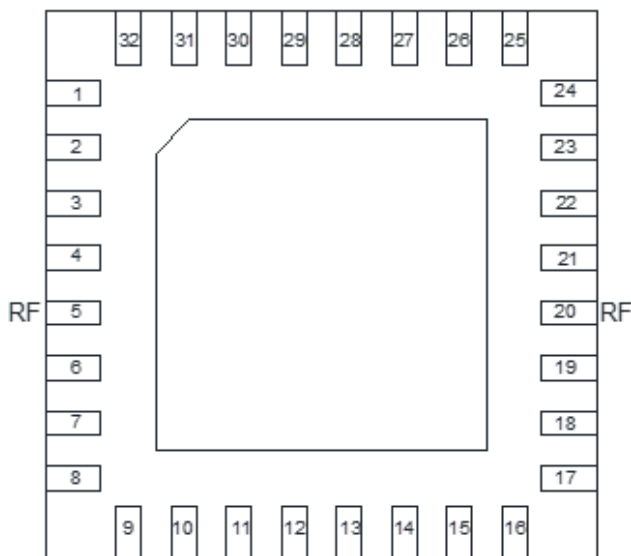
Revision History

Revision Code	Revision Date	Comment
-	2022-10-01	Datasheet Initial Release

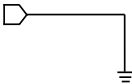
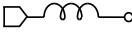
Port Configuration and Functions

Port Diagram

A top-down x-ray view of the MFBA-00003PSM package outline drawing is shown below. The MMIC bandpass filters are symmetrical allowing Pin 5 or Port 20 to be used as the input.



Port Functions

Port	Function	Description	Equivalent Circuit for Package
Pad	Ground	PSM package ground path is provided through the substrate and ground bond pads.	
Pin 20	Input/Output	Pin 20 is DC open to ground for the PSM package.	
Pin 5	Input/Output	Pin 5 is DC open to ground for the PSM package.	

Specifications

Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
Port 1 DC Current	400	mA
Port 2 DC Current	400	mA

Package Information

Parameter	Details	Rating
Dimensions	-	5x5 mm

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Electrical Specifications

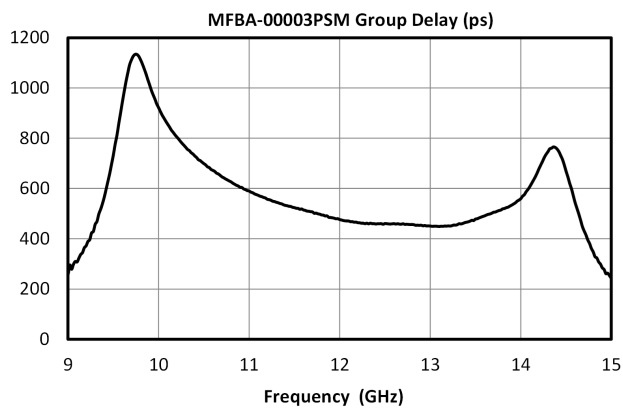
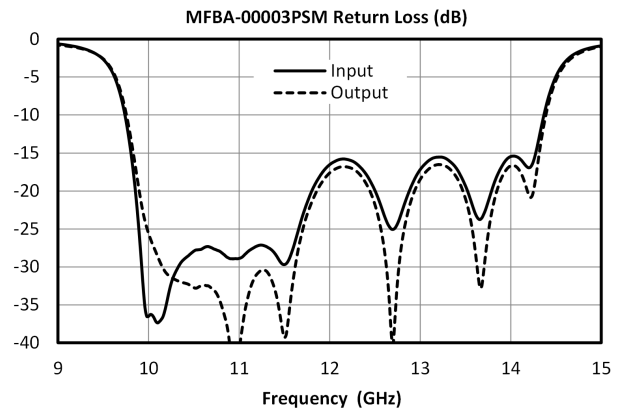
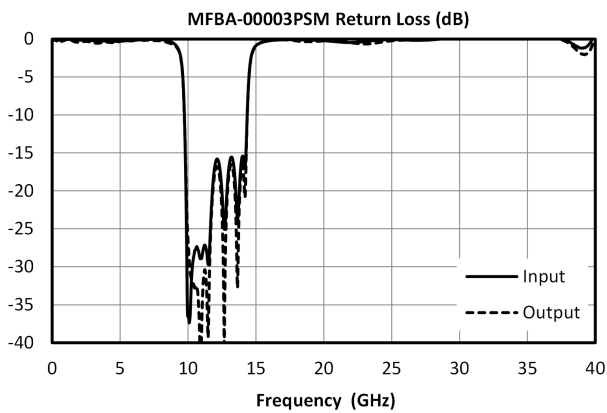
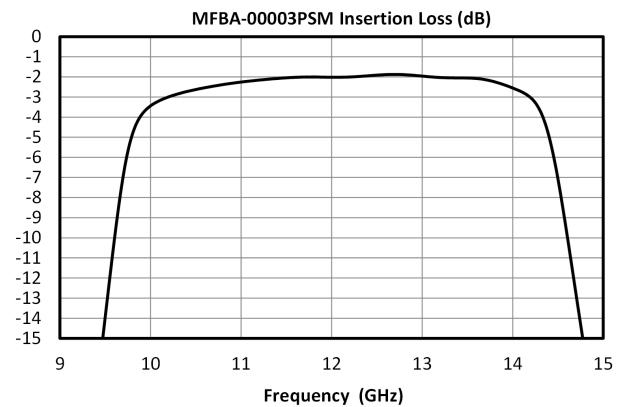
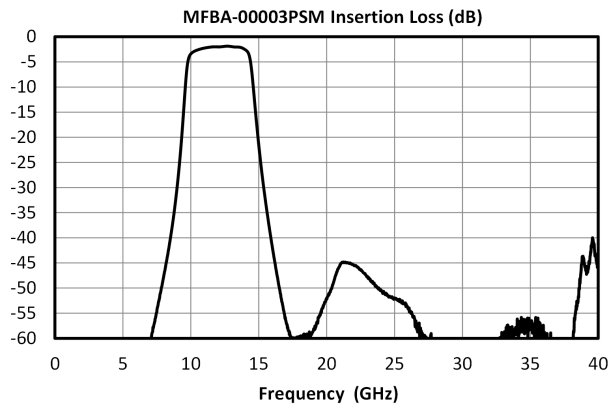
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the filter in a PSM package with a sine wave input applied to Pin 5. Min and Max limits are guaranteed at TA=+25°C.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
1dBc Passband Low Frequency	-	-	-	-	10.1	-	GHz
1dBc Passband High Frequency	-	-	-	-	14.1	-	GHz
3dBc Passband Low Frequency	-	-	-	-	9.75	-	GHz
3dBc Passband High Frequency	-	-	-	-	14.4	-	GHz
Passband Return Loss	-	10.1	14.1	15	21.8	-	dB
Stopband Suppression	-	0	7	40	80	-	dB
Stopband Suppression	-	17	37	40	44	-	dB
Group Delay	-	-	-	-	521	-	ps
Impedance	-	-	-	-	50	-	Ω
Center Frequency, f_c	-	-	-	-	12	-	GHz
Insertion Loss @ F_c	-	12	12	-	2.1	-	dB

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Typical Performance Plots

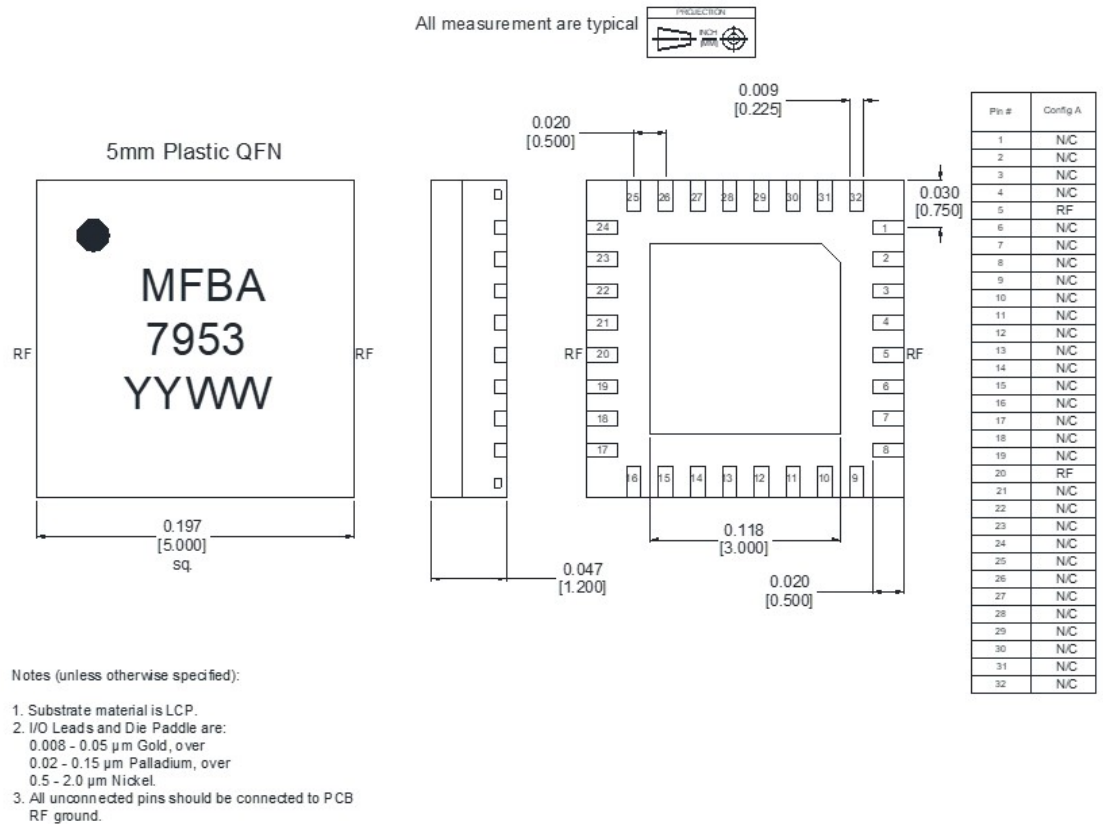


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Bandpass Filter

Mechanical Data

Outline Drawing

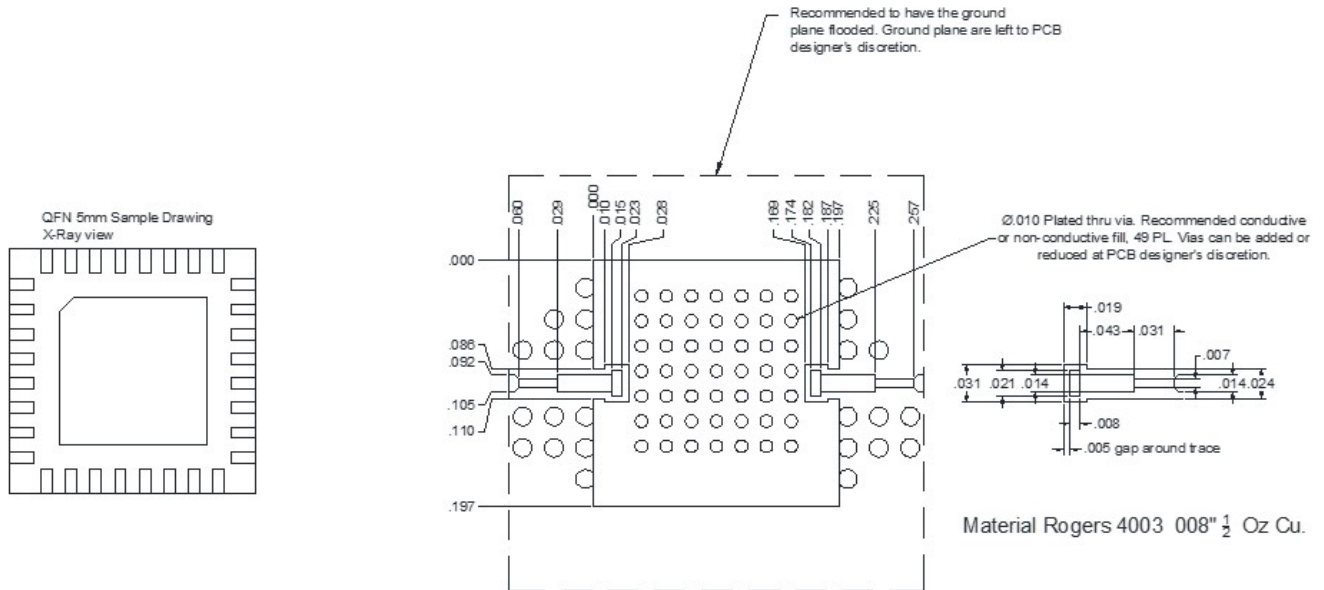


Part Number	Lid Label
MFBA-00001PSM	7950
MFBA-00002PSM	7951
MFBA-00003PSM	7952
MFBA-00004PSM	7953

MFBA-00003PSM

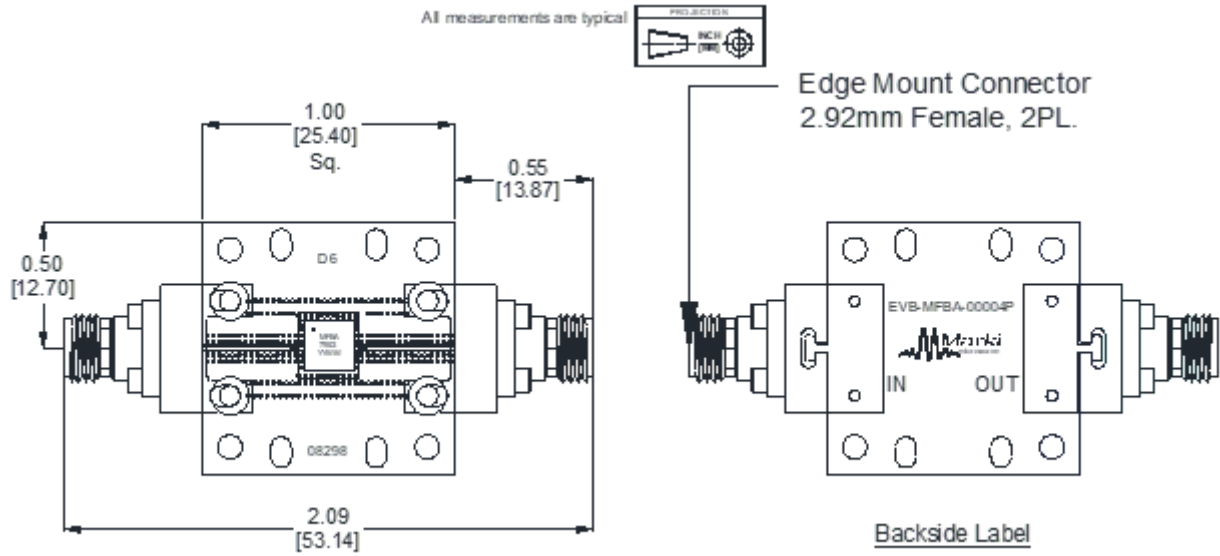
Passive GaAs MMIC 10.10-14.10 GHz
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Footprint Image



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