Sales: 408-778-9952 | General: 408-778-4200 | Fax: 408-778-4300
Sales & Customer Support: sales@markimicrowave.com
Tech Support: support@markimicrowave.com

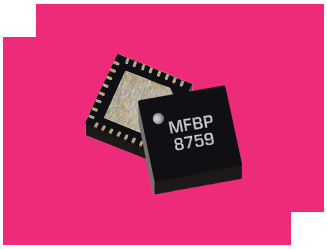
MFBP-00004PSM

Passive GaAs MMIC 6.05-10.30 GHz Bandpass Filter

DEVICE OVERVIEW

General Description

The MFBP-00004PSM 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 MFBP-00004PSM 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	Green Status	Product Lifecycle	Export Classification
MFBP-00004PSM	Passive GaAs MMIC 6.05-10.30 GHz Bandpass Filter	QFN	RoHS REACH	Released	EAR99
EVB-MFBP-00004P	Evaluation Board, Passive GaAs 6.05-10.30 GHz MMIC Bandpass Filter	EVB	RoHS REACH	Released	EAR99

MFBP-00004PSM

Passive GaAs MMIC 6.05-10.30 GHz Bandpass Filter

Table Of Contents

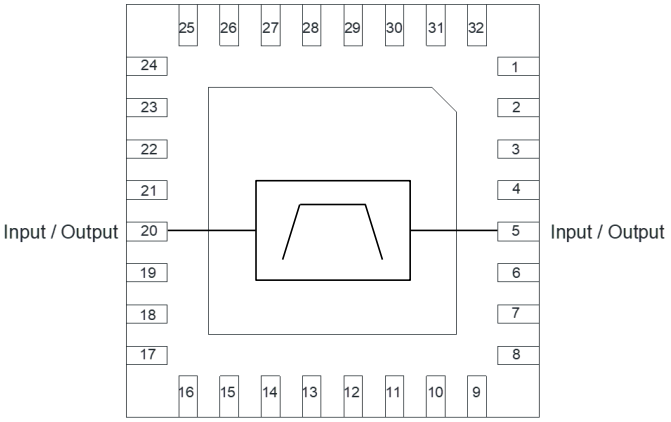
Revision History

Revision Code	Revision Date	Comment
-	2023-07-01	Initial Datasheet Release
A	2025-09-05	Power Handling Added

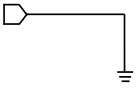
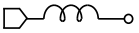
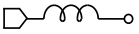
Port Configuration and Functions

Port Diagram

A top-down x-ray view of the MFBP-00004PSM 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
Ground Paddle	Ground	PSM package ground path is provided through the ground paddle and should be connected to RF ground.	
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
RF Power Handling	10	W

Package Information

Parameter	Details	Rating
Dimensions	-	5 x 5 mm
Moisture Sensitivity Level	-	MSL 1

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
1 dBc Passband	Configuration A, 25°C	6.08	10.26	-	-	-	GHz
30 dBc Rejection Point	Configuration A, 25°C	4.81	12.12	-	-	-	GHz
3 dBc Passband	Configuration A, 25°C	5.69	10.69	-	-	-	GHz
Center Freq	Configuration A, 25°C	-	-	-	7.90	-	GHz
Group Delay	Configuration A, 25°C	-	-	-	293	-	ps
Impedance	Configuration A, 25°C	-	-	-	50	-	Ω
Insertion Loss @ fc	Configuration A, 25°C	-	-	-	1.8	-	dB
Passband Return Loss	Configuration A, 25°C	-	-	-	23	-	dB

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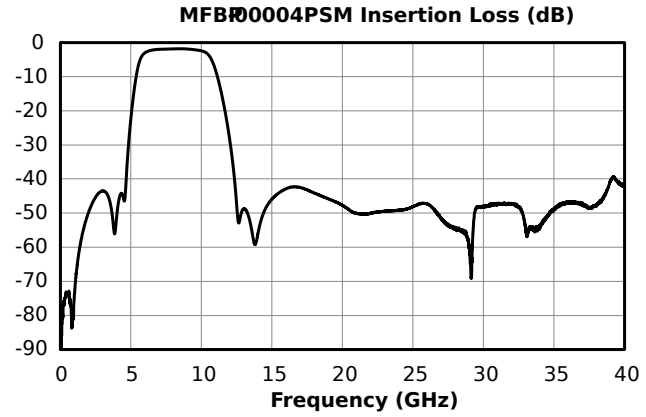
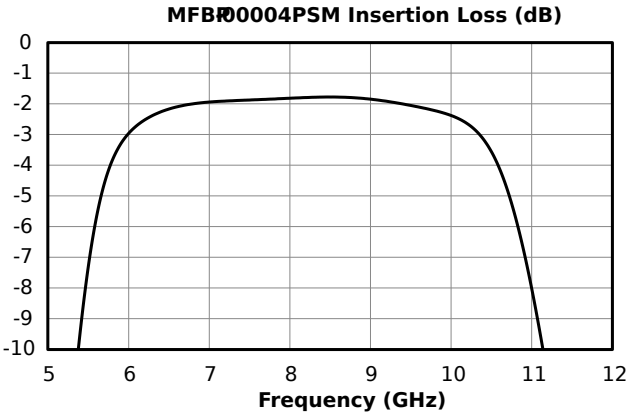
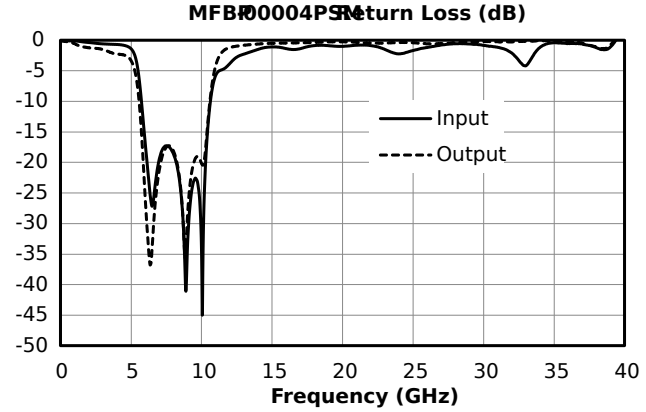
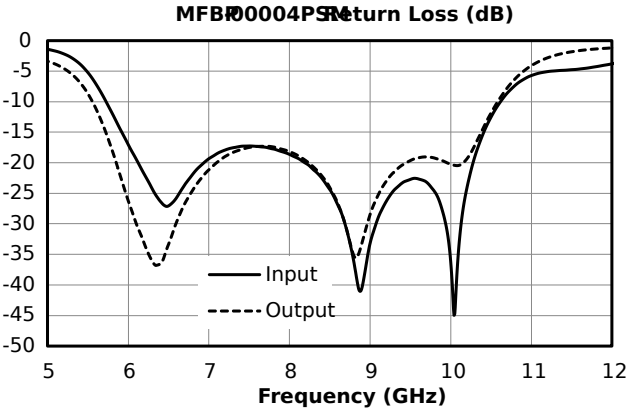
Passive GaAs MMIC 6.05-10.30 GHz Bandpass Filter

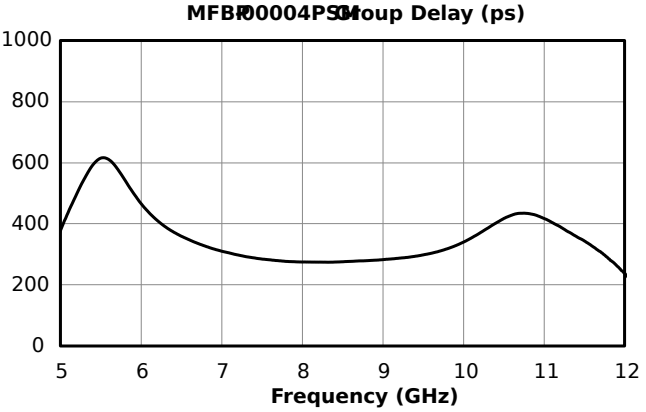
Typical Performance Plots











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Mechanical Data

Outline Drawing

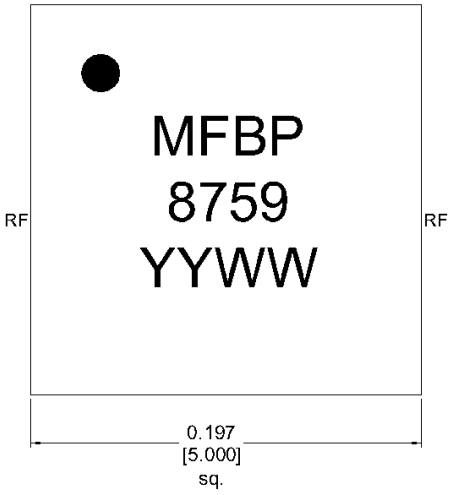
Download : Outline 2D Drawing | Outline 3D Drawing | Outline 3D STP

All measurement are typical

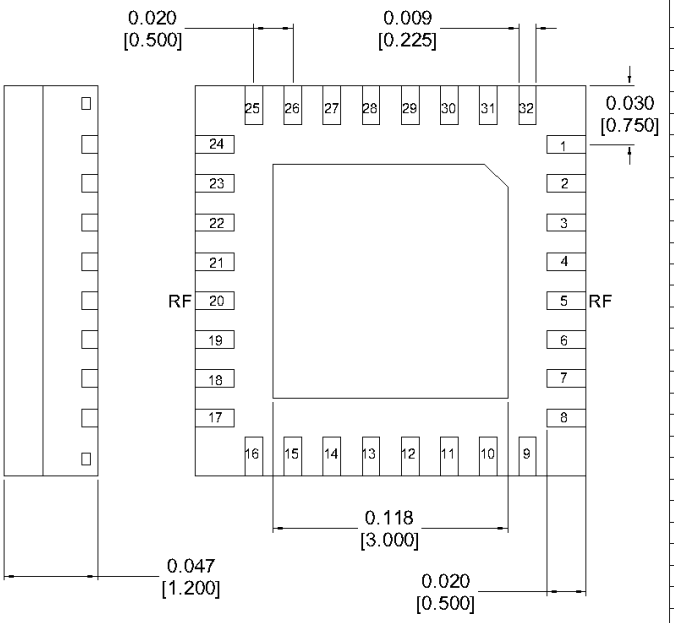
PROJECTION INCH [MM]

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVALS
-	As Drawn	6/2/23	AR

5mm Plastic QFN



Bottom-up View:



Pin #	Config A
1	N/C
2	N/C
3	N/C
4	N/C
5	RF
6	N/C
7	N/C
8	N/C
9	N/C
10	N/C
11	N/C
12	N/C
13	N/C
14	N/C
15	N/C
16	N/C
17	N/C
18	N/C
19	N/C
20	RF
21	N/C
22	N/C
23	N/C
24	N/C
25	N/C
26	N/C
27	N/C
28	N/C
29	N/C
30	N/C
31	N/C
32	N/C

Notes (unless otherwise specified):

1. Substrate material is LCP.
2. I/O Leads and Die Paddle are:
   0.008 - 0.05 µm Gold, over
   0.02 - 0.15 µm Palladium, over
   0.5 - 2.0 µm Nickel.
3. All unconnected pins should be connected to PCB RF ground.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: ANGLES ± .002/.001 .XX± .02 .XXX± .005

MATERIAL: 210-08/18

FINISH: Note 2

DO NOT SCALE DRAWING

NOTES:

DRAWN BY	DATE
AR	6/2/23

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Outline
5mm QFN Filter

SIZE	CAGE CODE	DWG. NO.
A	0UC32	MFBP-00004PSM

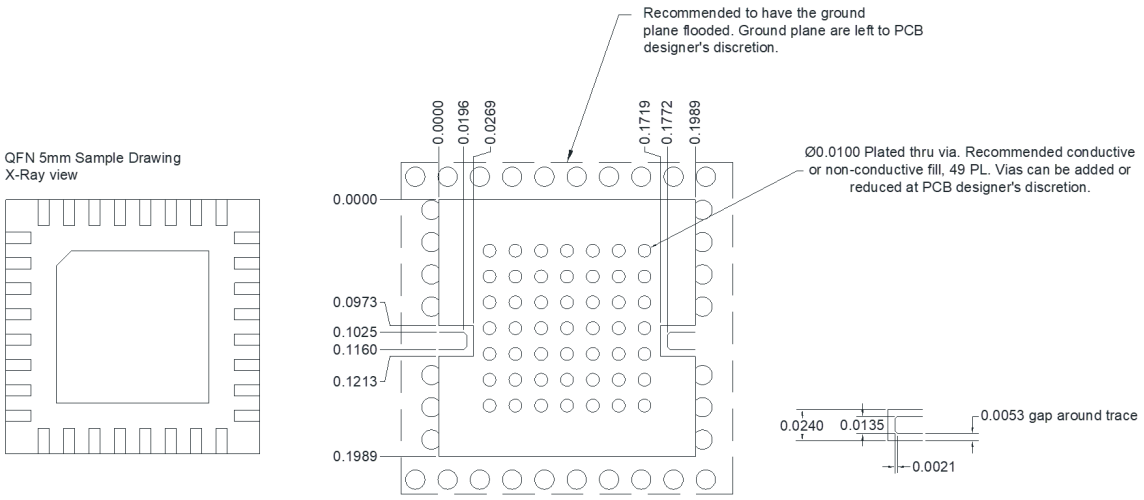
SCALE 15/1 SHEET 1 OF 1

MFBP-00004PSM

Passive GaAs MMIC 6.05-10.30 GHz Bandpass Filter

Footprint Image

Download : Footprint Drawing



Material Rogers 4003 008" $\frac{1}{2}$ Oz Cu both sides.

MFBP-00004PSM

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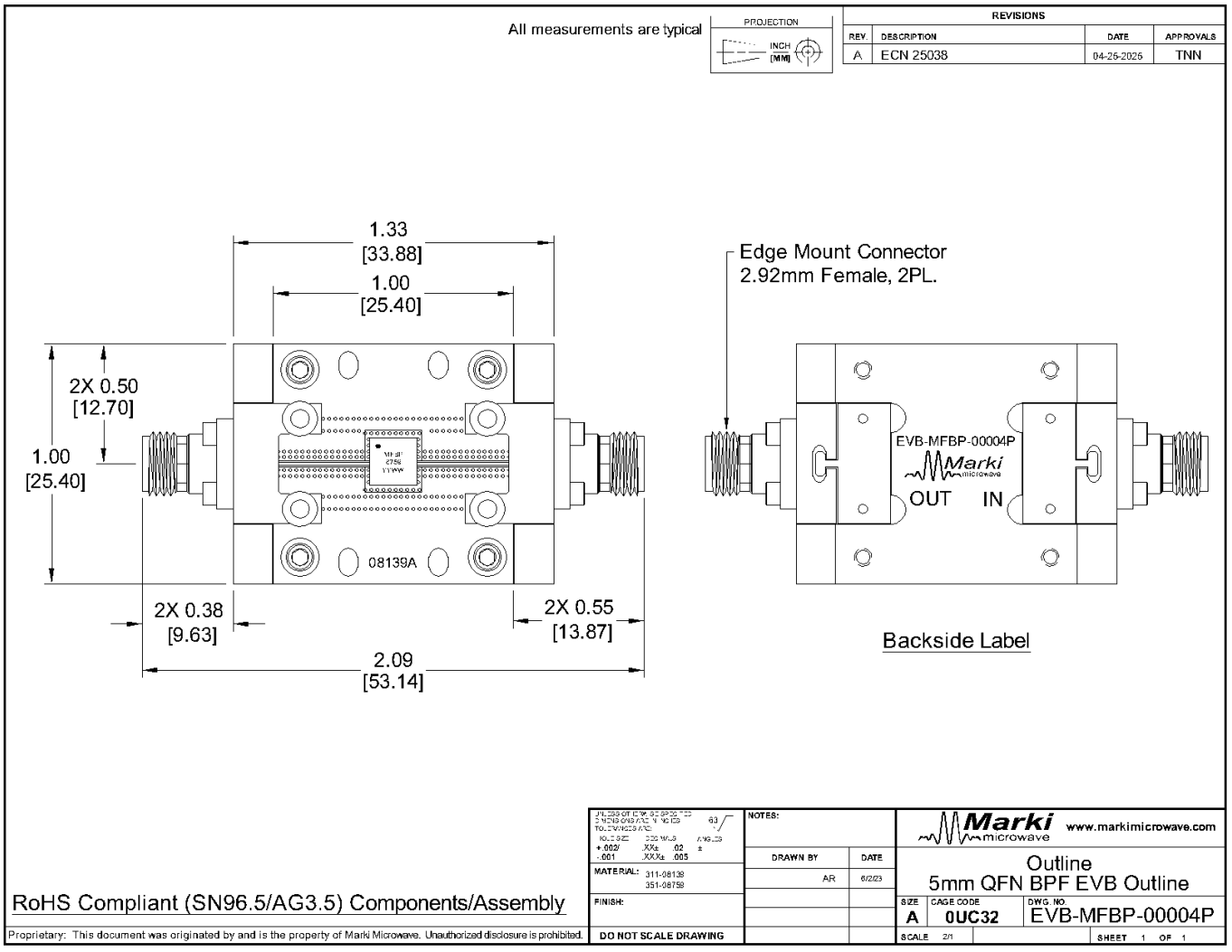
Evaluation Board - Outline Drawing



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