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Sales & Customer Support: sales@markimicrowave.com
Tech Support: support@markimicrowave.com

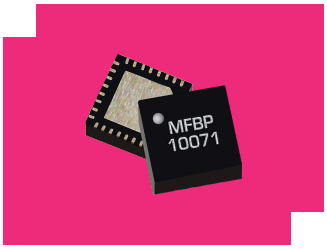
MFBP-00099PSM

Passive GaAs MMIC 9.0 - 10.4 GHz Bandpass Filter

DEVICE OVERVIEW

General Description

The MFBP-00099PSM passive MMIC surface mount bandpass filter is an ideal solution for small form factor, high rejection filtering. The MFBP-00099PSM features a 9.0-10.4GHz 1dBc passband and 2.8dB center frequency insertion loss. 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-00099PSM is available as a 5 mm 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

- 19 dB Return Loss
- 2.8 dB Insertion Loss @ Fc
- High Stop Band Suppression
- Wide Stop Band with Fast Roll-Of

Applications

N/A

Functional Block Diagram

Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MFBP-00099PSM	Passive GaAs MMIC 9.0 - 10.4 GHz Bandpass Filter	PSM	RoHS REACH	Released	EAR99
EVB-MFBP-00099P	Evaluation Board, Passive GaAs 9-10.4 GHz MMIC Bandpass Filter	EVB	RoHS REACH	Released	EAR99

MFBP-00099PSM

Passive GaAs MMIC 9.0 - 10.4 GHz Bandpass Filter

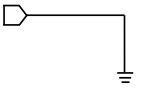
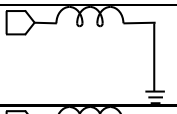
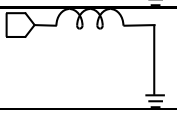
Table Of Contents

Revision History

Revision Code	Revision Date	Comment
-	2025-06-04	Initial Release

Port Configuration and Functions

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 short to ground for the PSM package.	
Pin 5	Input/Output	Pin 5 is DC short 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

Package Information

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

Electrical Specifications

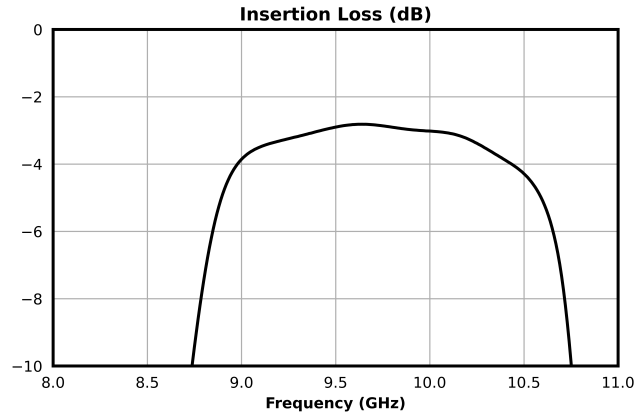
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the filter in a PSM package with a sine wave input applied to Pin 5. Min and Max limits are guaranteed at TA=+25°C.

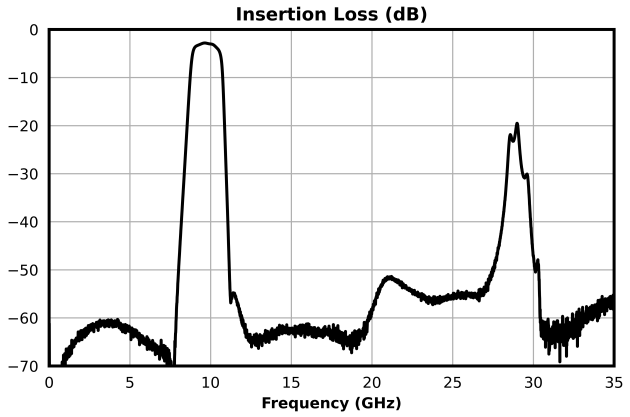
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
1 dBc Passband	Configuration A, Temp = 25°C	9.01	10.38	-	-	-	GHz
3 dBc Passband	Configuration A, Temp = 25°C	8.86	10.64	-	-	-	GHz
30 dBc Rejection Point	Configuration A, Temp = 25°C	8.33	10.99	-	-	-	GHz
Center Freq	Configuration A, Temp = 25°C	-	-	-	9.67	-	GHz
Insertion Loss @ fc	Configuration A, Temp = 25°C	-	-	-	2.8	-	dB
Passband Return Loss	Configuration A, Temp = 25°C	-	-	-	19	-	dB
Group Delay	Configuration A, Temp = 25°C	-	-	-	897	-	ps
Impedance	Configuration A, Temp = 25°C	-	-	-	50	-	Ω

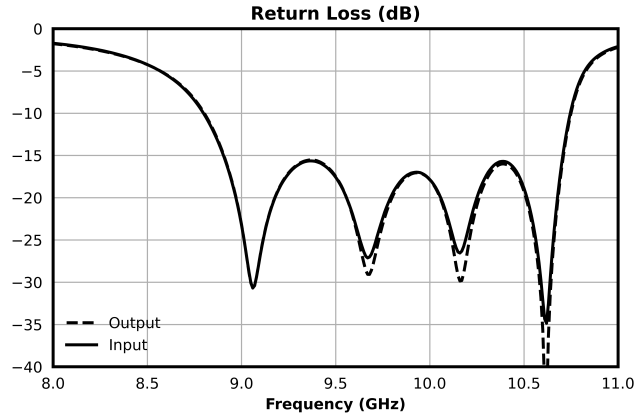
MFBP-00099PSM

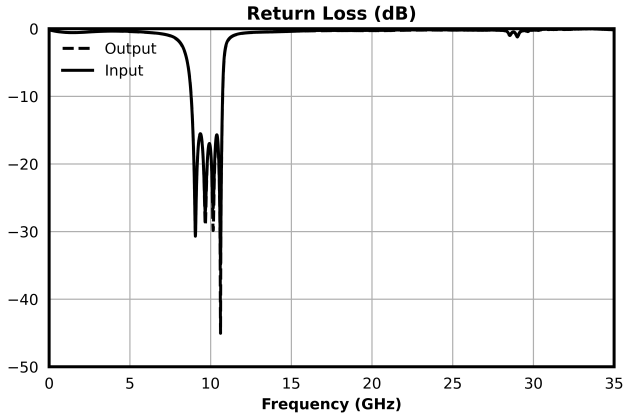
Passive GaAs MMIC 9.0 - 10.4 GHz Bandpass Filter

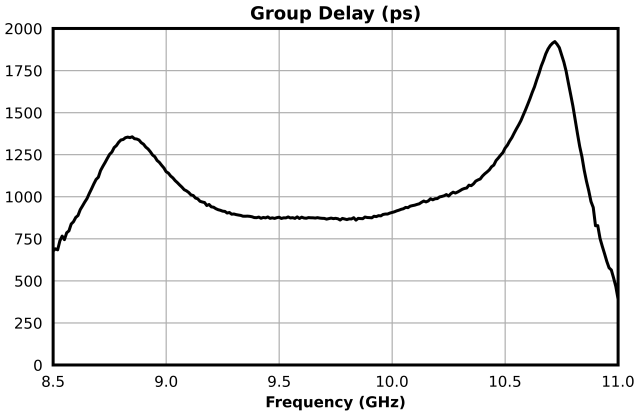
Typical Performance Plot











All measurements are de-embedded from the fixture with Automatic Fixture Removal (AFR).

MFBP-00099PSM

Passive GaAs MMIC 9.0 - 10.4 GHz Bandpass Filter

Mechanical Data

Outline Drawing

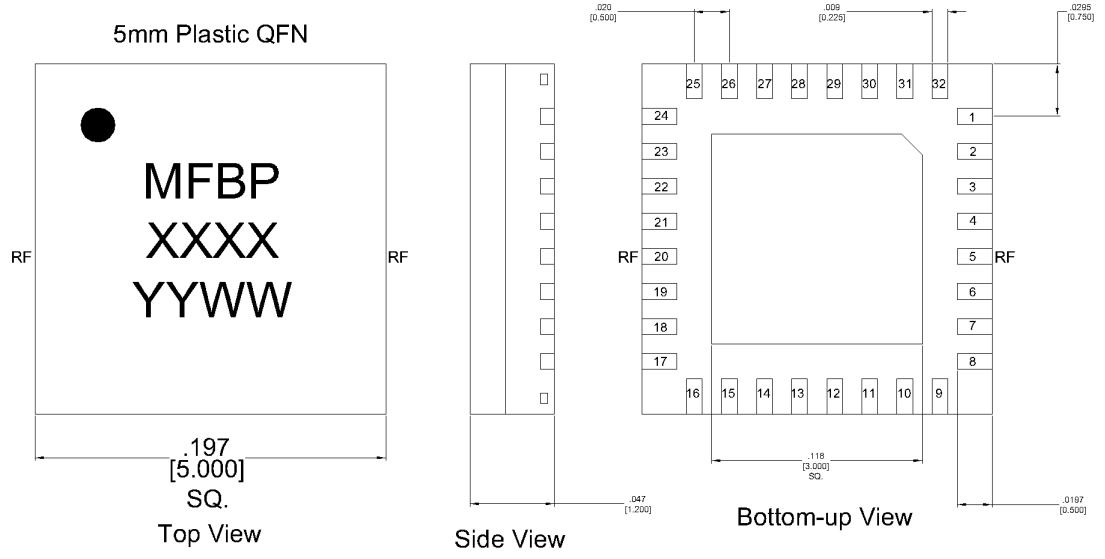
Download : Outline 2D Drawing | Outline 3D Drawing | Outline 3D STP

XXXX	MFBP-#####PSM
10069	MFBP-00097PSM
10070	MFBP-00098PSM
10071	MFBP-00099PSM

PROJECTION: INCH [MM]

REVISIONS

REV.	DESCRIPTION	DATE	APPROVALS
A	Initial Release	5/1/25	AJN



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 is (from base to finish):
   Ni: 0.5um MIN
   Pd: 0.02um MIN
   Au: 0.05um MAX
3. All unconnected pins should be connected to PCB RF ground.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: HOLE SIZE +.002/-.001, DECIMALS .XX± .02 .XXX± .010, ANGLES ±, 63

MATERIAL:

FINISH: Note 2

DO NOT SCALE DRAWING

NOTES:

DRAWN BY	DATE
WV	2/11/25
AVC	4/23/25
LCG	4/23/25

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Outline
5mm QFN Bandpass Filter

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

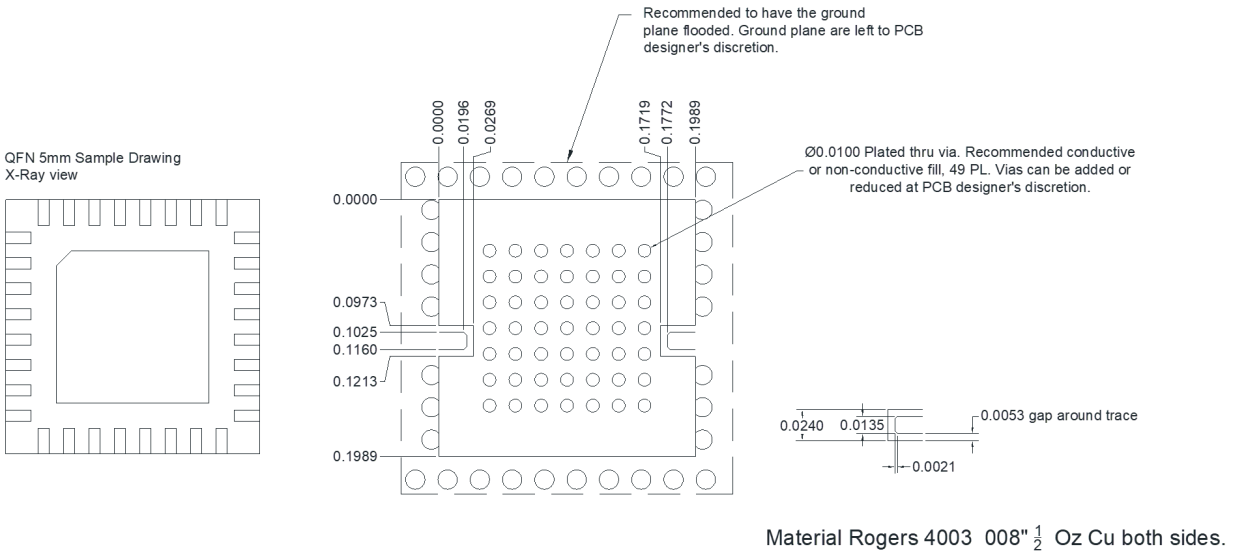
SHEET 1 OF 1

MFBP-00099PSM

Passive GaAs MMIC 9.0 - 10.4 GHz Bandpass Filter

Footprint Image

Download : Footprint Drawing



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

MFBP-00099PSM

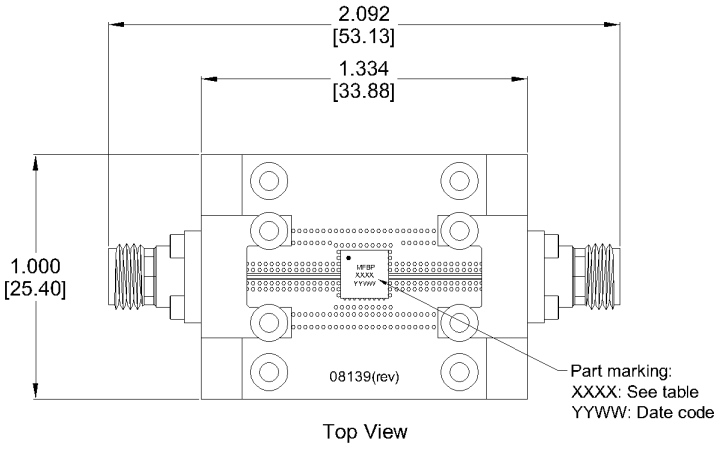
Passive GaAs MMIC 9.0 - 10.4 GHz Bandpass Filter

Evaluation Board - Outline Drawing

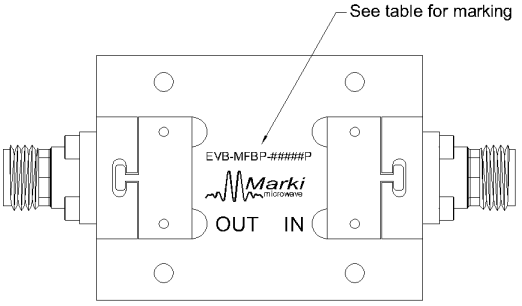
All measurements are typical

PROJECTION: INCH [MM]

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVALS
A	Initial Release	5/1/25	AJN



Top View



Bottom-up View

XXXX	EVB-MFBP-#####	Surface Mount PN
10069	EVB-MFBP-00097P	MFBP-00097PSM
10070	EVB-MFBP-00098P	MFBP-00098PSM
10071	EVB-MFBP-00099P	MFBP-00099PSM

Port	Connector Type
1, 2	2.92mm Female
Note: Connectors are not removeable.	

RoHS Compliant (SN96.5/AG3.5) Components/Assembly

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: HOLE SIZE +.002 -.001; DECIMALS .XX± .02, .XXX± .010; ANGLES ±. 63

MATERIAL:

FINISH:

DO NOT SCALE DRAWING

NOTES:

DRAWN BY	DATE
WV	4/7/25
AVC	4/23/25
LCG	4/23/25

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Outline
MFBP Eval Board 5mm QFN

SIZE	CAGE CODE	DWG. NO.
A	0UC32	EVB-MFBP-#####P

SHEET 1 OF 1

DISCLAIMER