

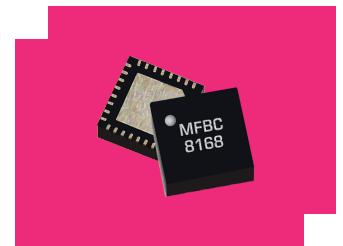
MFBC-00006PSM

Passive GaAs MMIC 23.60-32.20 GHz Bandpass Filter

DEVICE OVERVIEW

General Description

The MFBC-00006PSM 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 MFBC-00006PSM 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
MFBC-00006PSM	Passive GaAs MMIC 23.60-32.20 GHz Bandpass Filter	PSM	-	RoHS REACH	Released	EAR99
EVB-MFBC-00006P	Evaluation Board, Passive GaAs MMIC 23.60-32.20 GHz Bandpass Filter	-	-	RoHS REACH	Released	EAR99

Table Of Contents

■ Device Overview	■ Specifications
General Description	Absolute Maximum Ratings
Features	Package Information
Applications	Electrical Specifications
Functional Block Diagram	Typical Performance Plots
■ Port Configuration and Functions	■ Mechanical Data
Port Diagram	Outline Drawing
Port Functions	■ Footprint Image
■ Revision History	

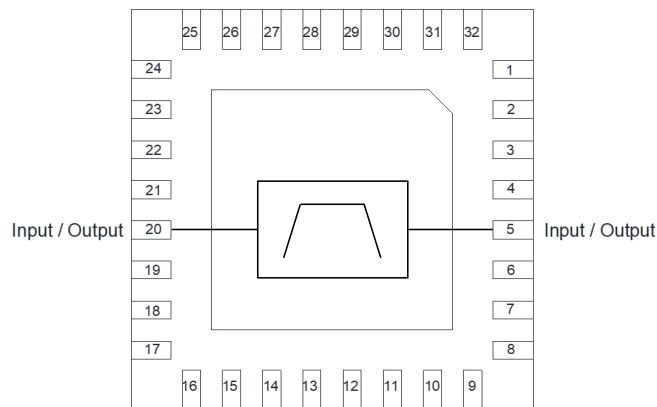
Revision History

Revision Code	Revision Date	Comment
-	2022-12-01	Datasheet Initial Release
A	2023-02-01	Added MFBC-00016PSM
B	2023-04-01	Added MFBC-00010PSM – MFBC-00015PSM

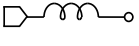
Port Configuration and Functions

Port Diagram

A top-down x-ray view of the MFBC-00006PSM 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
DC Current	800	mA
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	-	5x5 mm

MFBC-00006PSM

Passive GaAs MMIC 23.60-32.20 GHz

Bandpass Filter

Electrical Specifications

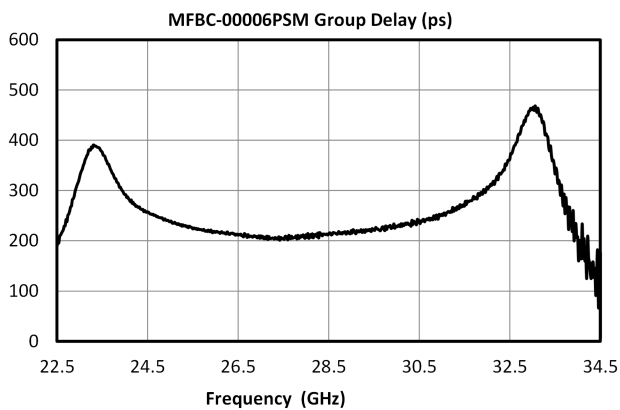
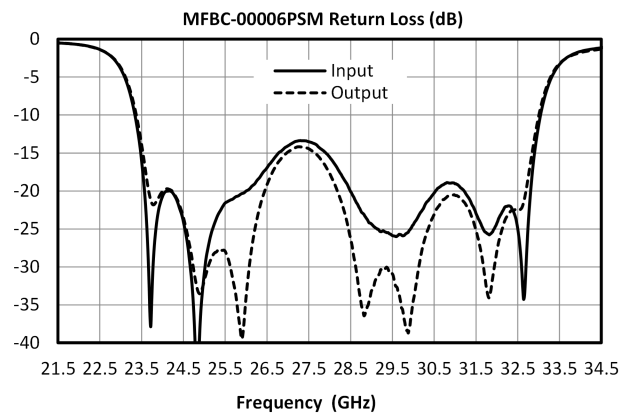
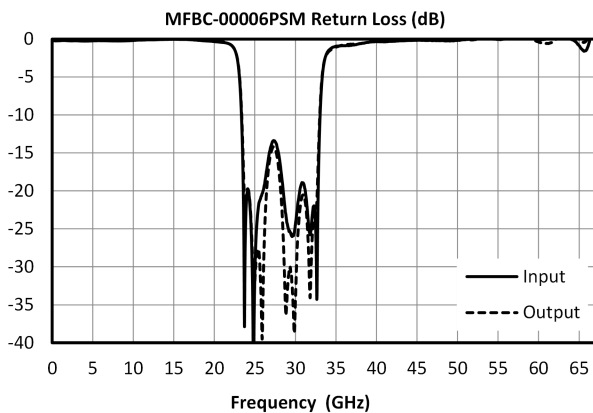
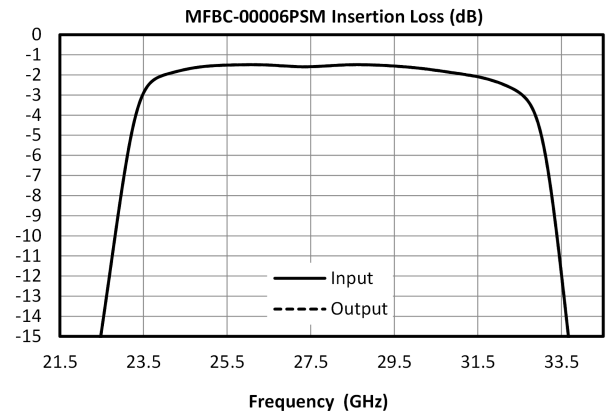
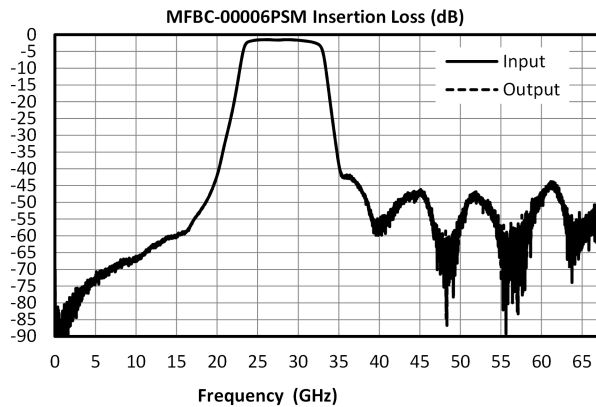
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the filter in a PSM package with a sine wave input applied to Pin 5. Min and Max limits are guaranteed at TA=+25°C.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
1dBc Passband Low Frequency	-	-	-	-	23.6	-	GHz
1dBc Passband High Frequency	-	-	-	-	32.2	-	GHz
3dBc Passband Low Frequency	-	-	-	-	23.25	-	GHz
3dBc Passband High Frequency	-	-	-	-	33	-	GHz
Passband Return Loss	-	23.5	32.9	-	15	-	dB
Stopband Suppression	-	0	18	40	67	-	dB
Stopband Suppression	-	38	67	40	51	-	dB
Group Delay	-	-	-	-	231	-	ps
Impedance	-	-	-	-	50	-	Ω
Center Frequency, f_c	-	-	-	-	28	-	GHz
Insertion Loss @ F_c	-	28	28	-	1.6	-	dB

MFBC-00006PSM

Passive GaAs MMIC 23.60-32.20 GHz
Bandpass Filter

Typical Performance Plots

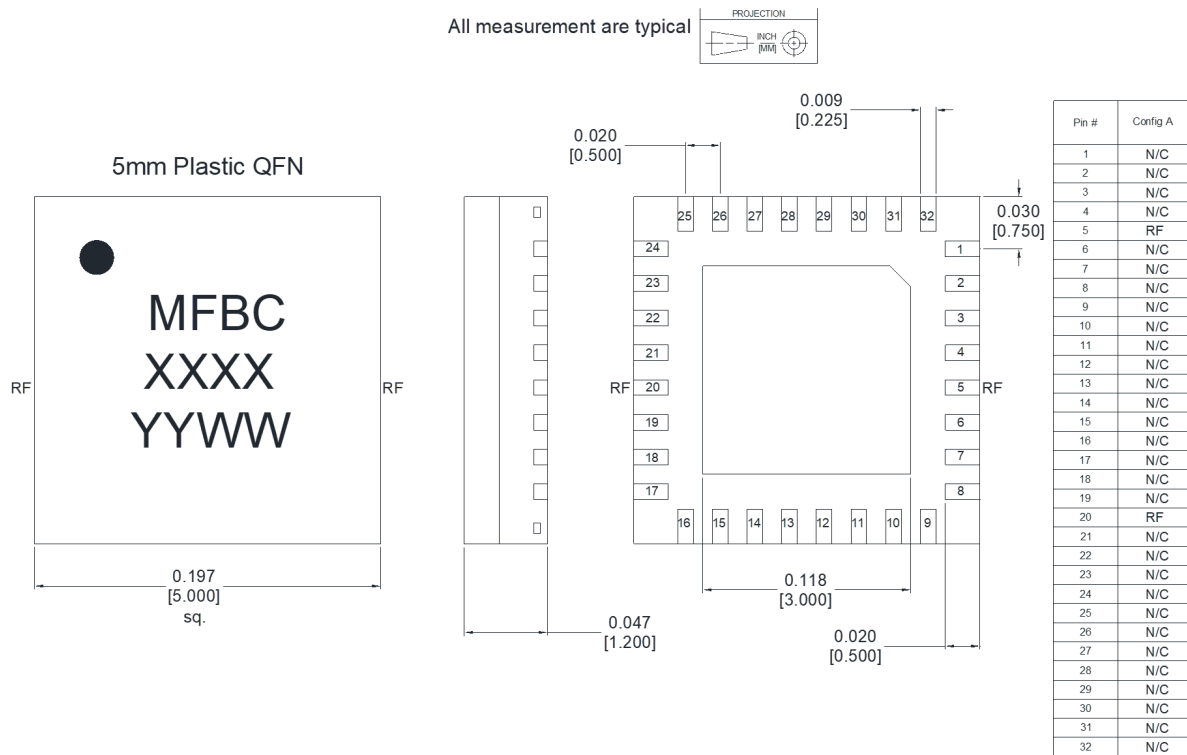


MFBC-00006PSM

Passive GaAs MMIC 23.60-32.20 GHz
Bandpass Filter

Mechanical Data

Outline Drawing



Notes (unless otherwise specified):

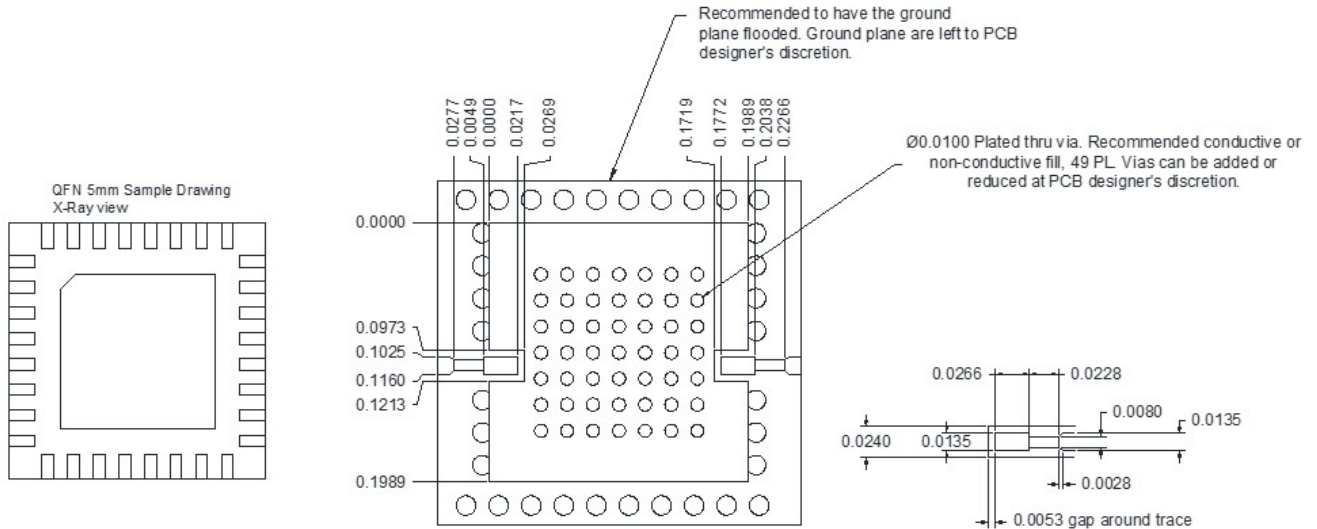
1. Substrate material is LCP.
2. I/O Leads and Die Paddle are:
0.008 - 0.05 μ m Gold over
0.02 - 0.15 μ m Palladium over
0.5 - 2.0 μ m Nickel.
3. All unconnected pins should be connected to PCBRF ground.

Part Number	Lid Label
MFBC-00001PSM	8163
MFBC-00002PSM	8164
MFBC-00003PSM	8165
MFBC-00004PSM	8166
MFBC-00005PSM	8167
MFBC-00006PSM	8168
MFBC-00007PSM	8169
MFBC-00010PSM	8245
MFBC-00011PSM	8246
MFBC-00012PSM	8247
MFBC-00013PSM	8248
MFBC-00014PSM	8249
MFBC-00015PSM	8250
MFBC-00016PSM	8251

MFBC-00006PSM

Passive GaAs MMIC 23.60-32.20 GHz
Bandpass Filter

Footprint Image

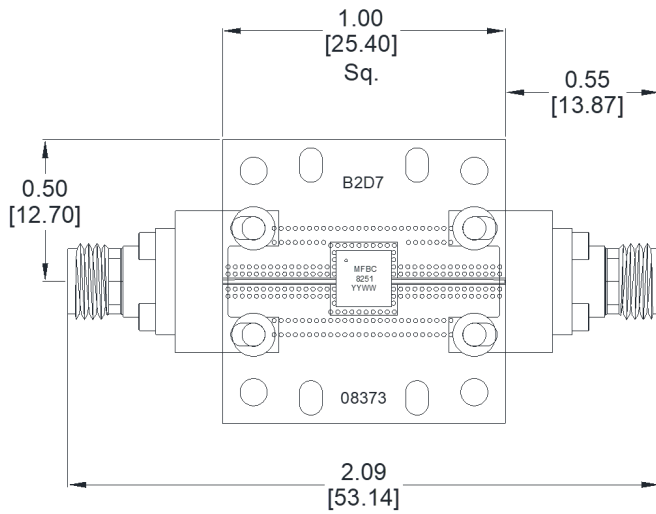
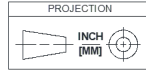


Material Rogers 4003 008" $\frac{1}{2}$ Oz Cu both sides.

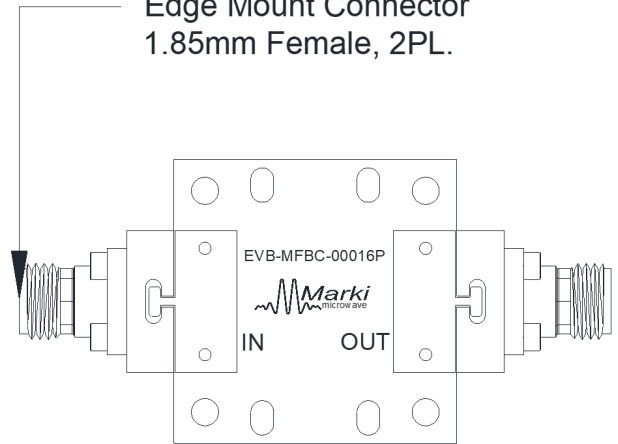
MFBC-00006PSM

Passive GaAs MMIC 23.60-32.20 GHz
Bandpass Filter

All measurements are typical



Edge Mount Connector
1.85mm Female, 2PL.



MFBC-00006PSM

Passive GaAs MMIC 23.60-32.20 GHz
Bandpass Filter

DISCLAIMER

MARKI MICROWAVE, INC., ("MARKI") PROVIDES TECHNICAL SPECIFICATIONS AND DATA (INCLUDING DATASHEETS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, AND OTHER INFORMATION AND RESOURCES "AS IS" AND WITH ALL FAULTS. MARKI DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

These resources are intended for developers skilled in the art designing with Marki products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards and other requirements. Marki makes no guarantee regarding the suitability of its products for any particular purpose, nor does Marki assume any liability whatsoever arising out of your use or application of any Marki product.

Marki grants you permission to use these resources only for development of an application that uses Marki products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Marki intellectual property or to any third-party intellectual property. Marki reserves the right to make changes to the product(s) or information contained herein without notice.

MARKI MICROWAVE and T3 MIXER are trademarks or registered trademarks of Marki Microwave, Inc. All other trademarks used are the property of their respective owners.

© 2022 - 2023, Marki Microwave, Inc