

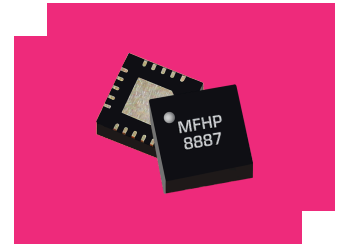
# MFHP-00006PSM

## Passive GaAs MMIC 12 GHz Highpass Filter

### DEVICE OVERVIEW

#### General Description

The MFHP-00006PSM family of passive MMIC surface mount highpass 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 MFHP-00006PSM is available as a 4x4mm 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](#)

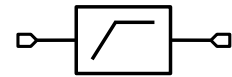
#### Features

- Low Passband Insertion Loss with Fast Roll-off
- Excellent Return Loss
- High Stop Band Suppression

#### Applications

- SATCOM
- Radar

#### Functional Block Diagram



#### Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MFHP-00006PSM	Passive GaAs MMIC 12 GHz Highpass Filter	QFN	RoHS REACH	Released	EAR99
EVB-MFHP-00006P	Evaluation Board, Passive GaAs MMIC 12GHz Highpass Filter	EVB	RoHS REACH	Released	EAR99

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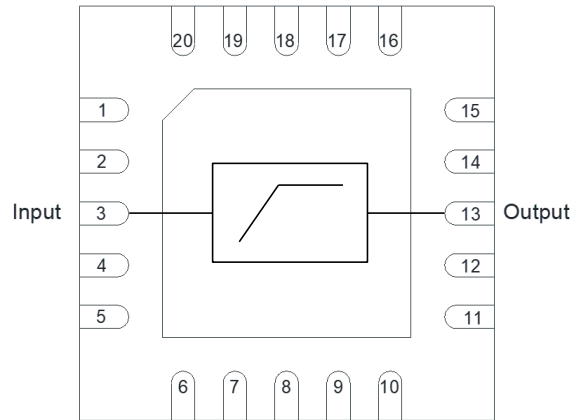
## Revision History

Revision Code	Revision Date	Comment
-	2023-10-04	Datasheet Initial Release

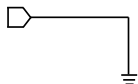
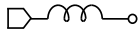
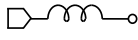
## Port Configuration and Functions

### Port Diagram

A top-down x-ray view of the MFHP-00006PSM package outline drawing is shown below.



### 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 13	Output	Pin 13 is DC open to ground for the PSM package.	
Pin 3	Input	Pin 3 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

### Package Information

Parameter	Details	Rating
Dimensions	-	4 x 4 mm
Moisture Sensitivity Level	-	MSL 1

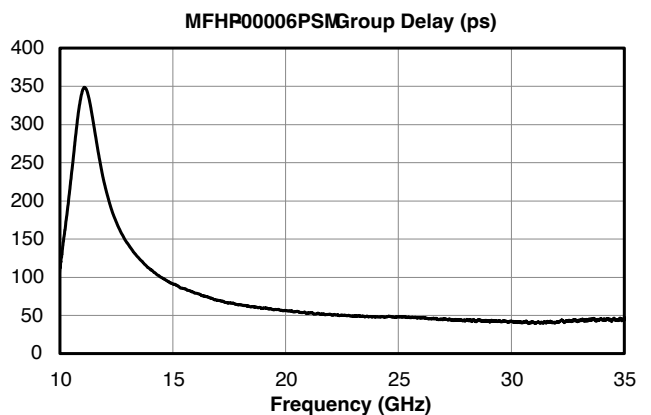
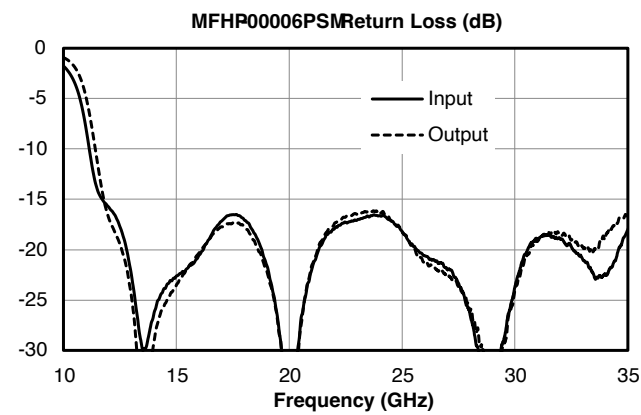
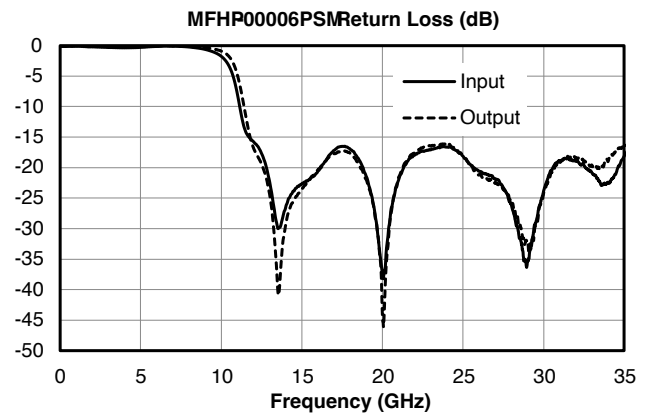
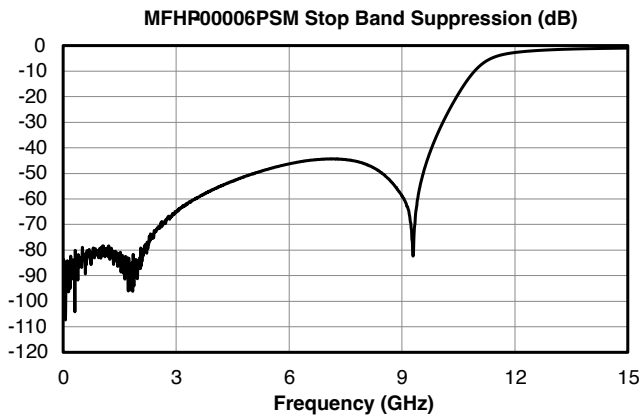
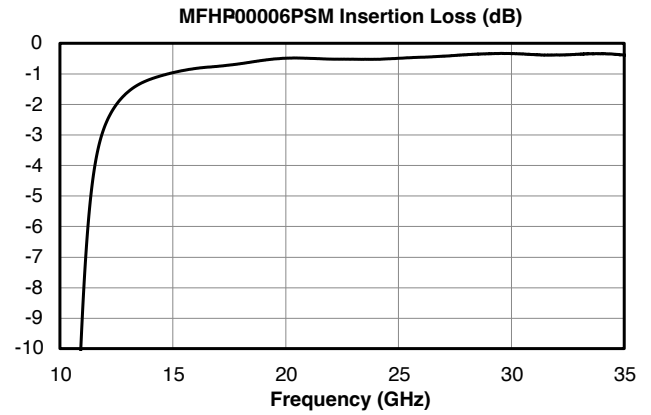
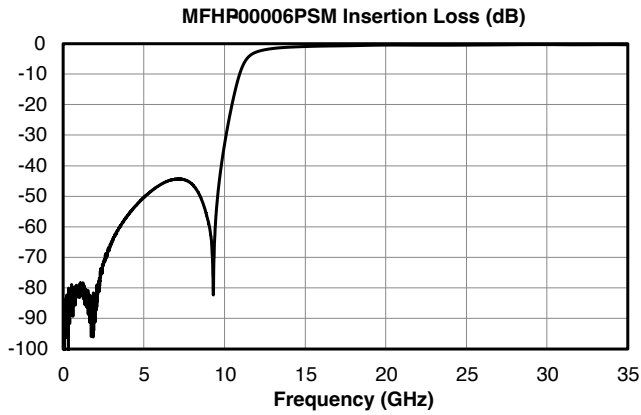
### Electrical Specifications

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 3. 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	12.06	12	-	-	-	GHz
3 dBc Passband	Configuration A, Temp = 25°C	11.44	12	-	-	-	GHz
30 dBc Rejection Point	Configuration A, Temp = 25°C	10.04	10.04	-	-	-	GHz
3dBc Cutoff Frequency	-	-	-	-	12	-	GHz
Group Delay	-	13.5	35	-	48	-	ps
Passband Insertion Loss	-	13.5	35	-	0.5	-	dB
Passband Return Loss	-	13.5	35	10	21	-	dB
Stopband Suppression	-	0	8.3	40	55	-	dB

Typical performance is de-embedded from EVB using AFR.

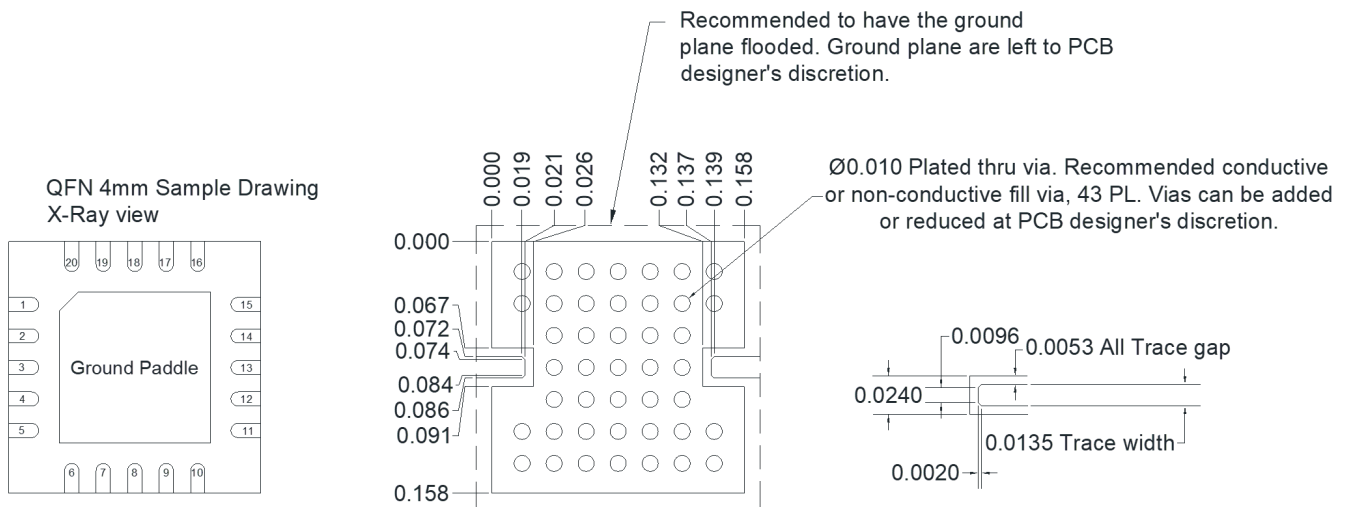
### Typical Performance Plots





### Footprint Image

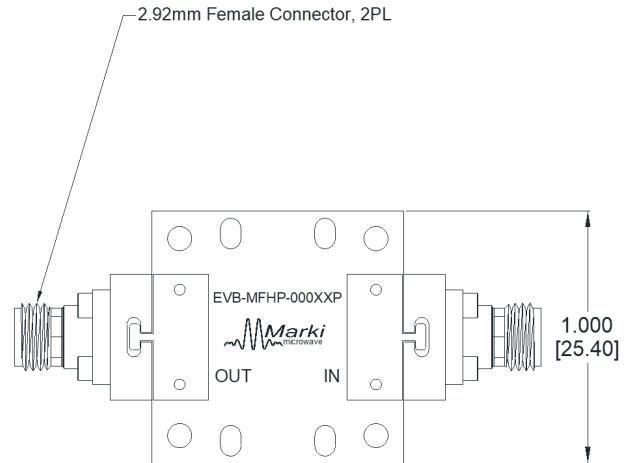
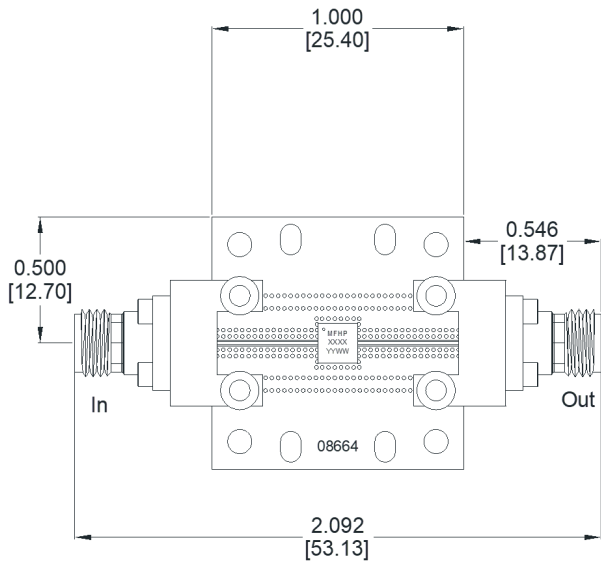
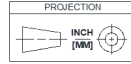
Download : [Footprint Drawing](#)



The Landing Pattern is to be used on Rogers 4003,  
0.008" thick  $\frac{1}{2}$  Oz Cu.

**Evaluation Board - Outline Drawing**

All measurements are typical



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