

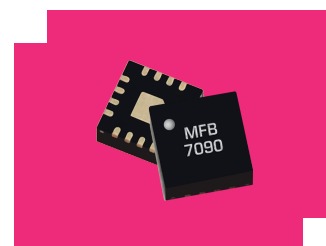
MFB-1445SM

Passive MMIC 13.6-15.1 GHz Bandpass Filter

DEVICE OVERVIEW

General Description

The MFB-1445SM is a passive MMIC bandpass filter. It is an integrated filter that passes Ku-Band frequencies (13.6-15.1 GHz). 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. Low unit to unit variation allows for accurate simulations using the provided S2P file taken from measured production units. The MFB-1445SM is available as a 3 X 3 mm QFN package. Evaluation boards are also available.



[Download s-parameters here](#)

Features

- Designed for Ku-Band Applications including Satcom
- Excellent Return Loss
- High Stop Band Suppression
- Wide Stop Band

Applications

N/A

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Packing Size	Green Status	Product Lifecycle	Export Classification
MFB-1445SM	Passive MMIC 13.6-15.1 GHz Bandpass Filter	QFN	-	RoHS REACH	Released	EAR99
<u>EVAL-MFB-1445</u>	Evaluation, Passive MMIC 13.6-15.1 GHz Bandpass Filter	-	-	RoHS	Released	EAR99

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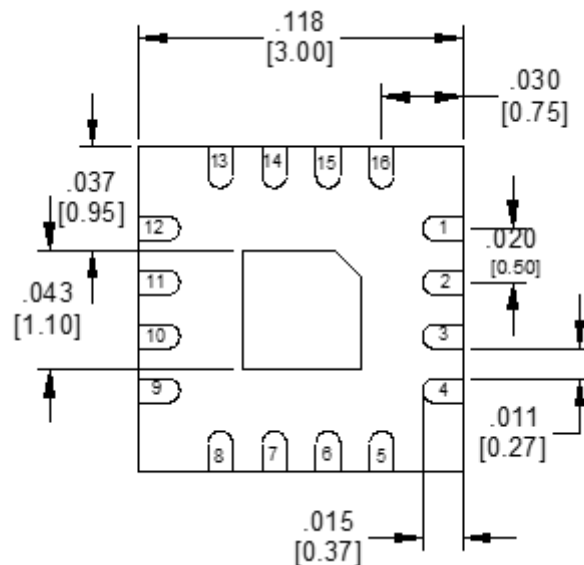
Revision History

Revision Code	Revision Date	Comment
-	2021-01-01	Datasheet Initial Release

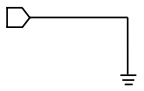
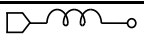
Port Configuration and Functions

Port Diagram

A bottom-up view of the MFB-1445SM package outline drawing is shown below. The MMIC bandpass filters are symmetrical allowing Pin 2 or Pin 11 to be used as the input.



Port Functions

Port	Function	Description	Equivalent Circuit for Package
Pad	Ground	SM package ground path is provided through the ground paddle.	
Pin 11	Input/Output	Pin 11 is DC open to ground for the SM package.	
Pin 2	Input/Output	Pin 2 is DC open to ground for the SM 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
Power Handling, at any Port	30	dBm

Package Information

Parameter	Details	Rating
Dimensions	-	3x3 mm

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Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Min and Max limits are guaranteed at TA=+25°C.

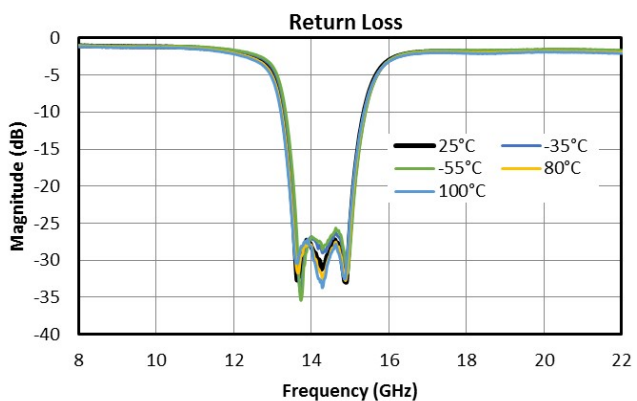
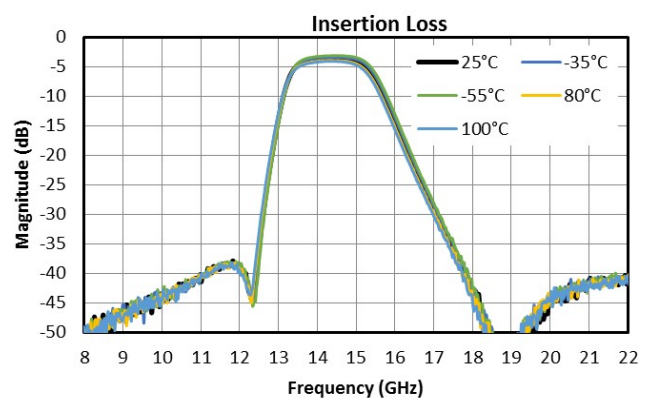
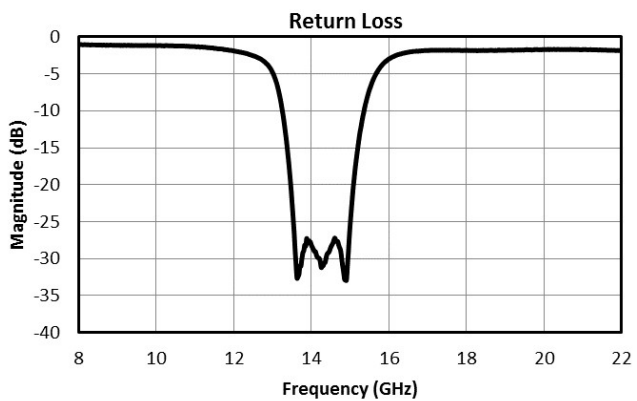
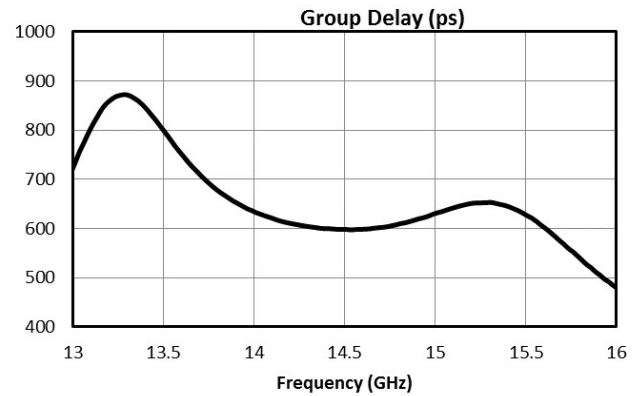
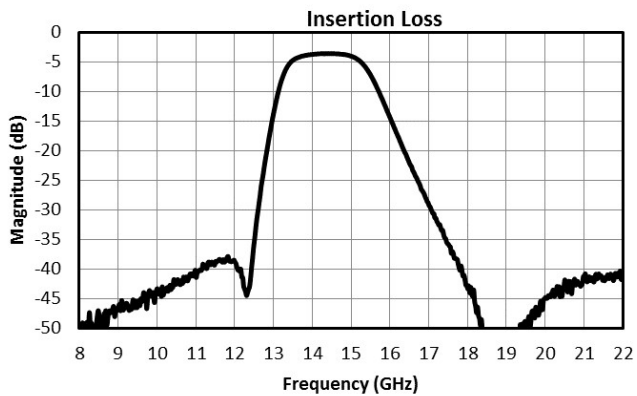
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
1dBc Passband Low Frequency	-	-	-	-	13.6	-	GHz
1dBc Passband High Frequency	-	-	-	-	15.1	-	GHz
Passband Return Loss	-	13.6	15.1	16	25	-	dB
Stopband Suppression	-	11.5	11.5	35	45	-	dB
Stopband Suppression	-	12.5	12.5	30	35	-	dB
Stopband Suppression	-	17.5	17.5	30	35	-	dB
Stopband Suppression	-	18.5	18.5	35	40	-	dB
Group Delay	-	-	-	-	630	-	ps
Impedance	-	-	-	-	50	-	Ω
Center Frequency, f_c	-	-	-	-	14.5	-	GHz
Insertion Loss @ F_c	-	14.5	14.5	-	3.75	4.5	dB

Filter is symmetrical. Reverse measurement is equivalent to forward measurement. All measured data is taken from the eval board without de-embedding of the connectors and traces.

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Typical Performance Plots

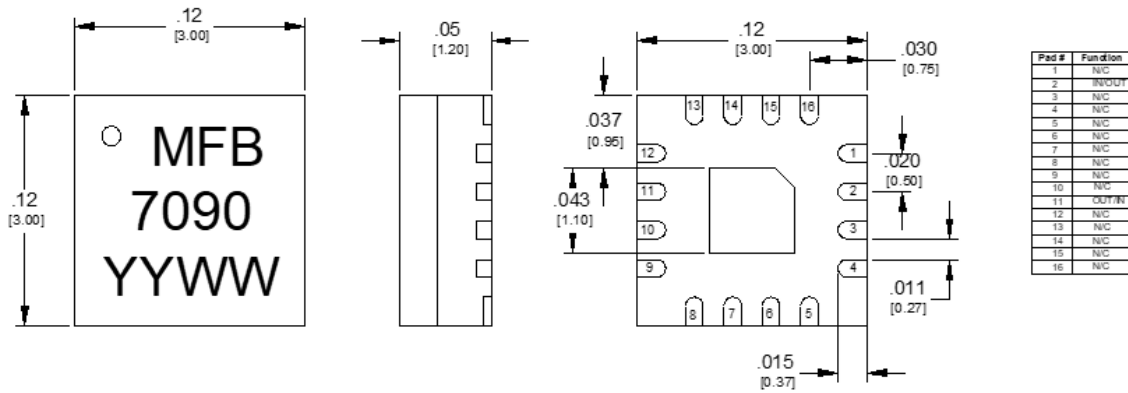


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Mechanical Data

Outline Drawing



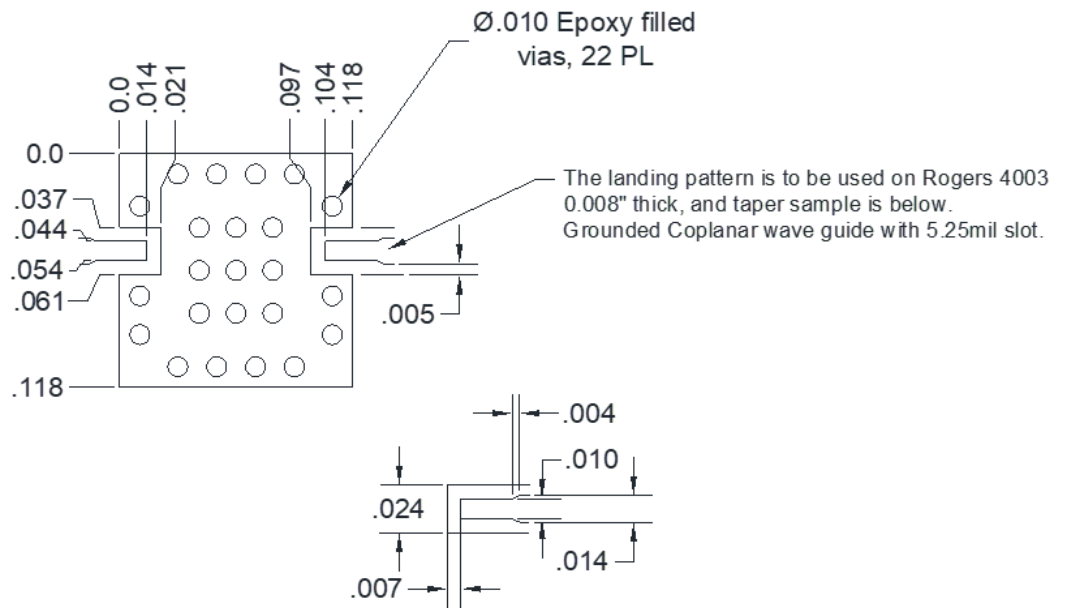
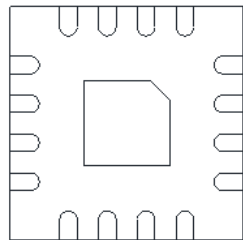
1. Substrate material is LCP.
2. I/O Leads and Ground paddle plating is (from base to finish):
 Ni: 0.5um MIN
 Pd: 0.02um MIN
 Au: 0.05um MAX
3. All unconnected pins should be connected to PCB RF ground

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Footprint Image

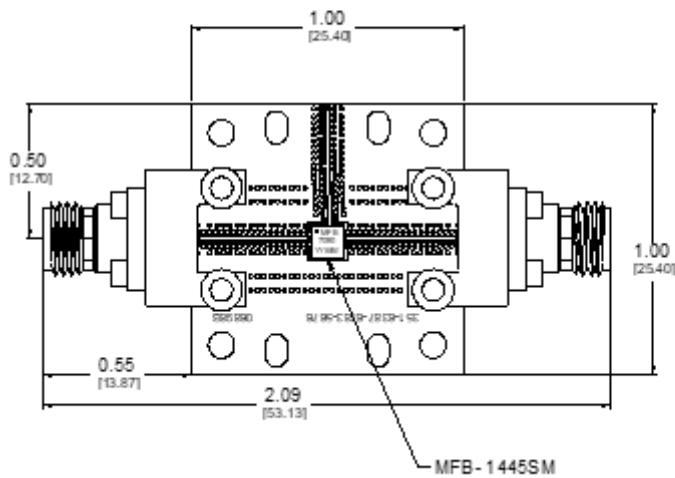
3mm QFN Plastic 16 Lead
sample drawing



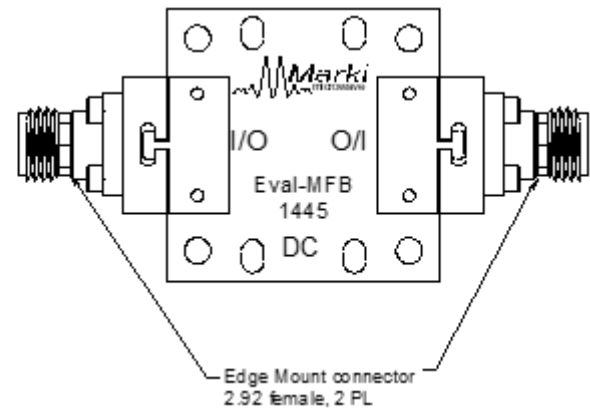
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All measurement are typical



Back side label



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