

Passive MMIC 29 – 40 GHz Bandpass Filter

MFB-3475U

1 Device Overview

1.1 General Description

The MFB-3475U is a passive MMIC bandpass filter. It is a low loss integrated filter that passes Ka-Band frequencies (29 – 40 GHz). Tight fabrication tolerances allow for less unit-to-unit variation than traditional filter technologies. The MFB-3475U is available as a connectorized module. Low unit to unit variation allows for accurate simulations using the provided S2P file taken from measured production units.



Module

1.2 Features

- Designed for Ka-Band Applications including 5G and Radar
- Insertion Loss Typically 2.8dB at Center Frequency
- High Stop Band Suppression
- Wide Stop Band
- [S2P](#) data available

1.3 Functional Block Diagram



1.4 Part Ordering Options¹

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MFB-3475U	Connectorized Module; 1.85mm Connectors	U	RoHS	Active	EAR99

¹ Refer to our [website](#) for a list of definitions for terminology presented in this table.

Table of Contents

1	Device Overview	1	3	Specifications	4
1.1	General Description	1	3.1	Absolute Maximum Ratings	4
1.2	Features	1	3.2	Package Information	4
1.3	Functional Block Diagram	1	3.3	Electrical Specifications	4
1.4	Part Ordering Options	1	3.4	Typical Performance Plots	5
2	Port Configurations and Functions	3	3.4.1	Insertion Loss	5
2.1	Port Diagram	3	3.4.2	Return Loss & Group Delay ..	5
2.2	Port Functions	3	4	Mechanical Data	6
			4.1	U Package Outline Drawing	6

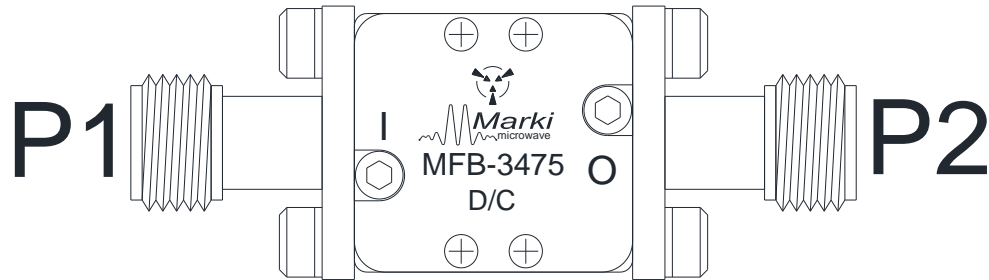
Revision History

Revision Code	Revision Date	Comment
-	January 2023	Initial Release

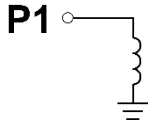
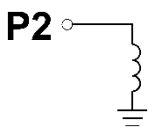
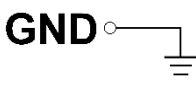
2 Port Configurations and Functions

2.1 Port Diagram

A top-down view of the MFB-3475U package outline drawing is shown below. The MMIC bandpass filters are symmetrical allowing Port 1 or Port 2 to be used as the input.



2.2 Port Functions

Port	Function	Description	Equivalent Circuit
Port 1	Input/Output	Port 1 is DC short to ground for the U package.	
Port 2	Input/Output	Port 2 is DC short to ground for the U package.	
GND	Ground	U package ground path is provided through the metal housing and outer coax conductor.	

3 Specifications

3.1 Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. Absolute Maximum Ratings are individual and should not be met in parallel. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Units
Port 1 DC Current	200	mA
Port 2 DC Current	200	mA
Operating Temperature	-55 to +100	°C
Storage Temperature	-65 to +125	°C

3.2 Package Information

Parameter	Details	Rating
Weight	U Package	10g

3.3 Electrical Specifications

The electrical specifications apply at $T_A=+25^{\circ}\text{C}$ in a 50Ω system.²

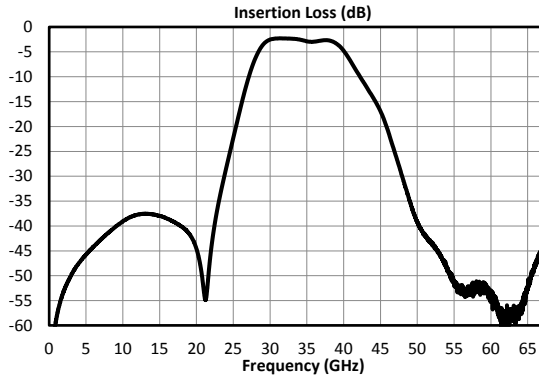
Min and Max limits are guaranteed at $T_A=+25^{\circ}\text{C}$ in 50Ω system.

Parameter	Frequency (GHz)	Min	Typ.	Max
Center Frequency, f_c (GHz)			34.75	
1dBc Passband (GHz)			28.9 – 39.4	
3dBc Passband (GHz)			28.15 – 40.5	
Insertion Loss @ f_c (dB)	34.75		2.8	
Passband Return Loss (dB)	29 – 40		20	
Stopband Suppression (dB)	DC – 21.75	30	40	
	50 – 65	35	50	
Group Delay (ps)			208	
Impedance (Ω)			50	

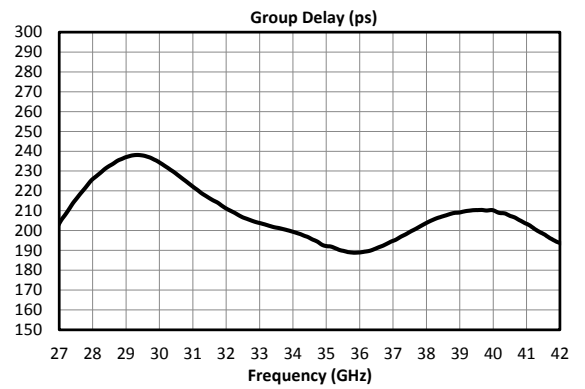
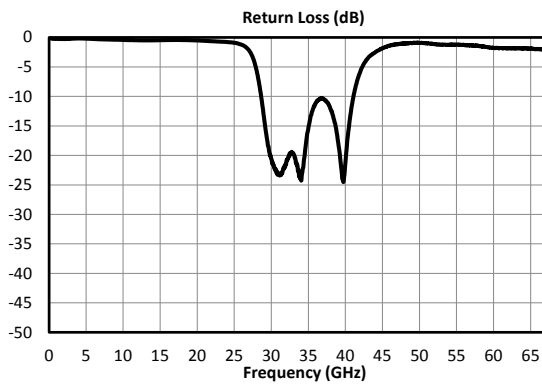
² Filter is symmetrical. Reverse measurement is equivalent to forward measurement.

3.4 Typical Performance Plots

3.4.1 Insertion Loss

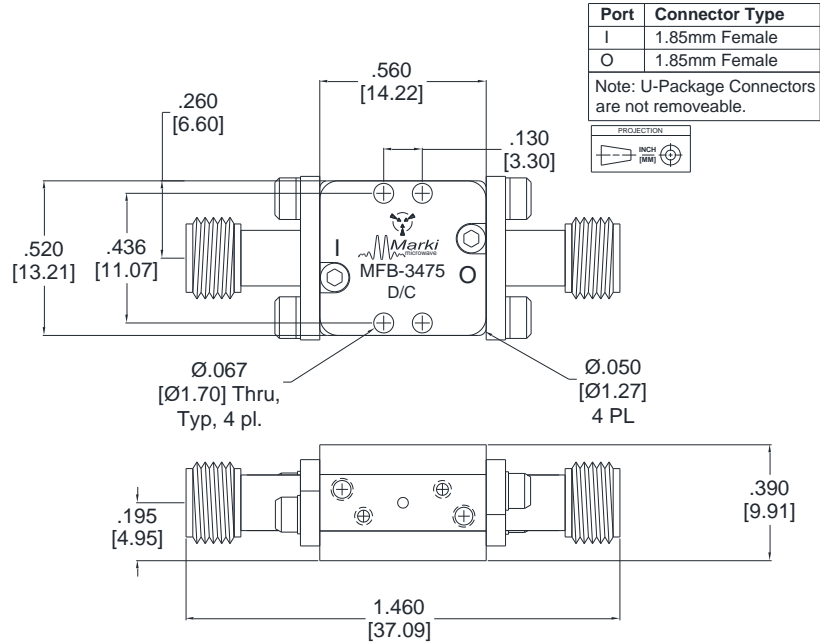


3.4.2 Return Loss & Group Delay



4 Mechanical Data

4.1 U Package Outline Drawing



Marki Microwave reserves the right to make changes to the product(s) or information contained herein without notice.

Marki Microwave makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Marki Microwave assume any liability whatsoever arising out of the use or application of any product.