Sales: 408-778-9952 | General: 408-778-4200 | Fax: 408-778-4300
Sales & Customer Support: sales@markimicrowave.com
Tech Support: support@markimicrowave.com

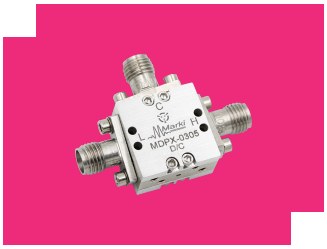
MDPX-0305

Passive MMIC 3 GHz Diplexer/Reflectionless Filter

DEVICE OVERVIEW

General Description

The MDPX-0305 is a broadband passive MMIC diplexer, a combination high pass and loss pass filter, capable of multiplexing low frequency DC to 3 GHz and high frequency 10 to 26.5 GHz signals. It can also be used as a reflectionless high pass or low pass filter when terminated with an internal/external 50 Ohm load. 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 MDPX-0305 is available as a connectorized module and as wire bondable die. Low unit to unit variation allows for accurate simulations using the provided S3P file taken from measured production units.



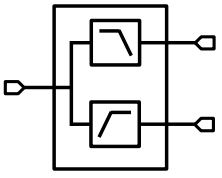
Features

- 4 GHz Crossover Point
- Low <1dB typical Insertion Loss in Pass band
- High Stop Band Suppression
- Reflectionless Filter
- RoHS Compliant

Applications

- Reflectionless Filter Applications
- RF Transceivers

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Connectors	Green Status	Product Lifecycle	Export Classification
MDPX-0305	Passive MMIC 3 GHz Diplexer/Reflectionless Filter	UB	Standard	REACH RoHS	Released	EAR99

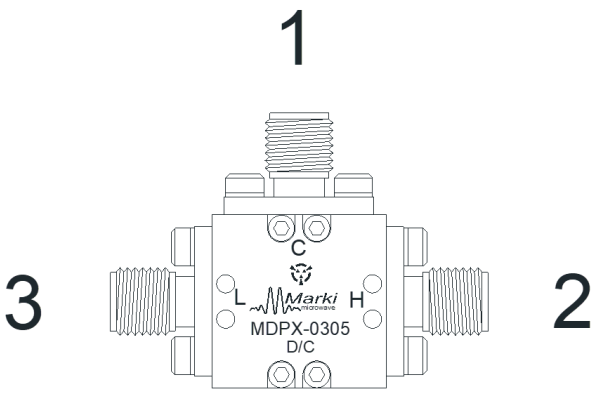
Table Of Contents

Revision History

Revision Code	Revision Date	Comment
-	2021-07-01	Datasheet initial Release
A	2022-03-01	CH Wire Bondable Die Added

Port Configuration and Functions

Port Diagram



Port Functions

Port	Function	Connector Type	Description	Equivalent Circuit for Package
GND	Ground	-	Package ground provided through metal housing and outer coax conductor.	
Port 1	Input/common	SMAF	Port 1 is DC short to Port 3 and open to Port 2.	
Port 2	High Pass Filter	SMAF	Port 2 is DC short to ground and open to all other ports.	
Port 3	Low Pass Filter	SMAF	Port 3 is DC short to Port 1 and open to the other two ports and ground.	

Specifications

Absolute Maximum Ratings

Parameter	Maximum Rating	Unit
Maximum Storage Temperature	100	°C
Maximum Survivable Operating Temperature	100	°C
Minimum Storage Temperature	-65	°C
Minimum Survivable Operating Temperature	-65	°C
RF Power Handling	30	dBm
Spec Guaranteed Operating Temperature	25	°C

Package Information

Parameter	Details	Rating
Dimensions	-	16.26x9.93 mm

Electrical Specifications

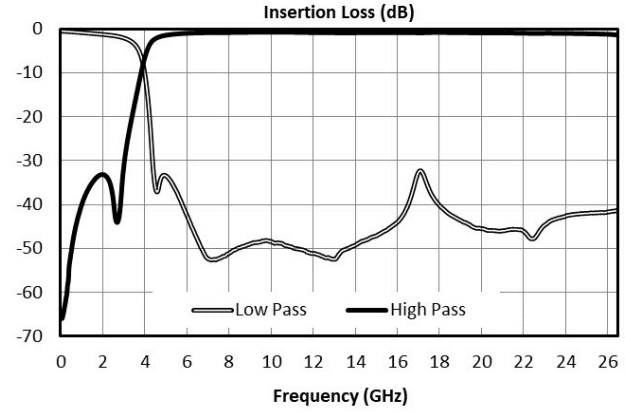
Specifications guaranteed +25°C for UB package, measured in a 50Ω system.

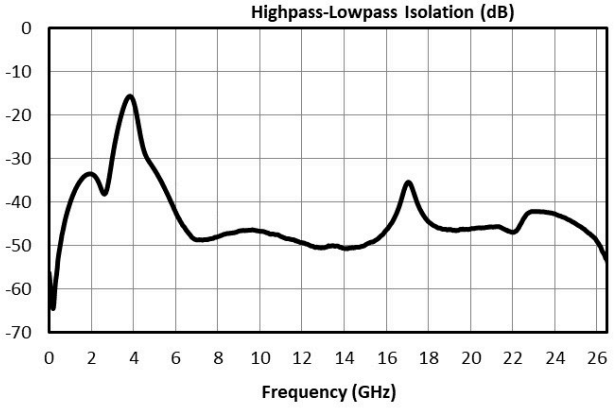
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
30 dBc Low Pass Rejection Point	2.5 to 5 GHz	2.5	5	-	15	-	dB
30 dBc Low Pass Rejection Point	DC to 2.5 GHz	0	2.5	25	41	-	dB
Common Port Return Loss	5 to 26.5 GHz	5	26.5	10	20	-	dB
Common Port Return Loss	DC to 3 GHz	0	3	10	25	-	dB
High Frequency Passband	-	-	-	5	-	26.5	GHz
High Pass Filter, Pass Band Insertion Loss	5 to 26.5 GHz	5	26.5	-	0.9	-	dB
High Pass Filter, Pass Band Return Loss	5 to 26.5 GHz	5	26.5	10	20	-	dB
Impedance	-	-	-	-	50	-	Ω
Isolation	16 to 26.5 GHz	16	26.5	25	45	-	dB
Isolation	5 to 16 GHz	5	16	30	47	-	dB
Isolation	DC to 2.5 GHz	0	2.5	25	40	-	dB
Low Frequency Passband	-	-	-	0	-	3	GHz
Low Pass Filter, Pass Band Insertion Loss	DC to 3 GHz	0	3	-	1	-	dB
Low Pass Filter, Pass Band Return Loss	DC to 3 GHz	0	3	10	25	-	dB
Low Pass Filter, Stop Band Rejection	16 to 26.5 GHz	16	26.5	20	40	-	dB
Low Pass Filter, Stop Band Rejection	5 to 16 GHz	5	16	25	45	-	dB

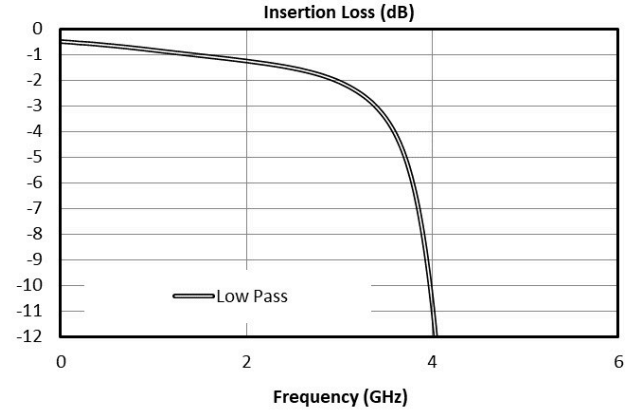
MDPX-0305

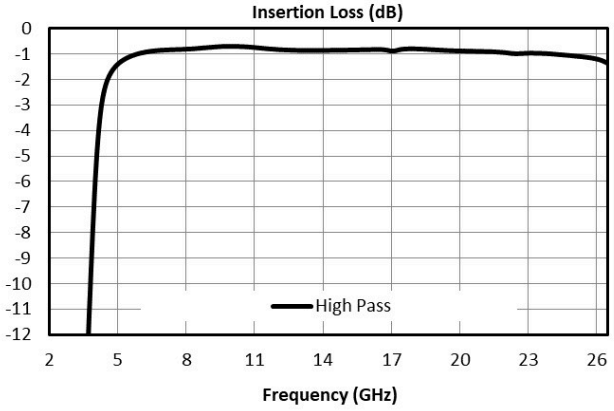
Passive MMIC 3 GHz Diplexer/Reflectionless Filter

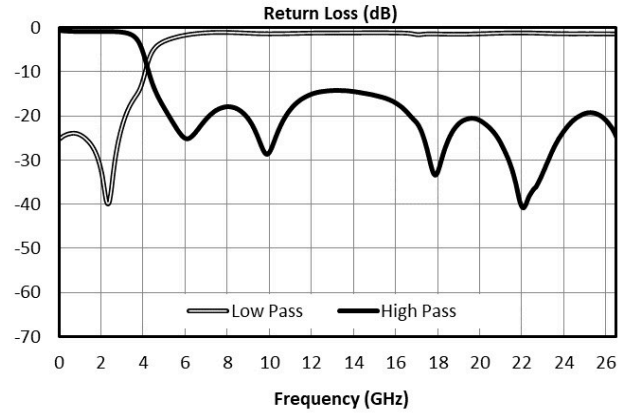
Typical Performance Plots

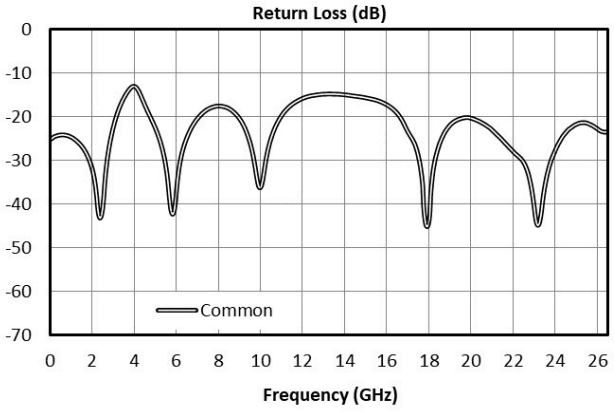


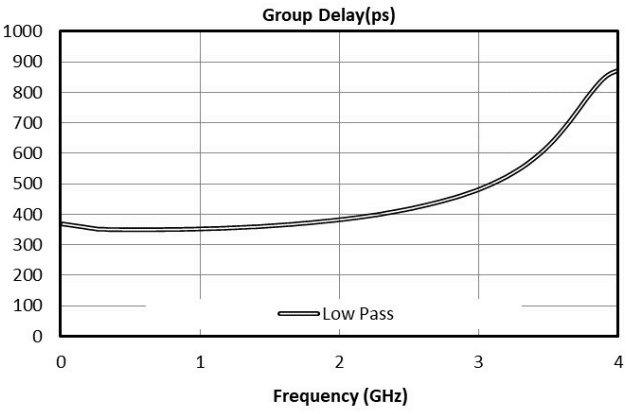


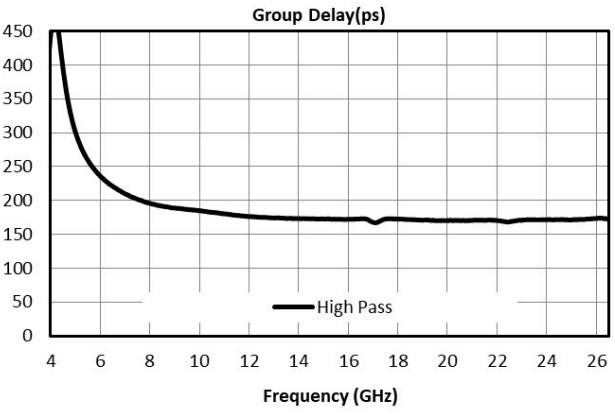




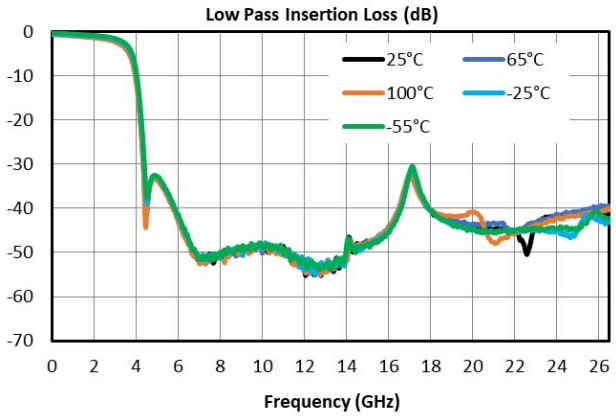


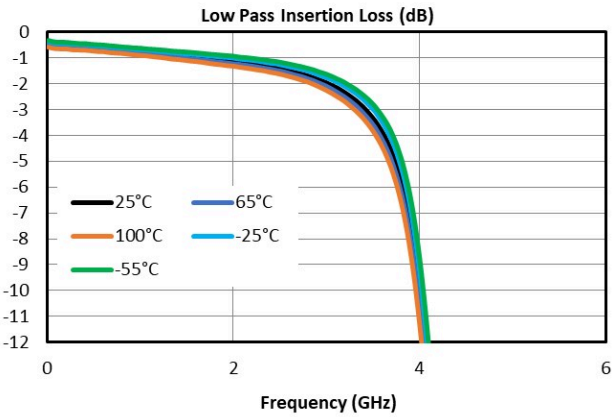


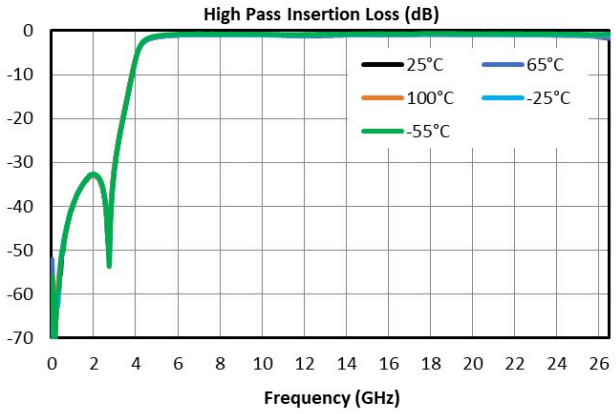


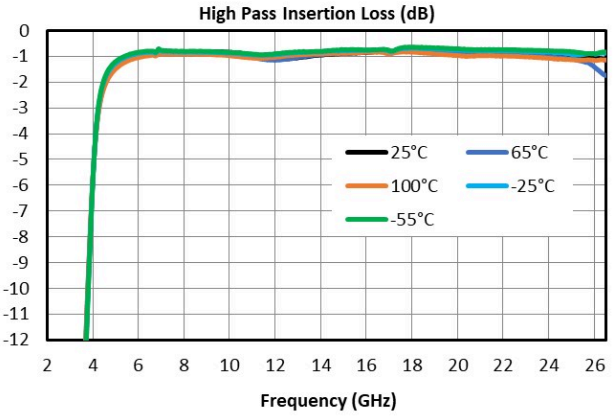


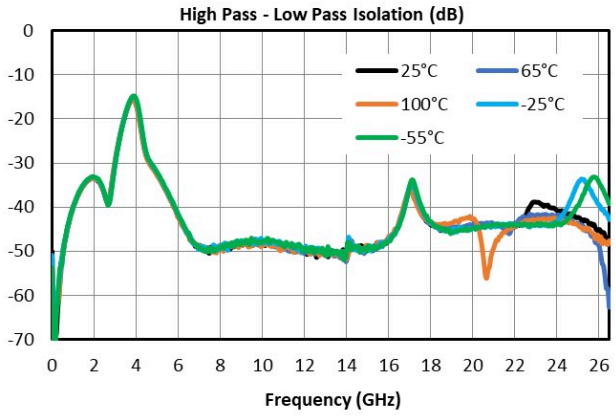
Typical Performance Plots over temperature

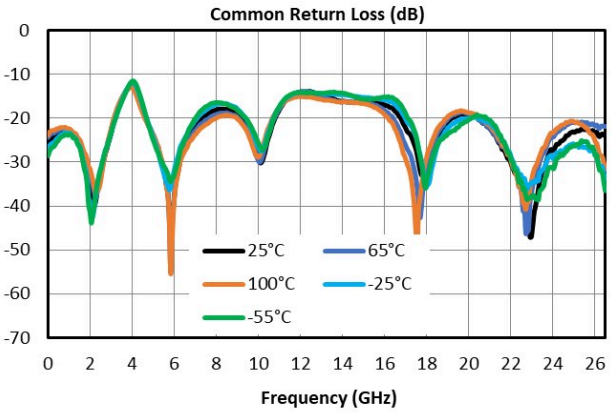


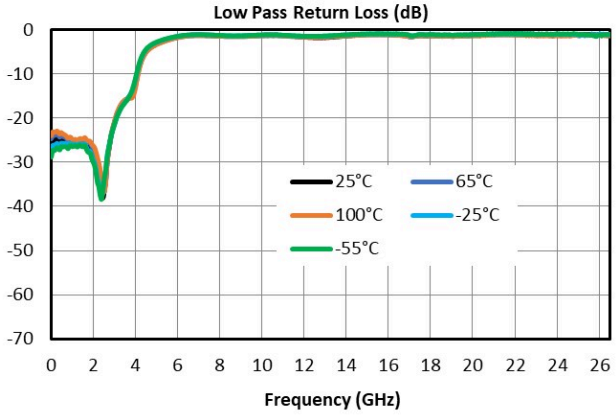


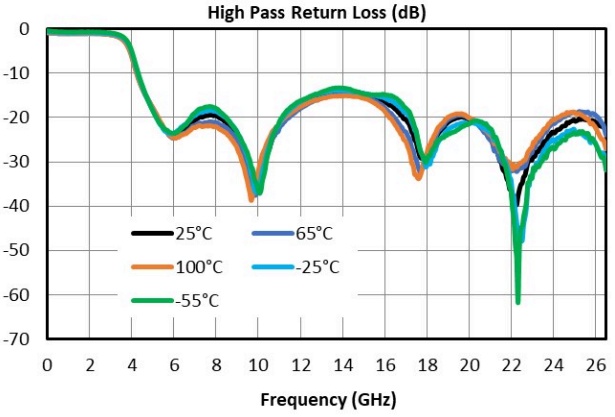








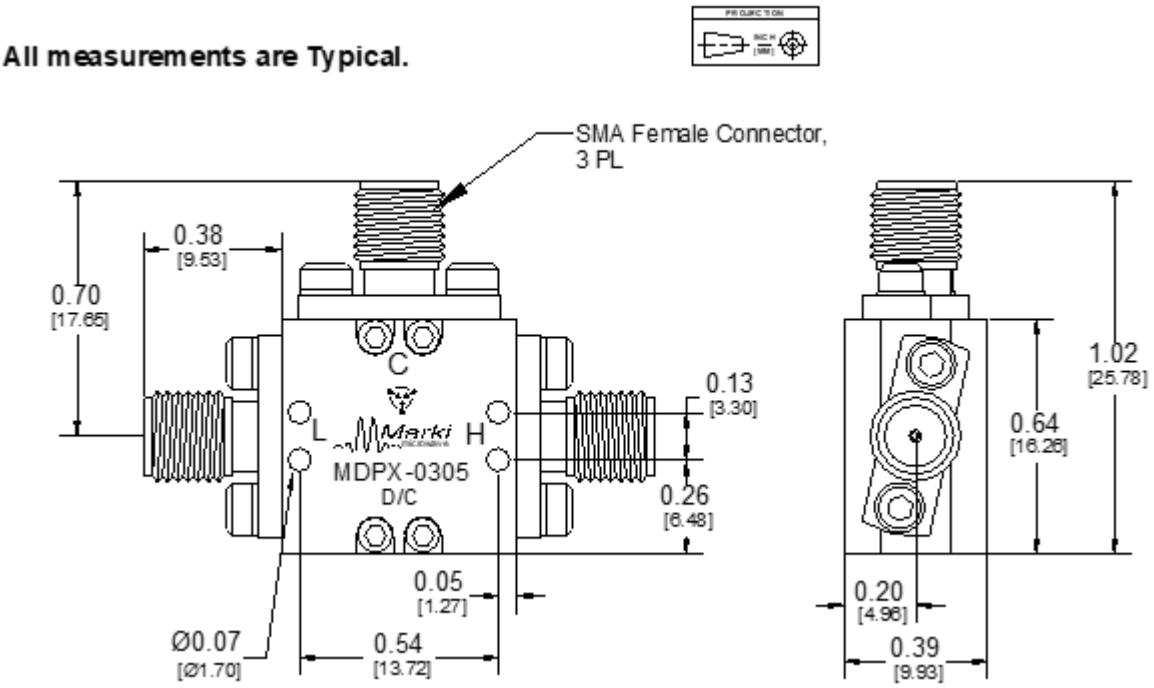




Mechanical Data

Outline Drawing

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



Notes

DATA SHEET NOTES:

1. Group delay calculated using wrapped phase response.

2. Specifications are subject to change without notice. Contact Marki Microwave for the most recent specifications and data sheets.

3. Catalog circuits are continually improved. Configuration control requires custom model numbers and specifications.

Note: Exposure to maximum rating conditions for extended periods may reduce device reliability. There is no damage to device with only one parameter set at the limit and all other parameters set at or below their nominal value. Exceeding any of the limits listed here may result in permanent damage to the device.

DISCLAIMER