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Sales & Customer Support: sales@markimicrowave.com
Tech Support: support@markimicrowave.com

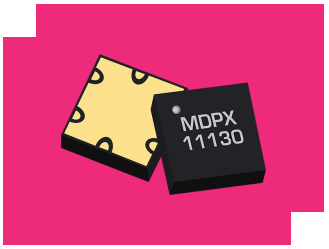
MDPX-00011CSP3

Passive MMIC 24.7 GHz Diplexer/Reflectionless filter

DEVICE OVERVIEW

General Description

The MDPX-00011CSP3 is a MMIC surface mount high pass low pass diplexer featuring a 24.7 GHz crossover frequency. 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-00011CSP3 is available as a 3.5x3.5mm CSP3. Low unit to unit variation allows for accurate simulations using the provided S3P file taken from measured production units.



Download s-parameters here

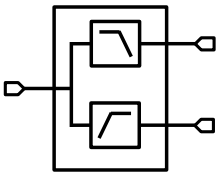
Features

- Low Insertion Loss, ≤ 2 dB Typical
- Crossover Point, 24.7 GHz
- Excellent Return Losses, 18 dB Typical at Common
- Crossover Isolation, 12dB Typical

Applications

N/A

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MDPX-00011CSP3	Passive MMIC 24.7 GHz Diplexer/Reflectionless filter	CSP3	RoHS REACH	Released	EAR99
EVB-MDPX-00011	Evaluation Board, Passive MMIC 24.7GHz Diplexer/Reflectionless Filter	EVB	RoHS REACH	Released	EAR99

MDPX-00011CSP3

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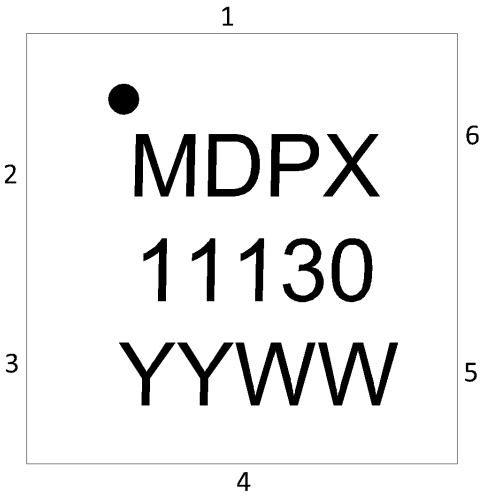
Table Of Contents

Revision History

Revision Code	Revision Date	Comment
-	2026-08-12	Initial Release

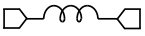
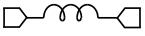
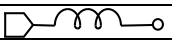
Port Configuration and Functions

Port Diagram



Top Down View

Port Functions

Port	Function	Description	DC Equivalent Circuit
Pin 1	Common/Input	Pin 1 is DC short to Pin 3 and open to GND and Pin 5.	
Pin 3	RF Low Band	Pin 3 is DC short to Pin 1 and open to GND and Pin 5	
Pin 5	RF High Band	Pin 5 is DC open to Pin 1, Pin 3, and GND	

Specifications

Absolute Maximum Ratings

Parameter	Maximum Rating	Unit
DC Current	120	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
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	3.50 x 3.50 mm
Moisture Sensitivity Level	-	MSL 1

MDPX-00011CSP3

Passive MMIC 24.7 GHz Diplexer/Reflectionless filter

Electrical Specifications

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Band 1: 1 dBc Passband	Temp = 25°C	0	20.79	-	-	-	GHz
Band 1: 3 dBc Passband	Temp = 25°C	0	24.16	-	-	-	GHz
Band 1: 30 dBc Rejection Point	Temp = 25°C	29.07	29.07	-	-	-	GHz
Band 1: Return Loss	Temp = 25°C	0	20.79	-	25.95	-	dB
Band 1: Group Delay	Temp = 25°C	0	20.79	-	70.41	-	ps
Band 2: 1 dBc Passband	Temp = 25°C	26.67	60	-	-	-	GHz
Band 2: 3 dBc Passband	Temp = 25°C	24.96	60	-	-	-	GHz
Band 2: 30 dBc Rejection Point	Temp = 25°C	22.28	22.28	-	-	-	GHz
Band 2: Return Loss	Temp = 25°C	26.67	60	-	12.49	-	dB
Band 2: Group Delay	Temp = 25°C	26.67	60	-	67.86	-	ps
Crossover Frequency	Temp = 25°C	-	-	-	24.66	-	GHz
Crossover Isolation	Temp = 25°C	-	-	-	12	-	dB

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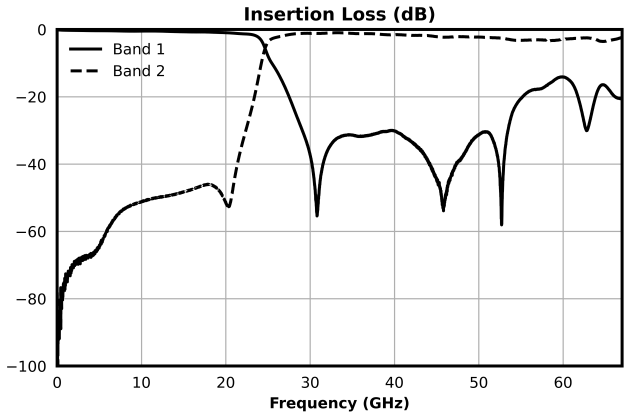
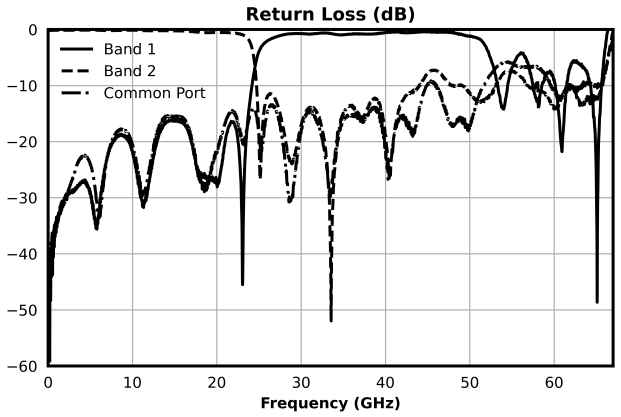
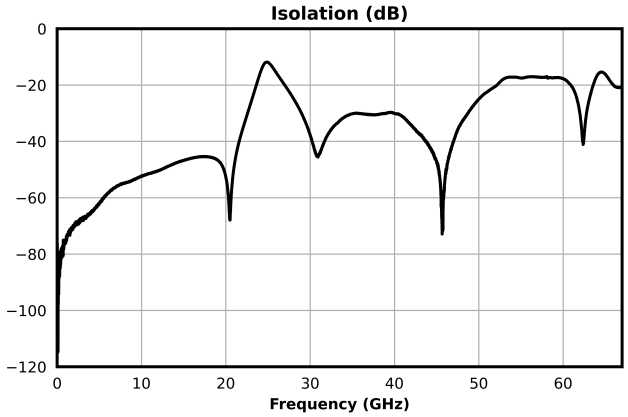
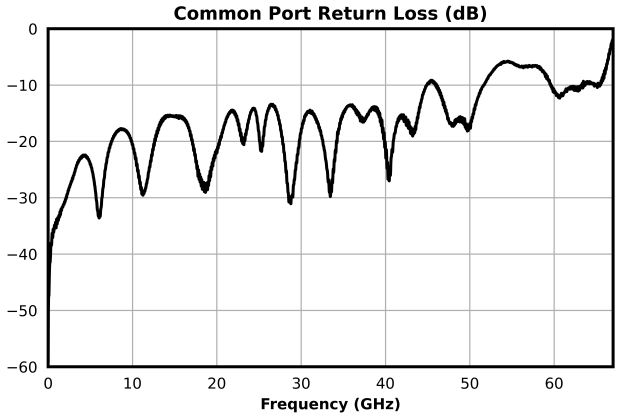
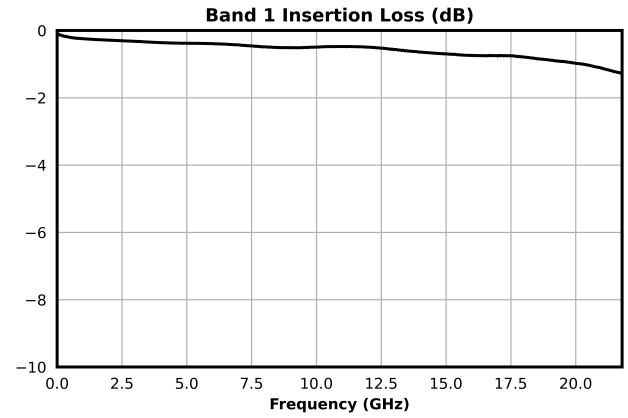
Typical Performance Plot

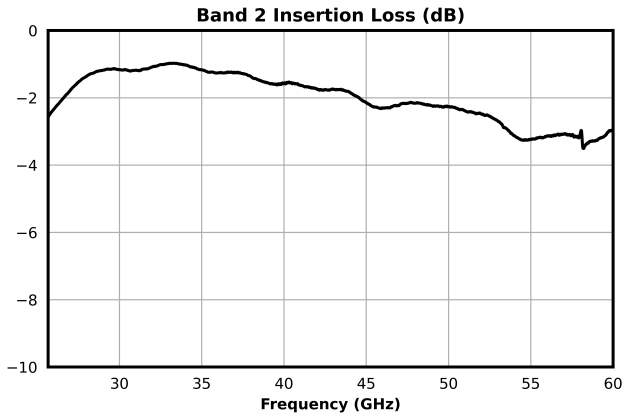


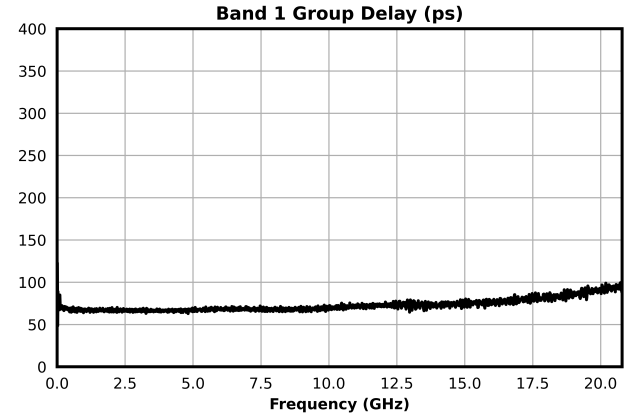


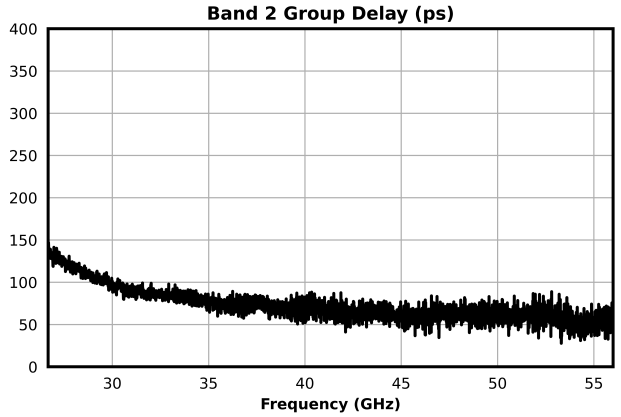






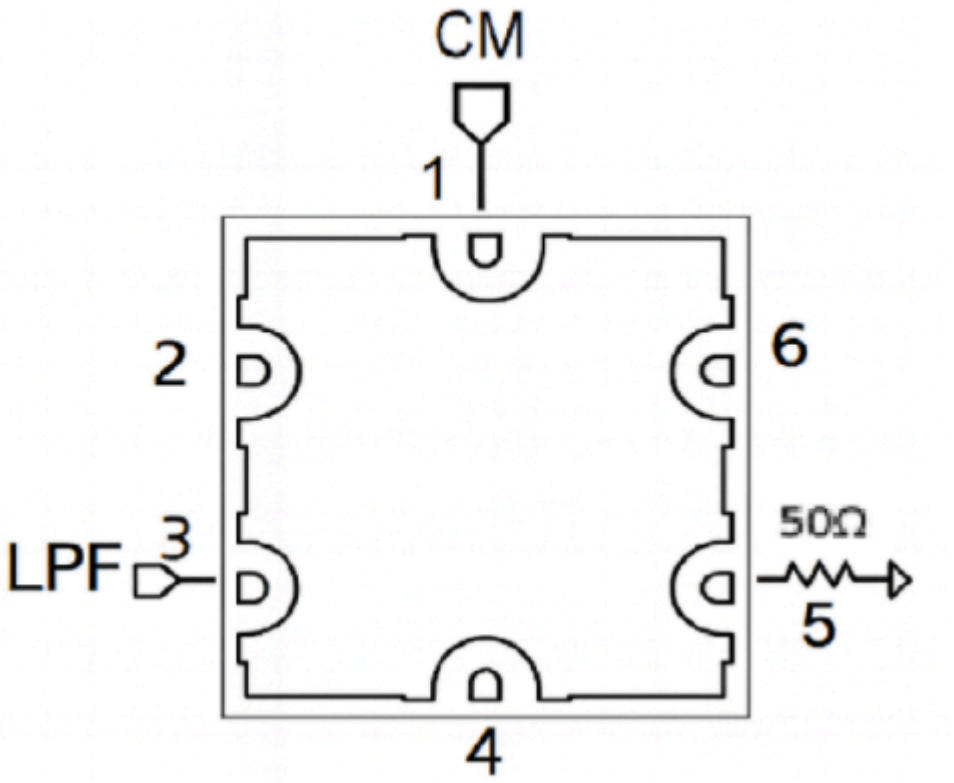






All measurements are de-embedded from the fixture with Automatic Fixture Removal (AFR).

Application Circuit



Application Circuit Description

Terminating the High-Pass port (Pin 5) with 50 Ω enables one-way reflectionless low-pass filtering from the Common port (Pin 1) to the Low-Pass port (Pin 3).

Terminating the Low-Pass port (Pin 3) with 50 Ω enables one-way reflectionless high-pass filtering from the Common port (Pin 1) to the High-Pass port (Pin 5).

MDPX-00011CSP3

Passive MMIC 24.7 GHz Diplexer/Reflectionless filter

Mechanical Data

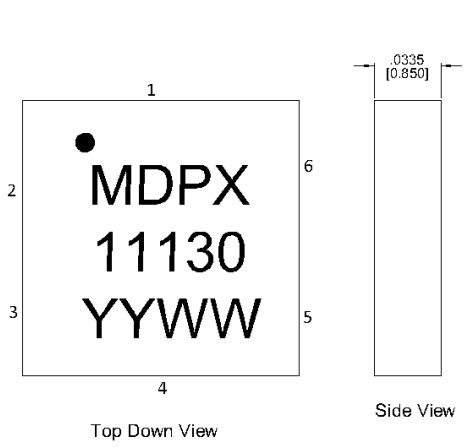
Outline Drawing

Download : Outline 2D Drawing

Pin #	Function
1	RF In
2	NC
3	RF Low Band
4	NC
5	RF High Band
6	NC

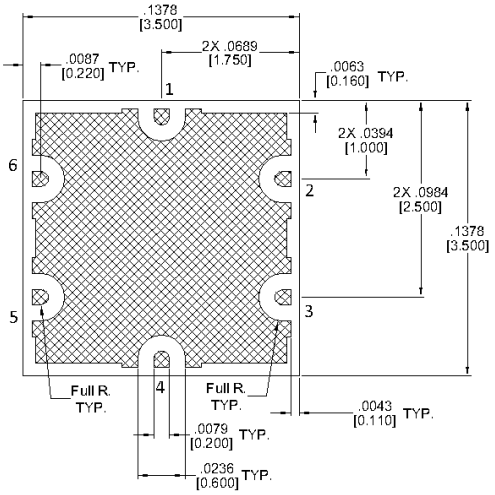
Units in inch +/-.004" [millimeter +/-0.1]

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVALS
A	Initial Release	2/27/26	AT



Top Down View

Side View



Bottom Up View

Notes: (Unless otherwise specified)

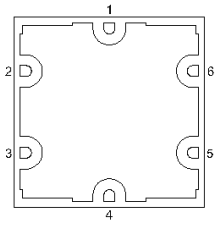
1. LEADFRAME Material: Cu Alloy 194.
2. Shaded areas are metalized.
3. Plating:
   Ni: 0.5 - 2.0 µm
   Pd: 0.08 - 0.15 µm
   Au: 0.008 - 0.050 µm

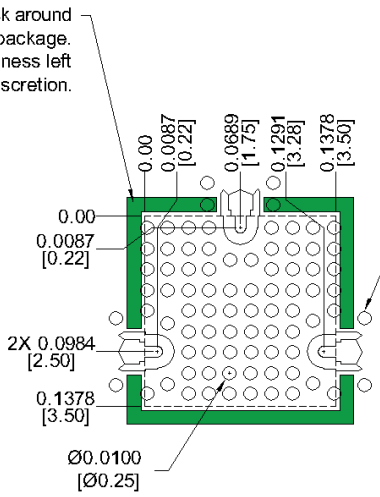
MATERIAL:	NOTES:	Marki microwave www.markimicrowave.com
FINISH:	DRAWN BY: TNN, DATE: 11-10-2025	OUTLINE, CSP3 Diplexer
DO NOT SCALE DRAWING	OS, WV 2/25/26	SIZE A, CAGE CODE 0UC32, DWG. NO. MDPX-00011CSP3, SHEET 1 OF 1

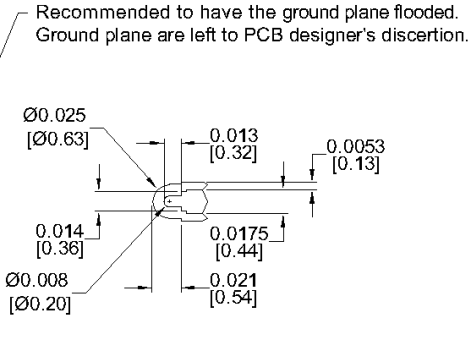
Footprint Image

Pin #	Function
1	CM
2	N/C
3	LPF
4	N/C
5	HPF
6	N/C

X-Ray view CSP3 Package







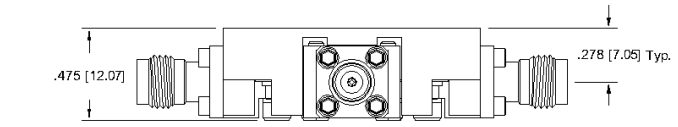
Evaluation Board - Outline Drawing

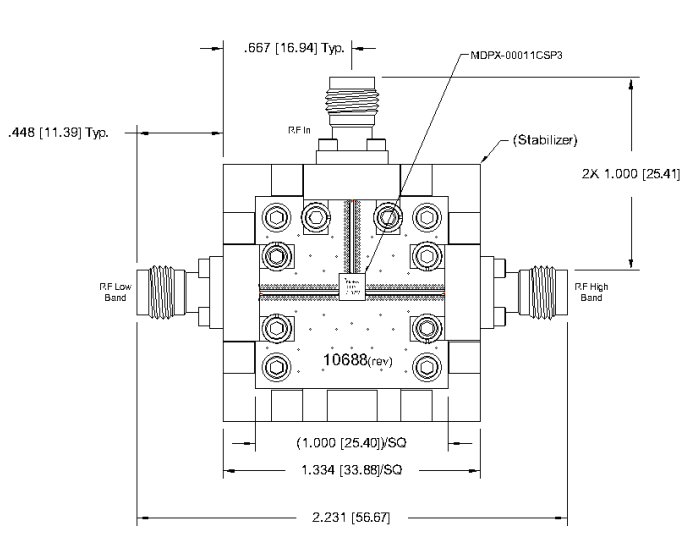
Port	Connector Type
RF in	1.85 mm F Edge Mount
RF Low Band	1.85 mm F Edge Mount
RF High Band	1.85 mm F Edge Mount
Connectors are not removeable	

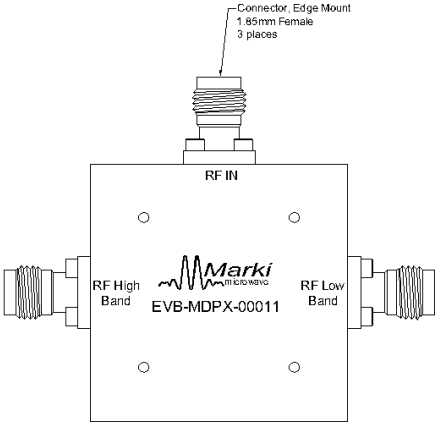
All measurements are typical

PROJECTION: INCH [MM]

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVALS
A	Initial Release	3/13/26	AT







Backside Label

RoHS Compliant (SN96.5/AG3.5) Components/Assembly

NOTES:

DRAWN BY	DATE
tnn	11-10-2025
OAS	2/25/26
WV	2/25/26

MATERIAL:

FINISH:

DO NOT SCALE DRAWING

Marki microwave www.markimicrowave.com

Outline, MDPX-CSP3 Diplexer Eval Board

SIZE	CAGE CODE	DWG. NO.
A	0UC32	EVB-MDPX-00011

SHEET 1 OF 1

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