

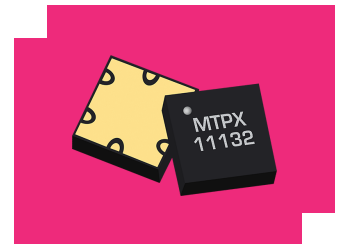
MTPX-00001CSP3

Passive MMIC 10 GHz and 18 GHz Triplexer/Reflectionless Filter

DEVICE OVERVIEW

General Description

The MTPX-00001CSP3 is a MMIC surface mount low pass, band pass, and high pass triplexer/reflectionless filter featuring 10.12 GHz and 18.16 GHz crossover frequencies. Passive 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 MTPX-00001CSP3 is available as a 3.5 x 3.5 mm CSP3. Low unit-to-unit variation allows for accurate simulations using the provided S-parameter file taken from measured production units.



[Download s-parameters here](#)

Features

- Low Insertion Loss, ≤ 2.3 dB Typical
- Crossover Points, 10.1 GHz and 18.2
- Excellent Return Losses, > 19 dB Typical
- High Band to Band Isolation, 37 dB Typical

Applications

N/A

Functional Block Diagram

N/A

Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MTPX-00001CSP3	Passive MMIC 10 GHz and 18 GHz Triplexer/Reflectionless Filter	CSP3	RoHS REACH	Released	EAR99
EVB-MTPX-00001	Evaluation Board, Passive MMIC 10GHz and 18GHz Triplexer	EVB	RoHS REACH	Released	EAR99

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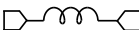
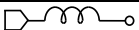
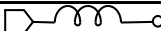
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Revision History

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

Port Configuration and Functions

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, Pin 4, and Pin 5.	
Pin 4	RF Mid Band	Pin 4 is DC open to GND, Pin 1, Pin 3, and Pin 5.	
Pin 5	RF High Band	Pin 5 is DC open to GND Pin 1, Pin 3, and Pin 4.	

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Specifications

Absolute Maximum Ratings

Parameter	Maximum Rating	Unit
DC Current	160	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

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Electrical Specifications

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Band 1: 1 dBc Passband	Temp = 25°C	0	7.14	-	-	-	GHz
Band 1: Center Freq	Temp = 25°C	-	-	-	3.57	-	GHz
Band 1: 3 dBc Passband	Temp = 25°C	0	9.55	-	-	-	GHz
Band 1: 30 dBc Rejection Point	Temp = 25°C	11.47	11.47	-	-	-	GHz
Band 1: Insertion Loss @ fc	Temp = 25°C	0	7.14	-	0.78	-	dB
Band 1: Return Loss	Temp = 25°C	0	7.14	-	23.51	-	dB
Band 1: Group Delay	Temp = 25°C	0	7.14	-	169.43	-	ps
Band 2: 1 dBc Passband	Temp = 25°C	10.89	16.81	-	-	-	GHz
Band 2: Center Freq	Temp = 25°C	-	-	-	13.53	-	GHz
Band 2: 3 dBc Passband	Temp = 25°C	10.33	17.56	-	-	-	GHz
Band 2: 30 dBc Rejection Point	Temp = 25°C	8.31	20	-	-	-	GHz
Band 2: Insertion Loss @ fc	Temp = 25°C	10.89	16.81	-	2.00	-	dB
Band 2: Return Loss	Temp = 25°C	10.89	16.81	-	19.40	-	dB
Band 2: Group Delay	Temp = 25°C	10.89	16.81	-	210.92	-	ps
Band 3: 1 dBc Passband	Temp = 25°C	19.14	26.06	-	-	-	GHz
Band 3: Center Freq	Temp = 25°C	-	-	-	22.33	-	GHz
Band 3: 3 dBc Passband	Temp = 25°C	18.59	27.28	-	-	-	GHz
Band 3: 30 dBc Rejection Point	Temp = 25°C	15.33	29.37	-	-	-	GHz
Band 3: Insertion Loss @ fc	Temp = 25°C	19.14	26.06	-	2.29	-	dB
Band 3: Return Loss	Temp = 25°C	19.14	26.06	-	19.57	-	dB

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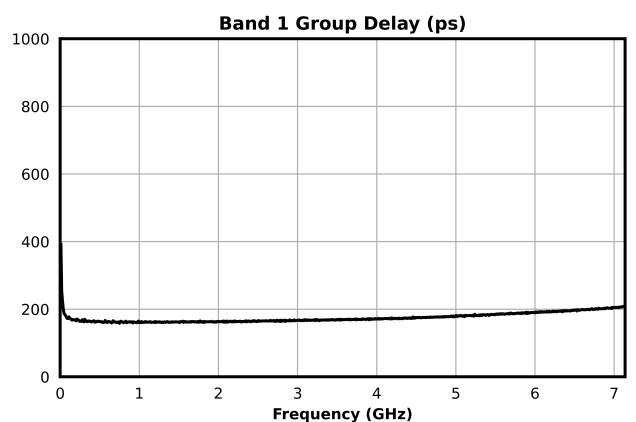
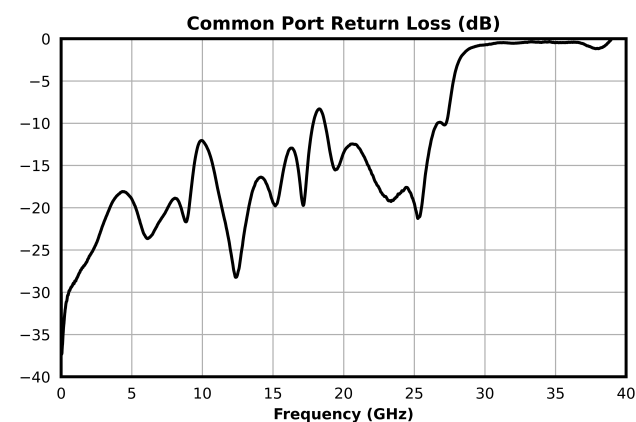
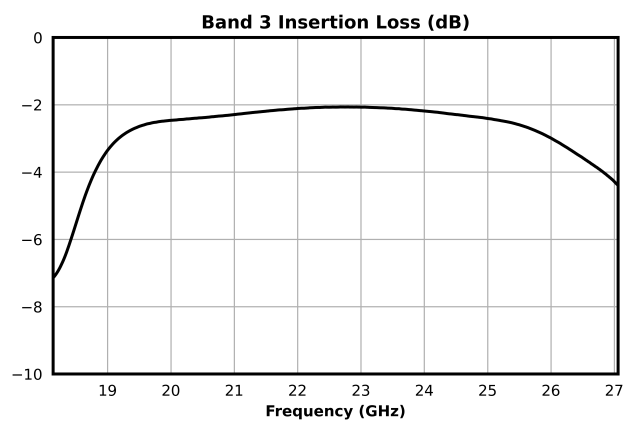
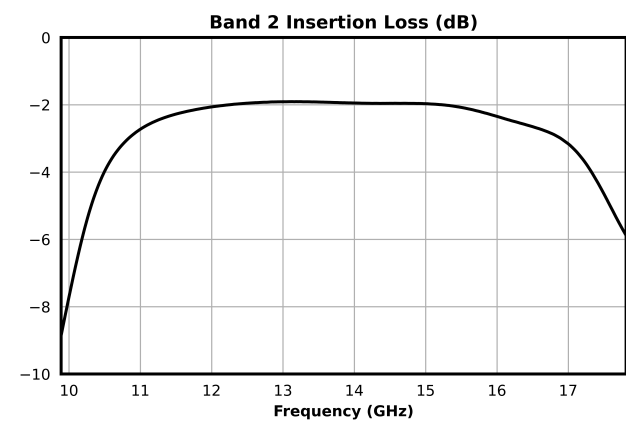
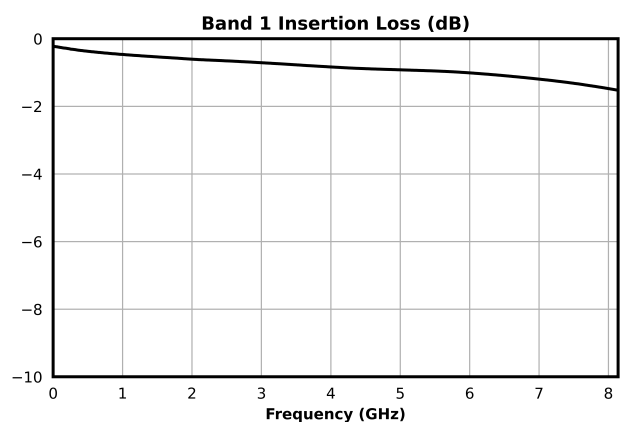
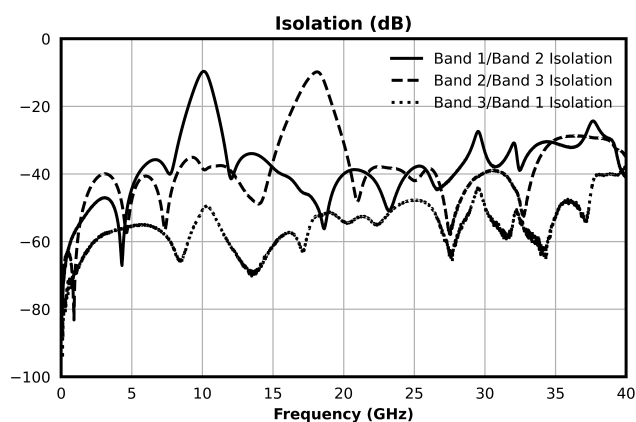
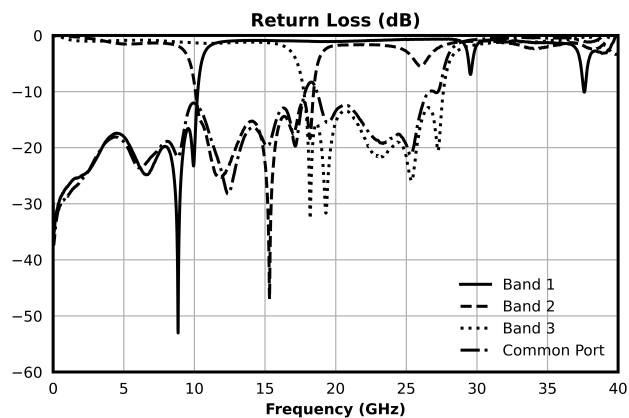
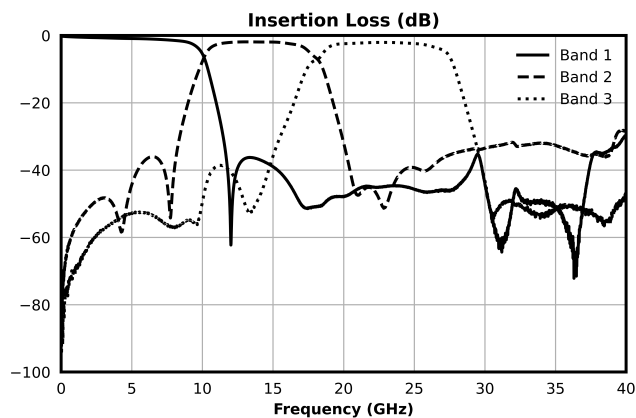
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Band 3: Group Delay	Temp = 25°C	19.14	26.06	-	151.86	-	ps
Band 1 to Band 2: Crossover Frequency	Temp = 25°C	-	-	-	10.12	-	GHz
Band 2 to Band 3: Crossover Frequency	Temp = 25°C	-	-	-	18.16	-	GHz
Band 1 to Band 2 Isolation	Temp = 25°C	-	-	-	37	-	dB
Band 2 to Band 3 Isolation	Temp = 25°C	-	-	-	39	-	dB
Band 3 to Band 1 Isolation	Temp = 25°C	-	-	-	58	-	dB

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Passive MMIC 10 GHz and 18 GHz

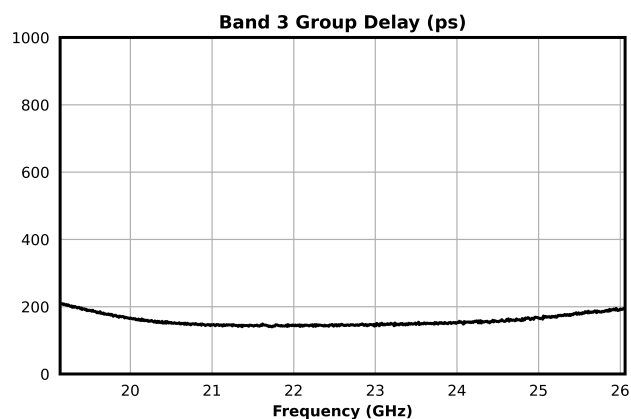
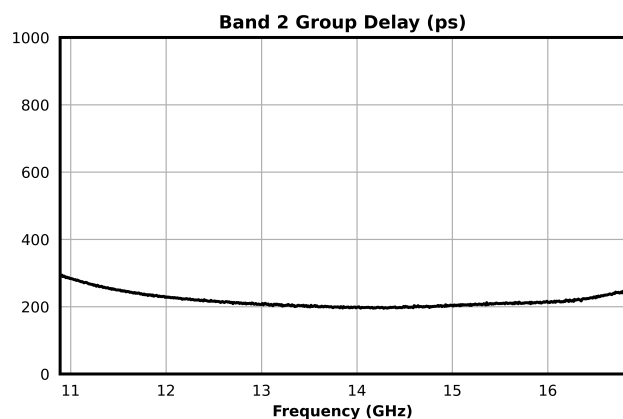
Triplexer/Reflectionless Filter

Typical Performance Plot



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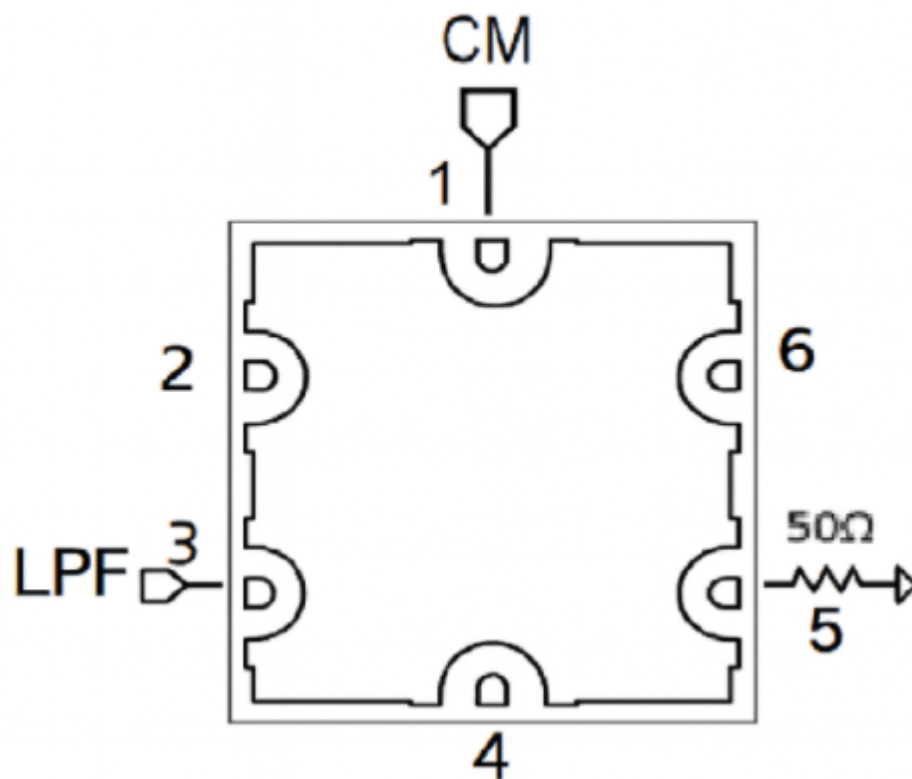


All measurements are de-embedded from the fixture with Automatic Fixture Removal (AFR).

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Application Circuit



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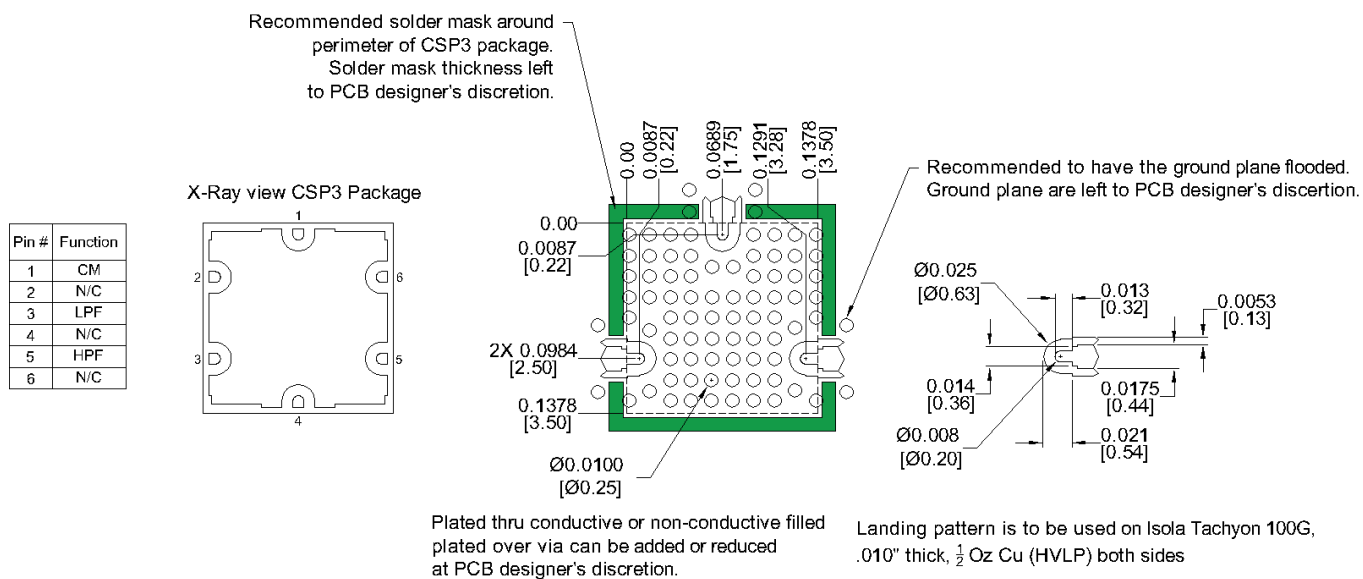
Application Circuit Description

A top-down x-ray view of the MDPX-00010CSP3 package outline drawing is shown above as a low pass reflectionless filter. A high pass reflectionless filter can be achieved by terminating Pin 3 and taking the output at Pin 5 instead.

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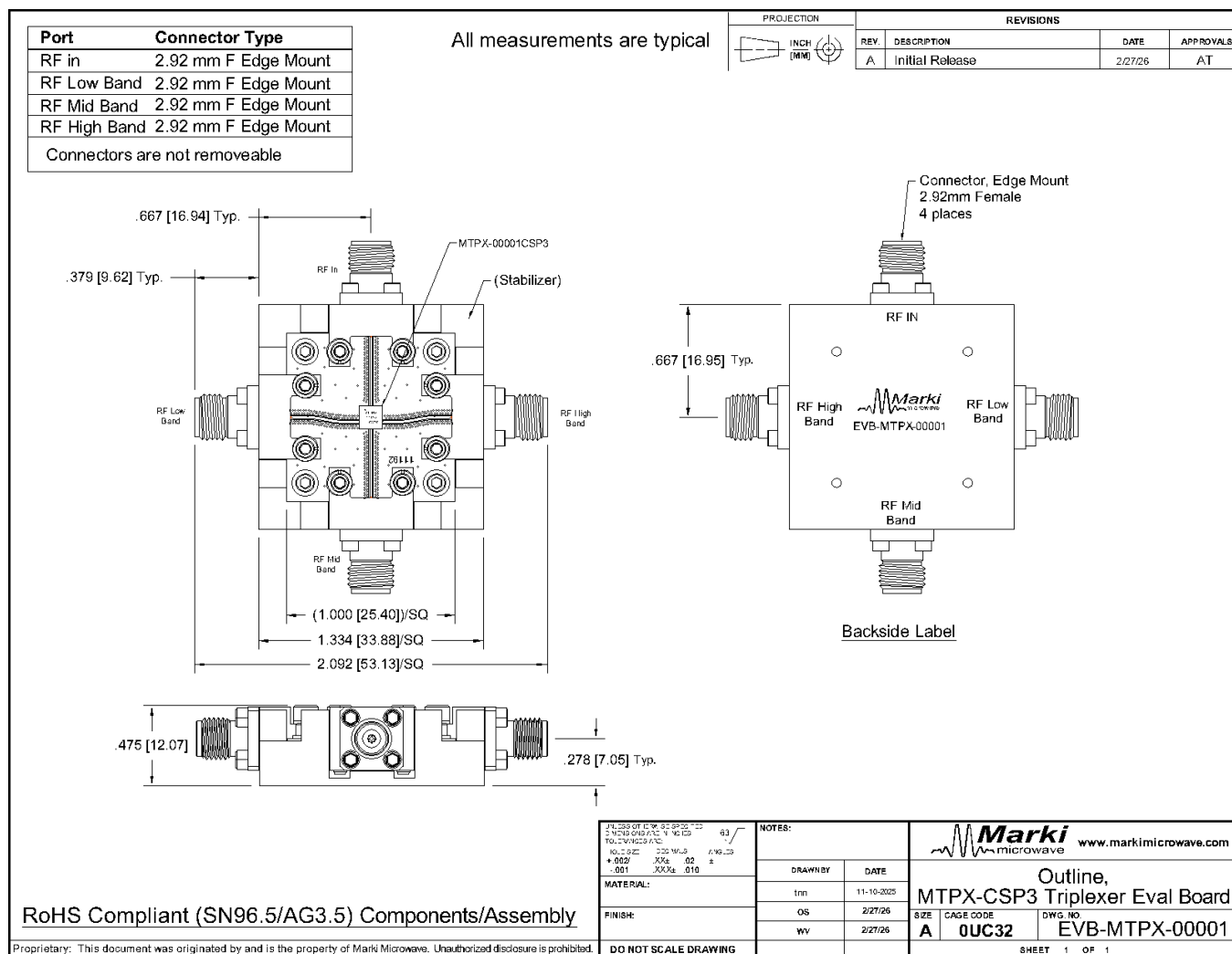
Footprint Image



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Evaluation Board - Outline Drawing



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