

MFBC-00004CSP3

Passive GaAs MMIC 15 - 19.8 GHz Bandpass Filter

DEVICE OVERVIEW

General Description

The MFBC-00004CSP3 passive MMIC surface mount bandpass filter is an ideal solution for small form factor, high rejection filtering. MFBC-00004CSP3 features a 15-19.8GHz 1dBc passband and 1.8dB center frequency insertion loss. 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 MFBC-00004CSP3 is available in our 3.5 x 3.5mm CSP3 chip scale package. Low unit to unit variation allows for accurate simulations using the provided S2P file taken from measured production units.



[Download s-parameters here](#)

Features

- 21 dB Return Loss
- 1.8 dB Insertion Loss @ Fc
- High Stop Band Suppression
- Wide Stop Band with Fast Roll-Off
- This product embodies Marki Microwave's U.S. Pat. 11,869,858.

Applications

- SATCOM
- Radar

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MFBC-00004CSP3	Passive GaAs MMIC 15 - 19.8 GHz Bandpass Filter	CSP3	RoHS REACH	Released	EAR99
EVB-MFBC-00004	Evaluation Board, Passive GaAs 15-19.8 GHz MMIC Bandpass Filter	EVB	RoHS REACH	Released	EAR99

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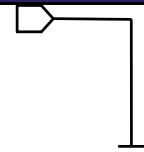
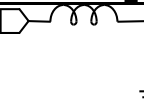
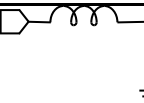
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Revision History

Revision Code	Revision Date	Comment
-	2025-05-29	Initial Release

Port Configuration and Functions

Port Functions

Port	Function	Description	Equivalent Circuit for Package
Ground Paddle	Ground	CSP3 package ground path is provided through the ground paddle and should be connected to RF ground.	
Pin 1	Input/Output	Pin 1 is DC short to ground for the CSP3 package.	
Pin 4	Input/Output	Pin 4 is DC short to ground for the CSP3 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

Package Information

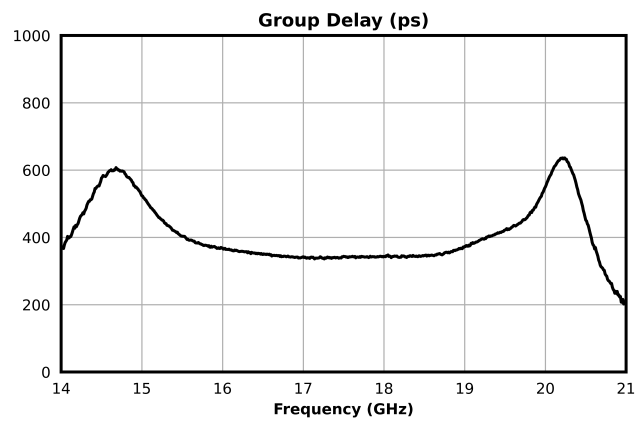
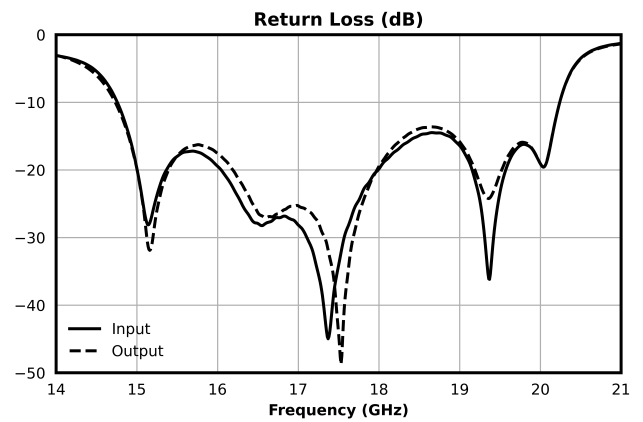
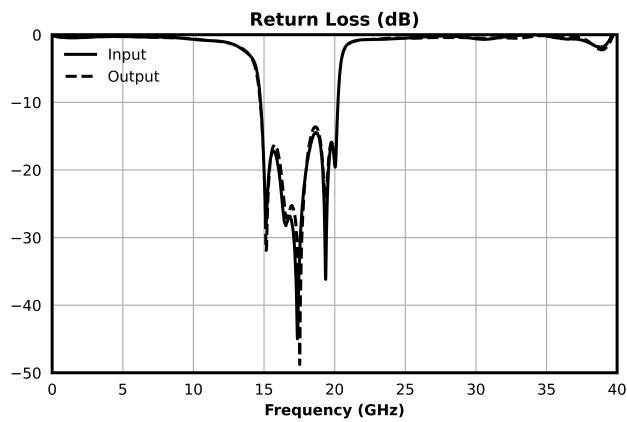
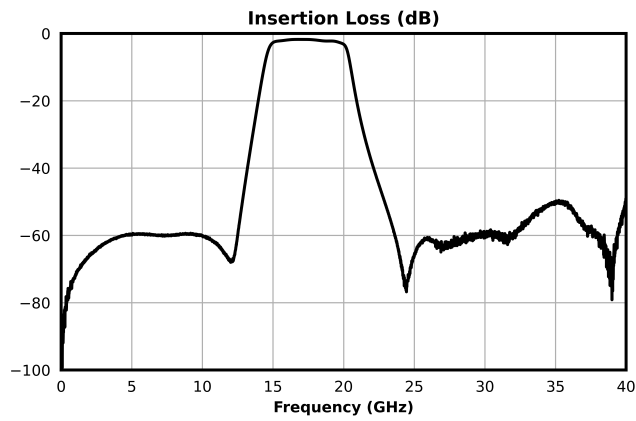
Parameter	Details	Rating
ESD	< 250 Volts	HBM Class 0
Dimensions	-	3.50 x 3.50 mm
Moisture Sensitivity Level	-	MSL 1

Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the filter in a CSP3 package with a sine wave input applied to Pin 1. Min and Max limits are guaranteed at TA=+25°C.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
1 dBc Passband	Configuration A, Temp = 25°C	14.99	19.75	-	-	-	GHz
30 dBc Rejection Point	Configuration A, Temp = 25°C	13.51	21.55	-	-	-	GHz
3 dBc Passband	Configuration A, Temp = 25°C	14.69	20.22	-	-	-	GHz
Center Freq	Configuration A, Temp = 25°C	-	-	-	17.21	-	GHz
Group Delay	Configuration A, Temp = 25°C	-	-	-	354	-	ps
Impedance	Configuration A, Temp = 25°C	-	-	-	50	-	Ω
Insertion Loss @ fc	Configuration A, Temp = 25°C	-	-	-	1.8	-	dB
Passband Return Loss	Configuration A, Temp = 25°C	-	-	-	21	-	dB

Typical Performance Plot



Measured data is de-embedded from fixture using automatic fixture removal (AFR).

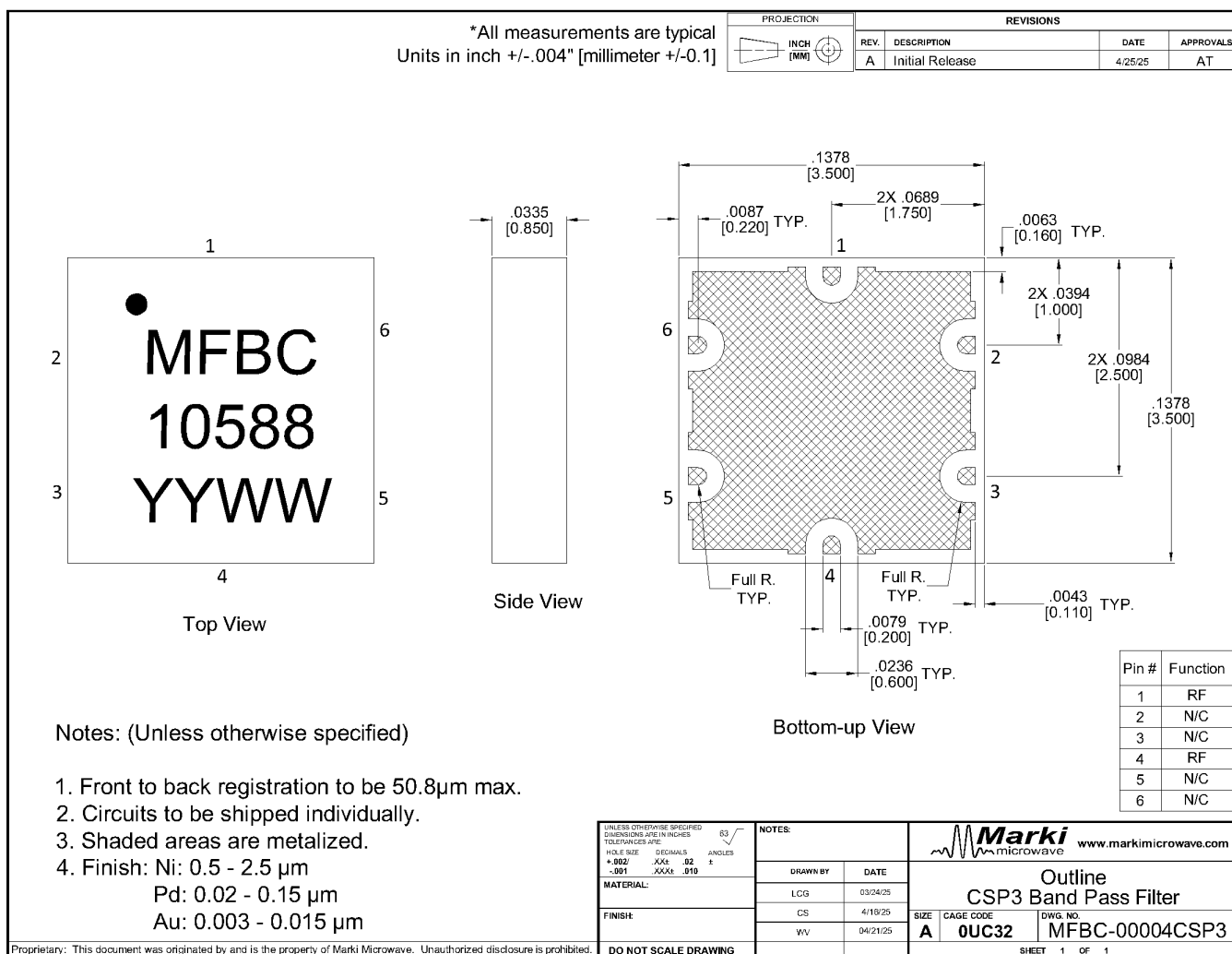
MFBC-00004CSP3

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Bandpass Filter

Mechanical Data

Outline Drawing

Download : [Outline 2D Drawing](#) | [Outline 3D Drawing](#) | [Outline 3D STP](#)

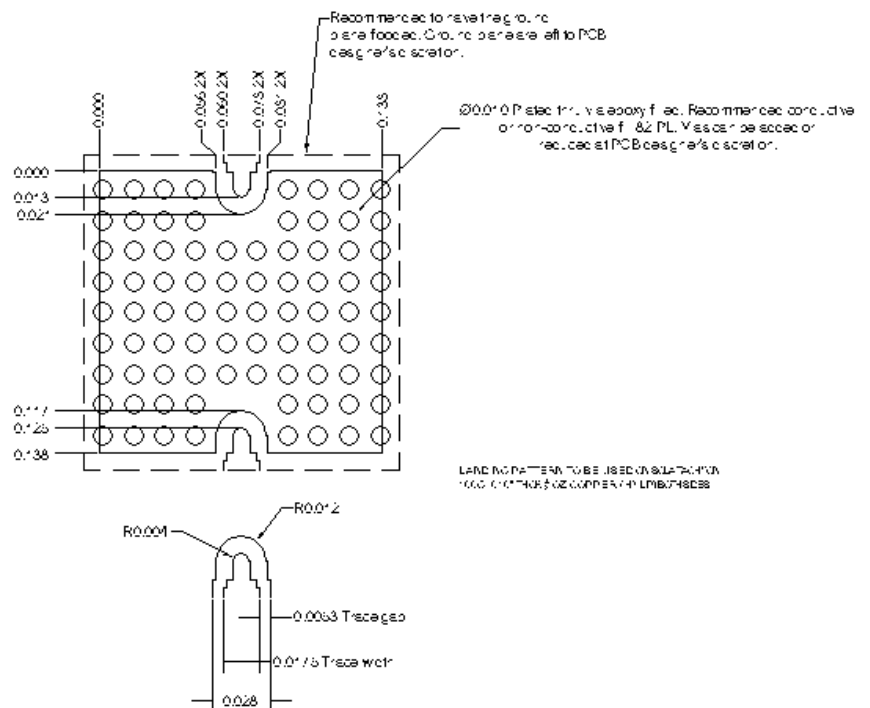
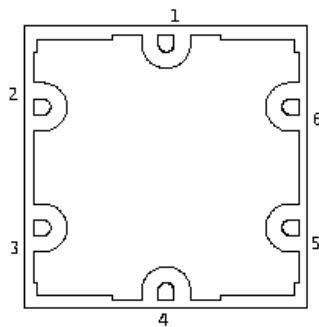


Passive GaAs MMIC 15 - 19.8 GHz Bandpass Filter

Footprint Image

Download : [Footprint Drawing](#)

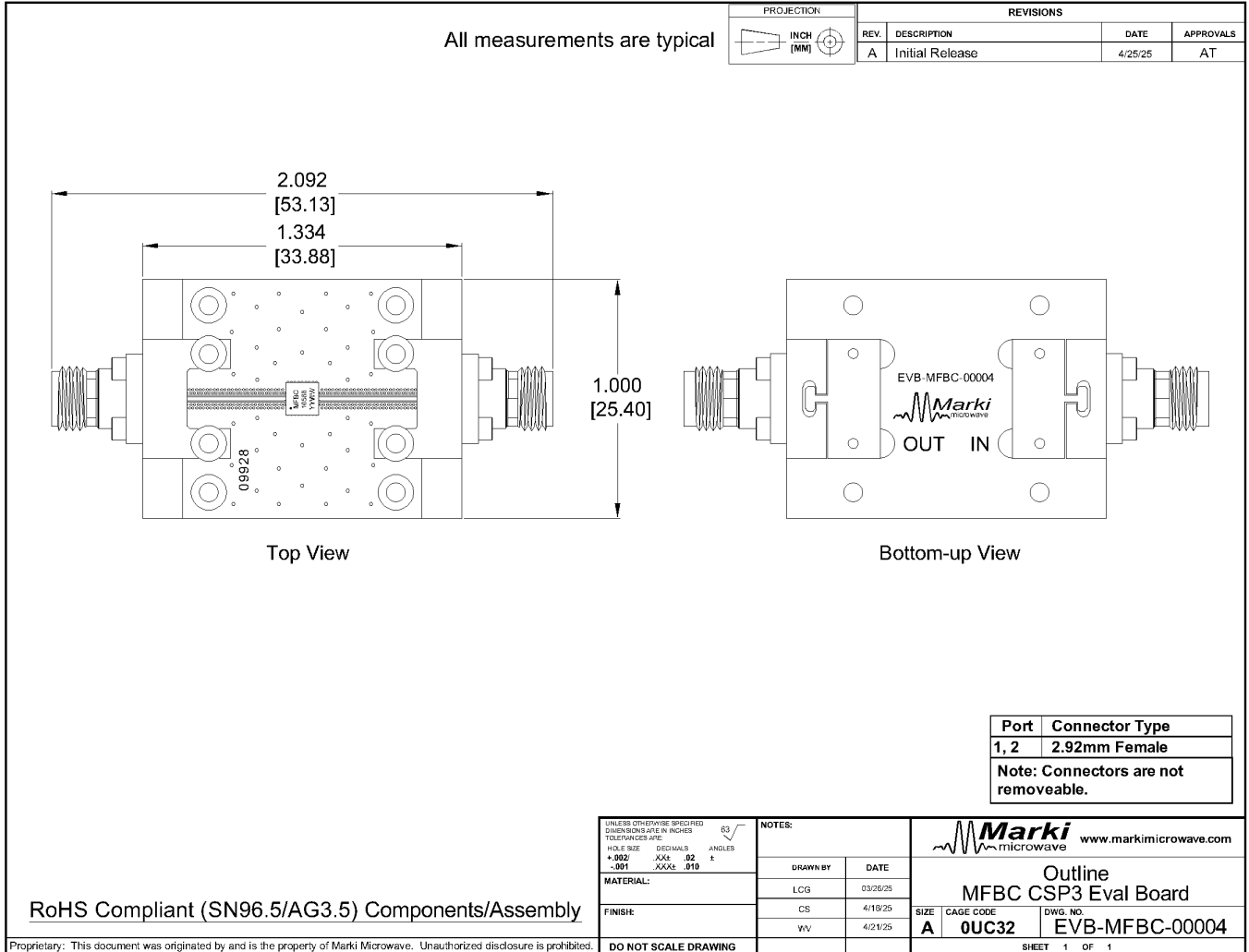
X-RAY VIEW/CSP PACKAGE



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Evaluation Board - Outline Drawing



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