

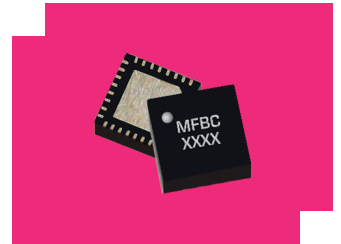
MFBC-00015PSM

Passive GaAs MMIC 25.40 – 34.70 Bandpass Filter

DEVICE OVERVIEW

General Description

The MFBC-00015PSM family of passive MMIC surface mount bandpass filters are an ideal solution for small form factor, high rejection filtering. 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-000XXPSM is available as a 5x5mm plastic QFN. Low unit to unit variation allows for accurate simulations using the provided S2P file taken from measured production units.



[Download s-parameters here](#)

Features

- Excellent Return Loss
- High Stop Band Suppression
- Wide Stop Band with Fast Roll-Off

Applications

N/A

Functional Block Diagram



Part Ordering Options

| Part Number | Description | Package | Green Status | Product Lifecycle | Export Classification |
|-----------------|---|---------|--------------|-------------------|-----------------------|
| MFBC-00015PSM | Passive GaAs MMIC 25.40 – 34.70 Bandpass Filter | QFN | RoHS REACH | Released | EAR99 |
| EVB-MFBC-00015P | Evaluation Board, Passive GaAs MMIC 25.40 - 34.70 GHz Bandpass Filter | EVB | RoHS REACH | Released | EAR99 |

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Revision History

| Revision Code | Revision Date | Comment |
|---------------|---------------|-------------------------------------|
| - | 2022-12-01 | Datasheet Initial Release |
| A | 2023-02-01 | Added MFBC-00016PSM |
| B | 2023-04-01 | Added MFBC-00010PSM – MFBC-00015PSM |

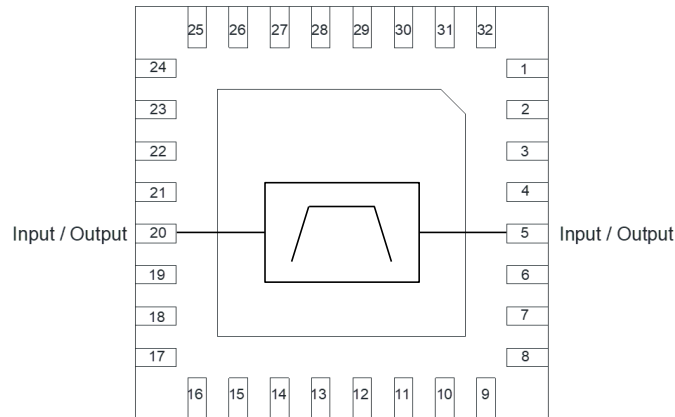
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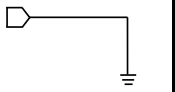

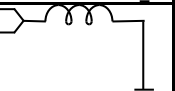
Port Configuration and Functions

Port Diagram

A top-down x-ray view of the MFBC-00015PSM package outline drawing is shown below. The MMIC bandpass filters are symmetrical allowing Pin 5 or Port 20 to be used as the input.



Port Functions

| Port | Function | Description | DC Equivalent Circuit |
|---------------|--------------|---|---|
| Ground Paddle | Ground | PSM package ground path is provided through the ground paddle and should be connected to RF ground. |  |
| Pin 20 | Input/Output | Pin 20 is DC short to ground for the PSM package. |  |
| Pin 5 | Input/Output | Pin 5 is DC short to ground for the PSM package. |  |

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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 |
| Port 1 DC Current | 600 | mA |
| Port 2 DC Current | 600 | mA |

Package Information

| Parameter | Details | Rating |
|----------------------------|---------|----------|
| Dimensions | - | 5 x 5 mm |
| Moisture Sensitivity Level | - | MSL 1 |

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Electrical Specifications

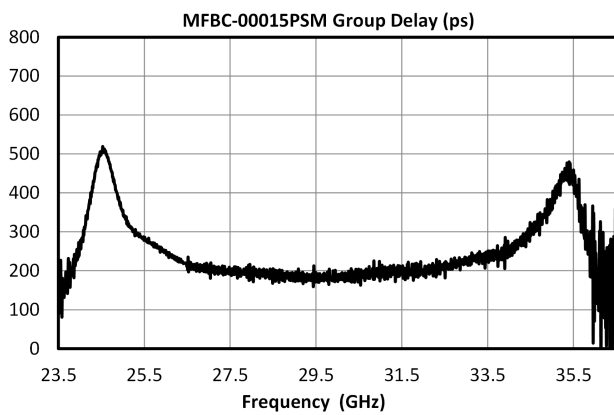
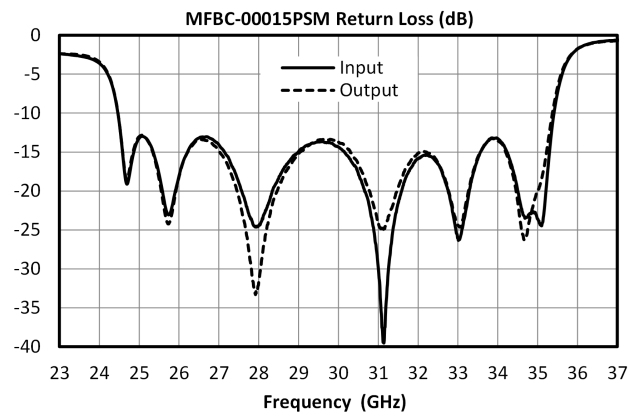
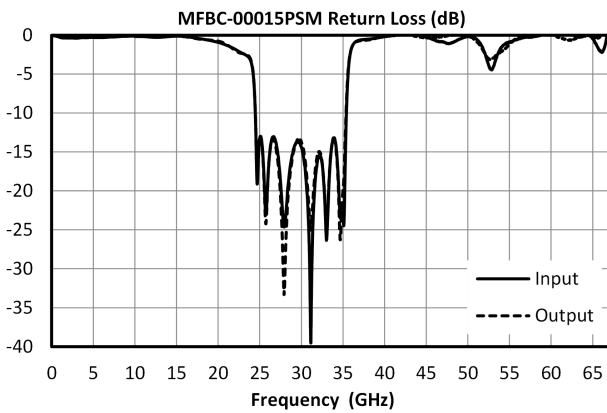
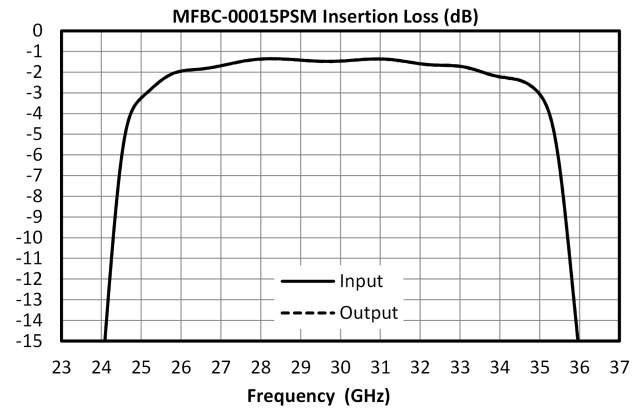
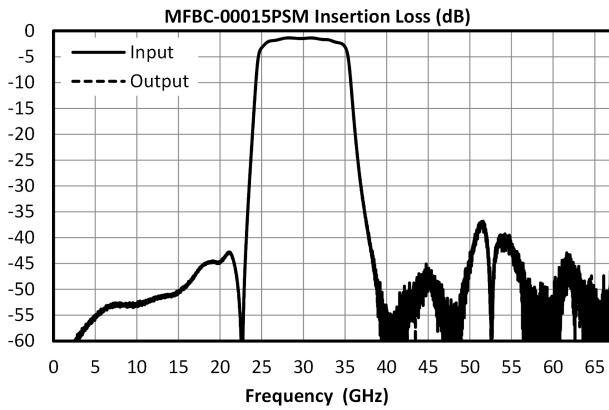
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the filter in a PSM package with a sine wave input applied to Pin 5. Min and Max limits are guaranteed at TA=+25°C.

| Parameter | Test Conditions | Minimum Frequency (GHz) | Maximum Frequency (GHz) | Min | Typ | Max | Unit |
|------------------------|------------------------------|-------------------------|-------------------------|-----|-------|-----|------|
| 1 dBc Passband | Configuration A, Temp = 25°C | 25.46 | 34.64 | - | - | - | GHz |
| 3 dBc Passband | Configuration A, Temp = 25°C | 24.54 | 35.41 | - | - | - | GHz |
| 30 dBc Rejection Point | Configuration A, Temp = 25°C | 23.2 | 37.12 | - | - | - | GHz |
| Center Freq | Configuration A, Temp = 25°C | - | - | - | 29.70 | - | GHz |
| Insertion Loss @ fc | Configuration A, Temp = 25°C | - | - | - | 1.5 | - | dB |
| Passband Return Loss | Configuration A, Temp = 25°C | - | - | - | 18 | - | dB |
| Group Delay | Configuration A, Temp = 25°C | - | - | - | 198 | - | ps |
| Impedance | Configuration A, Temp = 25°C | - | - | - | 50 | - | Ω |
| Stopband Suppression | - | 0 | 21 | 40 | 70 | - | dB |
| Stopband Suppression | - | 38 | 67 | 30 | 45 | - | dB |

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Typical Performance



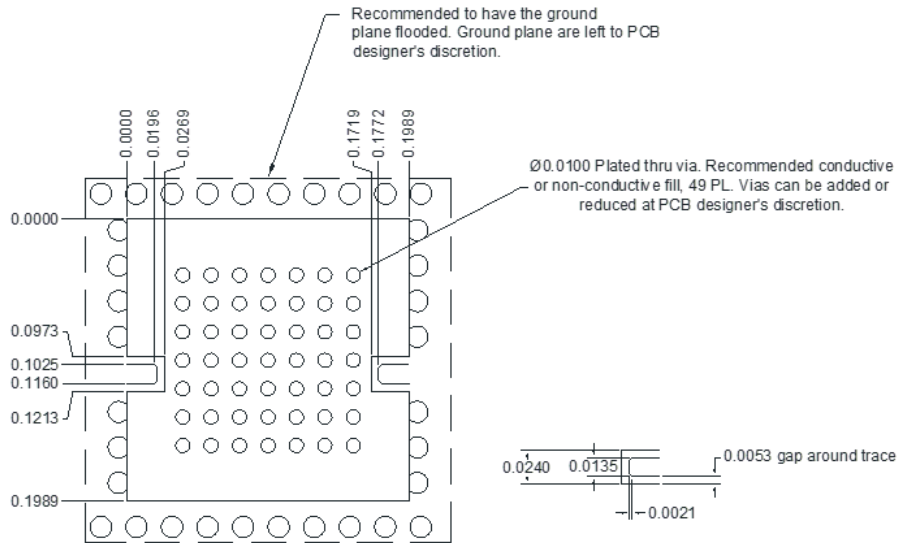
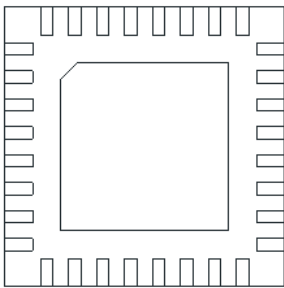
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Footprint Image

Download : [Footprint Drawing](#)

QFN 5mm Sample Drawing
X-Ray view

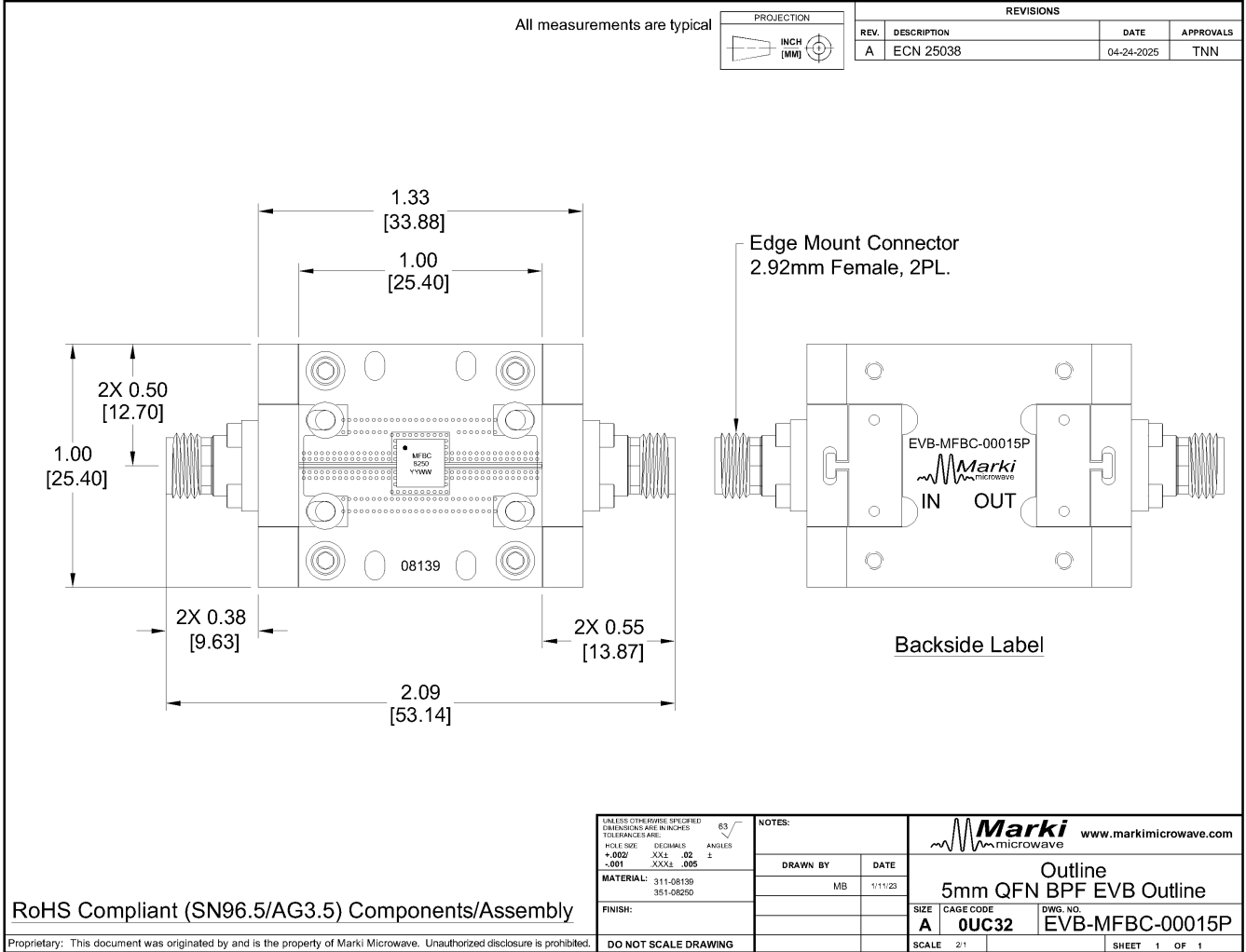


Material Rogers 4003 008" $\frac{1}{2}$ Oz Cu both sides.

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Evaluation Board - Outline Drawing



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