

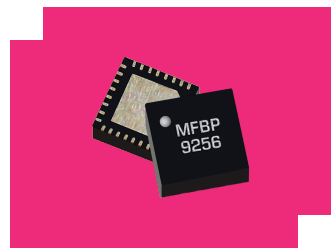
# MFBP-00031PSM

## Passive GaAs MMIC 32.14 - 33.03 GHz Bandpass Filter

### DEVICE OVERVIEW

#### General Description

The MFBP-00031PSM passive MMIC surface mount bandpass filter is 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 MFBP-00031PSM 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 |
|-----------------|-----------------------------------------------------------------|---------|--------------|-------------------|-----------------------|
| MFBP-00031PSM   | Passive GaAs MMIC 32.14 - 33.03 GHz Bandpass Filter             | QFN     | RoHS REACH   | Released          | EAR99                 |
| EVB-MFBP-00031P | Evaluation Board, Passive GaAs 32.14-33.03 MMIC Bandpass Filter | EVB     | RoHS REACH   | Released          | EAR99                 |

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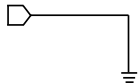
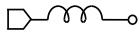
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Revision History

| Revision Code | Revision Date | Comment                   |
|---------------|---------------|---------------------------|
| -             | 2024-04-26    | Datasheet Initial Release |

**Port Configuration and Functions**

**Port Functions**

| Port          | Function     | Description                                                                                         | Equivalent Circuit for Package                                                      |
|---------------|--------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 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 open to ground for the PSM package.                                                    |  |
| Pin 5         | Input/Output | Pin 5 is DC open to ground for the PSM 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   |
|----------------------------|---------|----------|
| Dimensions                 | -       | 5 x 5 mm |
| Moisture Sensitivity Level | -       | MSL 1    |

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#### Electrical Specifications

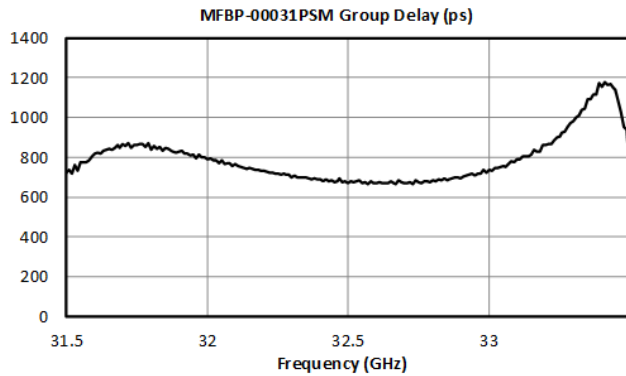
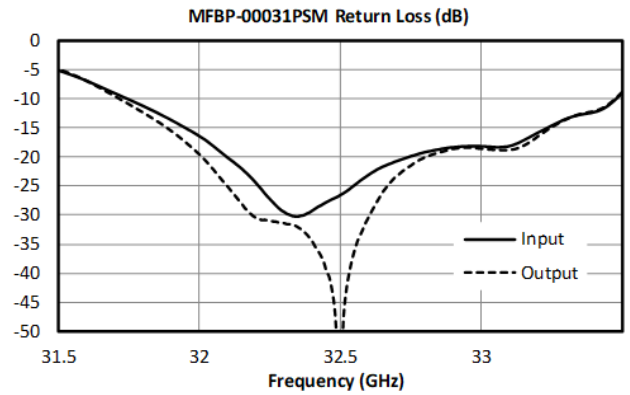
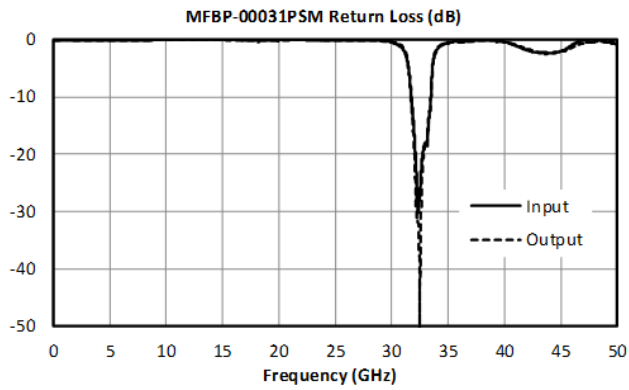
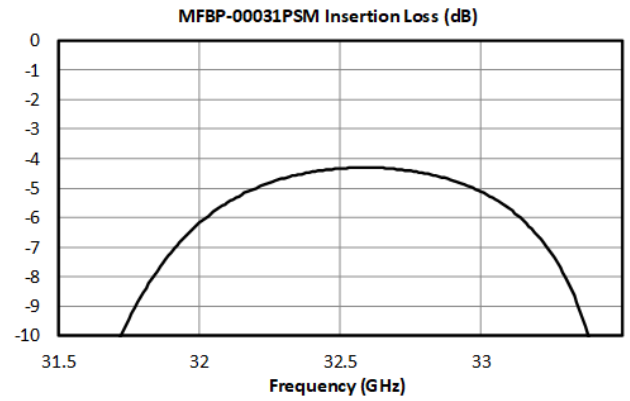
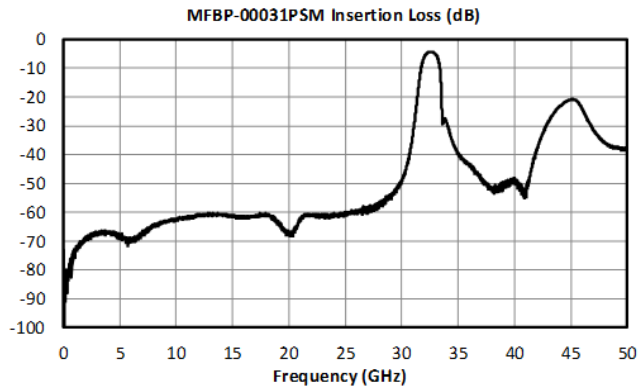
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the filter in a PSM package with a sine wave input applied to Pin 5. Min and Max limits are guaranteed at TA=+25°C.

| Parameter              | Test Conditions       | Minimum Frequency (GHz) | Maximum Frequency (GHz) | Min | Typ   | Max | Unit |
|------------------------|-----------------------|-------------------------|-------------------------|-----|-------|-----|------|
| 1 dBc Passband         | Configuration A, 25°C | 32.14                   | 33.03                   | -   | -     | -   | GHz  |
| 30 dBc Rejection Point | Configuration A, 25°C | 30.94                   | 34.39                   | -   | -     | -   | GHz  |
| 3 dBc Passband         | Configuration A, 25°C | 31.89                   | 33.25                   | -   | -     | -   | GHz  |
| Center Freq            | Configuration A, 25°C | -                       | -                       | -   | 32.58 | -   | GHz  |
| Group Delay            | Configuration A, 25°C | -                       | -                       | -   | 689   | -   | ps   |
| Impedance              | Configuration A, 25°C | -                       | -                       | -   | 50    | -   | Ω    |
| Insertion Loss @ fc    | Configuration A, 25°C | -                       | -                       | -   | 4.3   | -   | dB   |
| Passband Return Loss   | Configuration A, 25°C | -                       | -                       | -   | 23    | -   | dB   |
| Stopband Suppression   | -                     | 36.1                    | 40                      | -   | 51    | -   | dB   |
| Stopband Suppression   | -                     | 0                       | 29.1                    | -   | 62    | -   | dB   |

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### Typical Performance Plots



All measurements are de-embedded from the fixture with AFR.

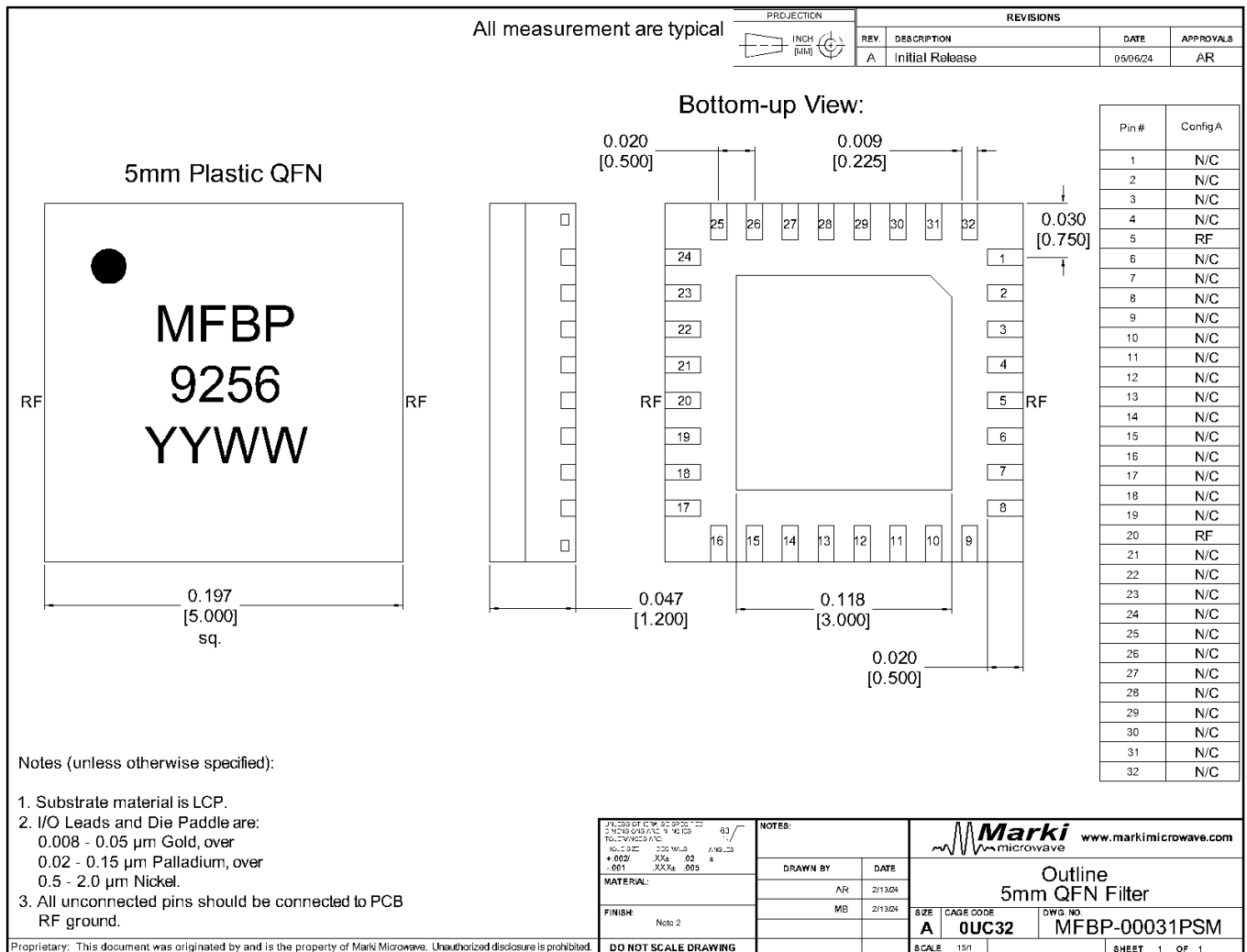
## MFBP-00031PSM

### Passive GaAs MMIC 32.14 - 33.03 GHz Bandpass Filter

#### Mechanical Data

#### Outline Drawing

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



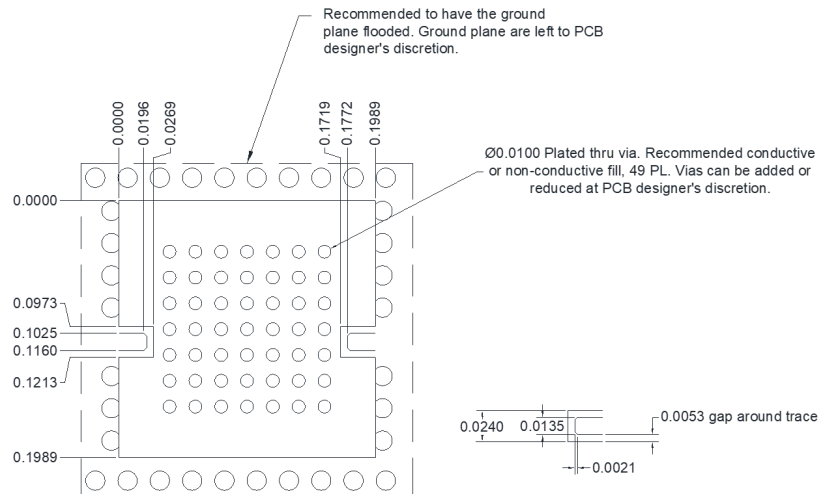
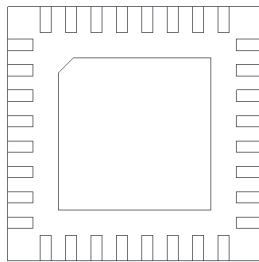
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### Passive GaAs MMIC 32.14 - 33.03 GHz Bandpass Filter

#### Footprint Image

Download : [Footprint Drawing](#)

QFN 5mm Sample Drawing  
X-Ray view

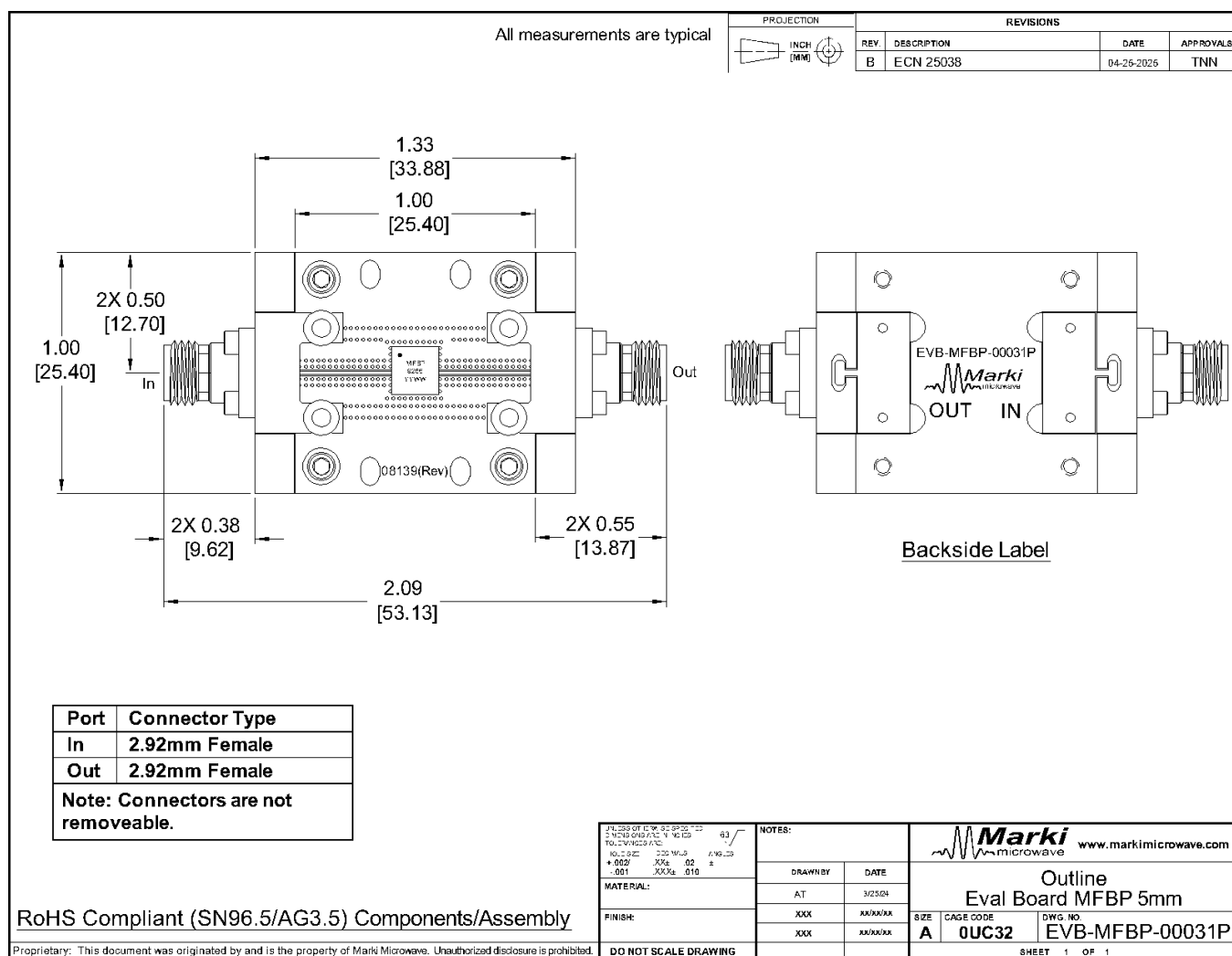


Material Rogers 4003 008"  $\frac{1}{2}$  Oz Cu both sides.

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### Evaluation Board - Outline Drawing



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