

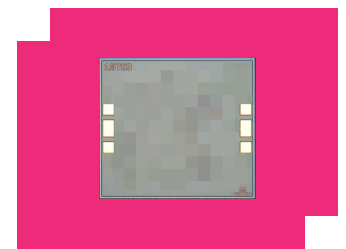
# MFLP-00026CH

## Passive GaAs MMIC 6.3 GHz Lowpass Filter

### DEVICE OVERVIEW

#### General Description

The MFLP-00026CH is a passive MMIC surface mount lowpass filter that is an ideal solution for small form factor, high rejection filtering. The MFLP-00026CH features a 6.3 GHz 3 dBc cutoff and 27 dB passband return 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 MFLP-00026CH is available as a wire-bondable die. Low unit to unit variation allows for accurate simulations using the provided S2P file taken from measured production units.



[Download s-parameters here](#)

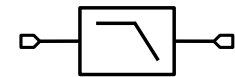
#### Features

- Low Passband Insertion Loss with Fast Roll-off
- 27 dB Return Loss
- High Stop Band Suppression

#### Applications

- Test and Measurement Equipment
- SATCOM
- Radar
- RF Transceivers

#### Functional Block Diagram



#### Part Ordering Options

| Part Number  | Description                              | Package | Green Status | Product Lifecycle | Export Classification |
|--------------|--|---------|--------------|-------------------|-----------------------|
| MFLP-00026CH | Passive GaAs MMIC 6.3 GHz Lowpass Filter | CH      | RoHS REACH   | Released          | EAR99                 |

## Table Of Contents

- **Device Overview**
  - General Description
  - Features
  - Applications
  - Functional Block Diagram
- **Port Configuration and Functions**
  - Port Diagram
  - Port Functions
- **Revision History**
- **Specifications**
  - Absolute Maximum Ratings
  - Package Information
  - Electrical Specifications
  - Typical Performance Plot
- **Die Mounting Recommendations**
  - Mounting and Bounding Recommendations
- **Mechanical Data**
  - Outline Drawing

## Revision History

| Revision Code | Revision Date | Comment         |
|---------------|---------------|-----------------|
| -             | 2025-07-29    | Initial Release |

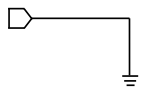
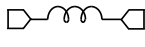
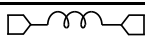
## Port Configuration and Functions

### Port Diagram

A top-down view of the MFLP-00026CH package outline drawing is shown below.



### Port Functions

| Port   | Function | Description  | Equivalent Circuit for Package  |
|--------|----------|--|---|
| Pad    | Ground   | CH package ground path is provided through the substrate and ground bond pads. |  |
| Port 1 | Input    | Port 1 is DC short to Port 2.  |  |
| Port 2 | Output   | Port 2 is DC short to Port 1.  |  |

## 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             | 60             | mA   |
| Port 2 DC Current             | 60             | mA   |

### Package Information

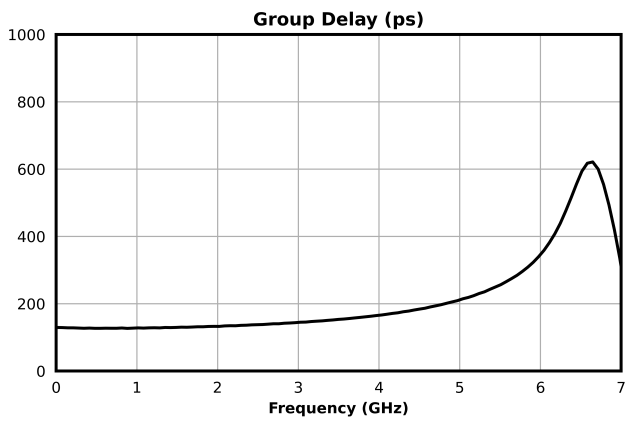
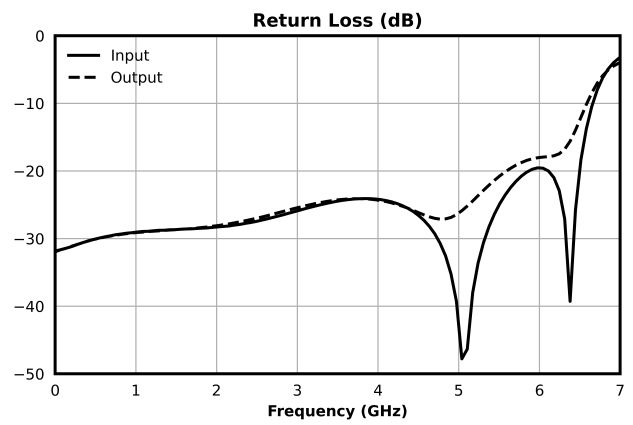
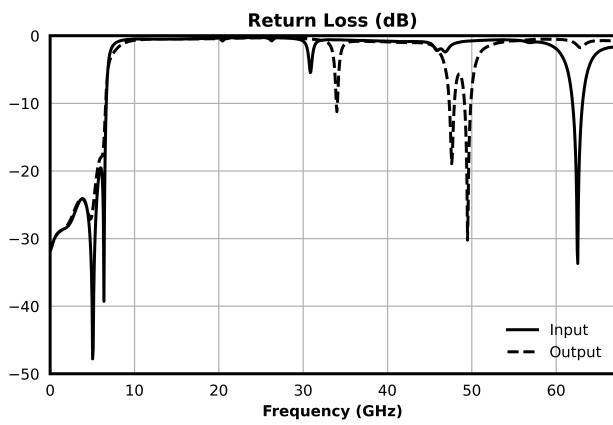
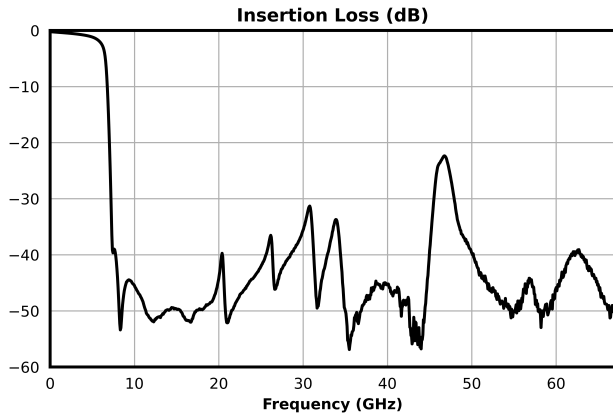
| Parameter  | Details            | Rating         |
|------------|--------------------|----------------|
| ESD        | 250 to < 500 Volts | HBM Class 1A   |
| Dimensions | -                  | 1.38 x 1.25 mm |

**Electrical Specifications**

| Parameter              | Test Conditions                                       | Minimum Frequency (GHz) | Maximum Frequency (GHz) | Min | Typ  | Max | Unit |
|------------------------|---|-------------------------|-------------------------|-----|------|-----|------|
| 1 dBc Passband         | Configuration A, Temp = 25°C, Input Power = -5.00 dBm | 0                       | 5.04                    | -   | -    | -   | GHz  |
| 3 dBc Passband         | Configuration A, Temp = 25°C, Input Power = -5.00 dBm | 0                       | 6.31                    | -   | -    | -   | GHz  |
| 30 dBc Rejection Point | Configuration A, Temp = 25°C, Input Power = -5.00 dBm | 7.19                    | 7.19                    | -   | -    | -   | GHz  |
| Center Freq            | Configuration A, Temp = 25°C, Input Power = -5.00 dBm | -                       | -                       | -   | 2.52 | -   | GHz  |
| Passband Return Loss   | Configuration A, Temp = 25°C, Input Power = -5.00 dBm | -                       | -                       | -   | 27   | -   | dB   |
| Group Delay            | Configuration A, Temp = 25°C, Input Power = -5.00 dBm | -                       | -                       | -   | 138  | -   | ps   |
| Impedance              | Configuration A, Temp = 25°C, Input Power = -5.00 dBm | -                       | -                       | -   | 50   | -   | Ω    |

De-embedded to circuit bond pads - wire bonds included.

**Typical Performance Plot**



## Die Mounting Recommendations

### Mounting and Bonding Recommendations

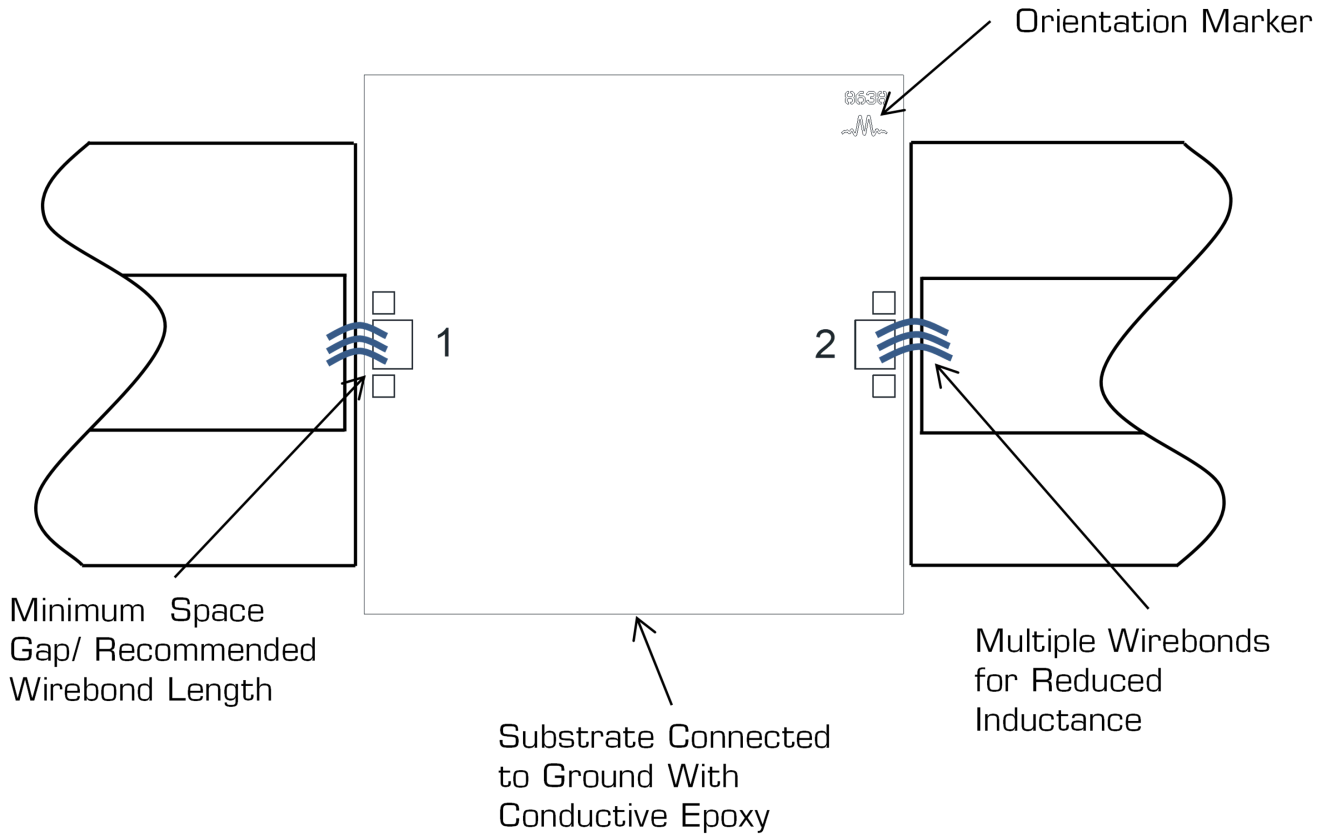
Marki MMICs should be attached directly to a ground plane with conductive epoxy. The ground plane electrical impedance should be as low as practically possible. This will prevent resonances and permit the best possible electrical performance. Datasheet performance is only guaranteed in an environment with a low electrical impedance ground.

**Mounting** - To epoxy the chip, apply a minimum amount of conductive epoxy to the mounting surface so that a thin epoxy fillet is observed around the perimeter of the chip. Cure epoxy according to manufacturer instructions.

**Wire Bonding** - Ball or wedge bond with 0.025 mm (1 mil) diameter pure gold wire. Thermosonic wirebonding with a nominal stage temperature of 150 °C and a ball bonding force of 40 to 50 grams or wedge bonding force of 18 to 22 grams is recommended. Use the minimum level of ultrasonic energy to achieve reliable wirebonds. Wirebonds should be started on the chip and terminated on the package or substrate. Bond wire inductance will improve return loss. Bondwire inductance in the range of 30pH to 200pH will improve performance.

**Circuit Considerations** - 50  $\Omega$  transmission lines should be used for all high frequency connections in and out of the chip. Wirebonds should be kept as short as possible, with multiple wirebonds recommended for higher frequency connections to reduce parasitic inductance. Refer to table on page 11 for wirebond recommendation. In circumstances where the chip is more than .001" thinner than the substrate, a heat spreading spacer tab is optional to further reduce bondwire length and parasitic inductance.

**Bonding Diagram**



## **Handling Precautions**

### **General Handling**

Chips should be handled with care using tweezers or a vacuum collet. Users should take precautions to protect chips from direct human contact that can deposit contaminants, like perspiration and skin oils on any of the chip's surfaces.

### **Static Sensitivity**

GaAs MMIC devices are sensitive to ESD and should be handled, assembled, tested, and transported only in static protected environments.

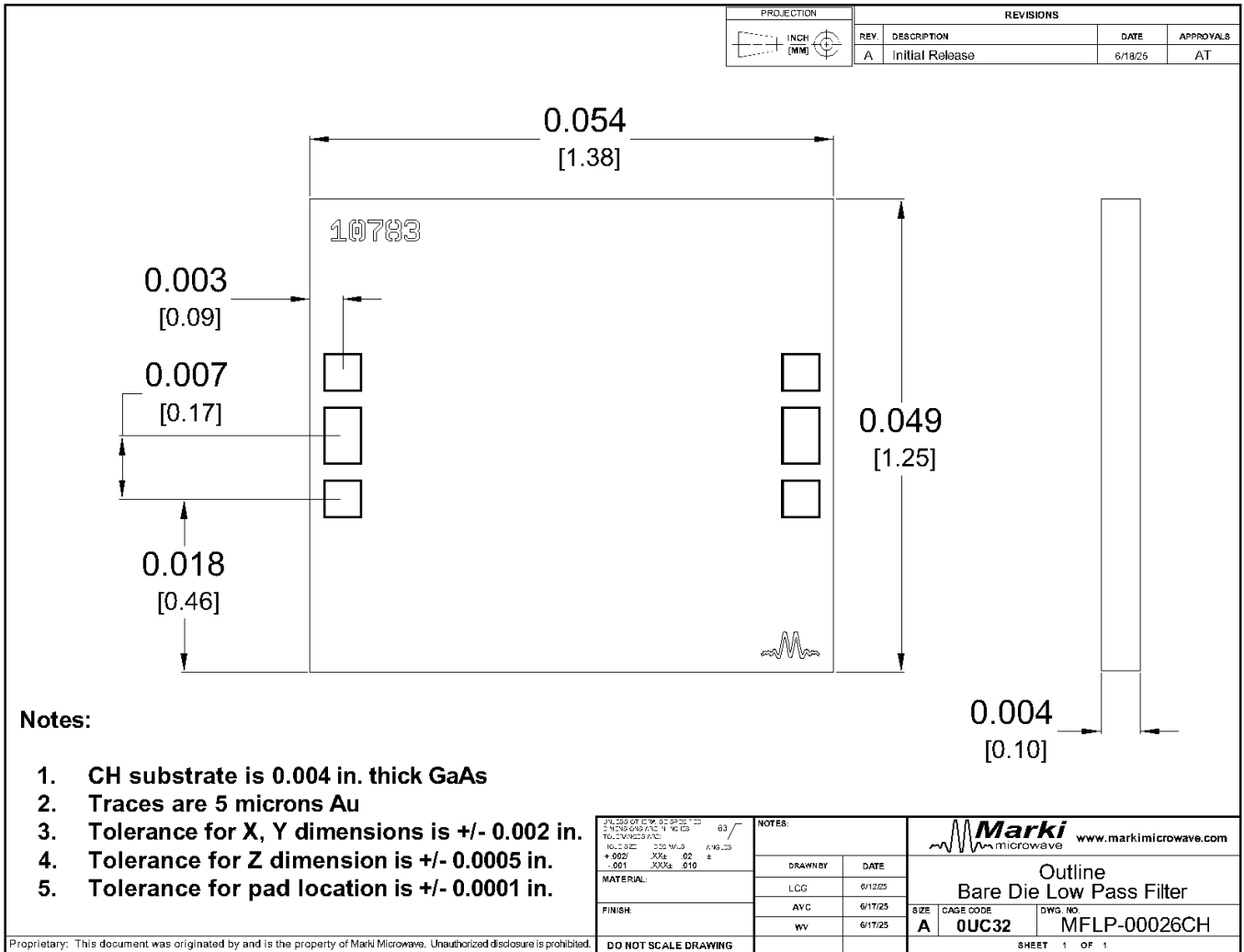
### **Cleaning and Storage**

Do not attempt to clean the chip with a liquid cleaning system or expose the bare chips to liquid. Once the ESD sensitive bags the chips are stored in are opened, chips should be stored in a dry nitrogen atmosphere.

**Mechanical Data**

**Outline Drawing**

Download : [Outline 2D Drawing](#)



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