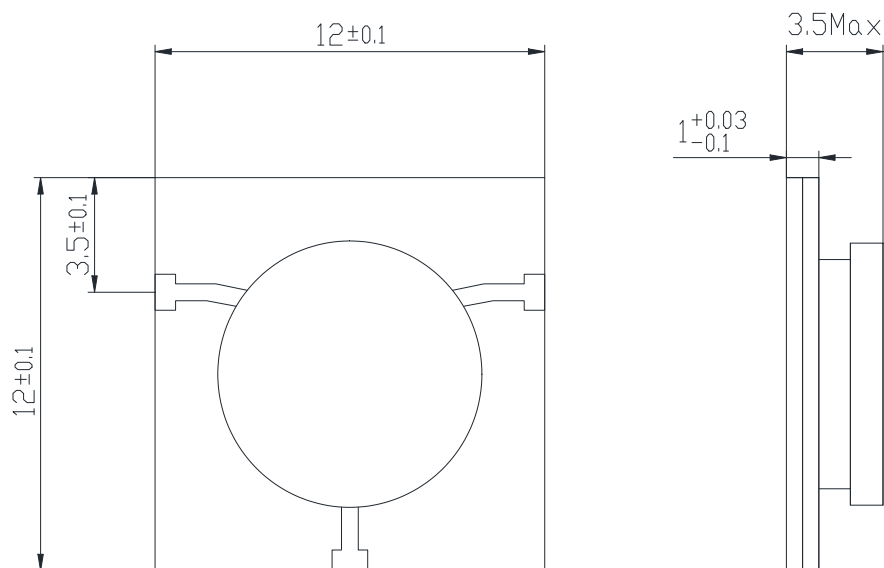
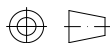


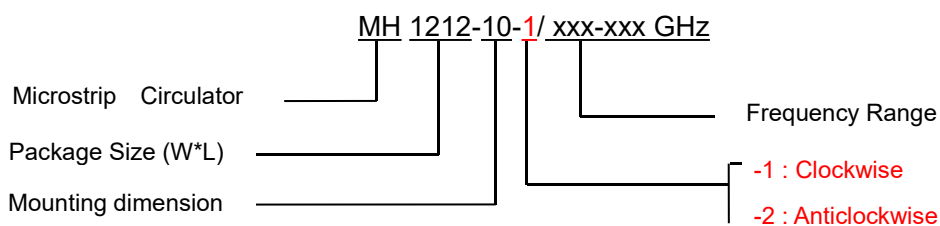
## 2.7 to 8.0GHz Microstrip Circulator

### MH1212-10 Strip Line Type

Outline Drawing (mm):



Order Examples:



Basic Specifications:

Impedance	50 Ω
Connector Type	Microstrip
Size(mm)	12.0*12.0*3.5
Operating Temp	-55~+85 °C

## Specifications:

Model No. (X=1: →Clockwise) (X=2: ←Anticlockwise)	Freq. Range GHz	IL. dB (max)	Isolation dB (min)	VSWR (max)	Forward Power CW
MH1212-10X/2.7-3.5GHz	2.7-3.5	0.4	20	1.2	50
MH1212-10X/3.5-4.5GHz	3.5-4.5	0.4	20	1.2	50
MH1212-10X/4.0-5.0GHz	4.0-5.0	0.4	20	1.2	50
MH1212-10X/4.0-8.0GHz	4.0-8.0	0.8	14	1.5	50
MH121210X/4.5-5.5GHz	4.5-5.5	0.4	20	1.2	50

## Instructions:

One: Long-term storage conditions of microstrip circulator:

- 1, Temperature range: +15°C~+25°C
- 2, Relative temperature: 25%~60%
- 3, Should not be stored next to strong magnetic fields or ferromagnetic substances. And the safe distance between products should be maintained:

Microstrip circulators with frequencies above the X-band should be separated by more than 3mm

The detection interval between C-band microstrip circulators is more than 8mm

Two: Microstrip circulators below the C-band frequency should be separated by more than 15mm

2. Refer to the following principles in the selection of microstrip circulators:

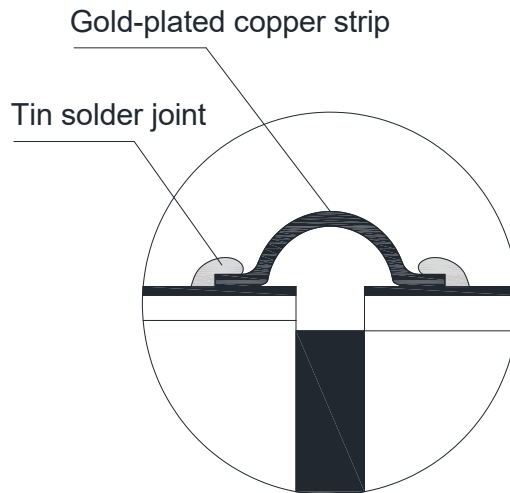
1. When decoupling and matching between circuits, microstrip isolators can be selected; The microstrip circulator can be used when it plays a duplex or circular role in the circuit
2. Select the corresponding microstrip circulator type according to the frequency range, installation size and transmission direction used.
- 3, when the working frequency of the two sizes of microstrip circulators can meet the requirements of warranty, the larger general power capacity is higher.

Three: Third, the installation of microstrip circulator

1. When using the microstrip circulator, the microstrip circuit at each port should not be clamped to avoid mechanical damage.
2. The flatness of the installation plane in contact with the bottom of the microstrip circulator should not be greater than 0.01mm.
3. The installed microstrip circulator should not be removed. It is recommended that the removed microstrip circulator not be used anymore.
4. When using screws, the bottom should not be cushioned with soft base materials such as indium or tin to avoid the deformation of the product bottom plate resulting in the rupture of the ferrite substrate; Tighten screws in diagonal sequence, installation torque: 0.05-0.15N.m.
5. When the adhesive is installed, the curing temperature should not be greater than 150°C. When the user has special requirements (should be informed first), the welding temperature should not be greater than 220°C.

6. The circuit connection of the microstrip circulator can be connected by manual soldering of copper strip or gold strip/bonding

A. Copper belt manual welding interconnect into the copper belt should be  $\Omega$  bridge, the leak should not infiltrate into the copper belt forming place as shown in the following figure. The surface temperature of ferrite should be maintained between 60-100°C before welding.



b, the use of gold belt/wire bonding interconnect, the width of the gold belt is less than the width of the microstrip circuit, no multiple bonding is allowed, the bonding quality should meet the requirements of GJB548B method 2017.1 Article 3.1.5, the bonding strength should meet the requirements of GJB548B method 2011.1 and 2023.2.

Four: the use of microstrip circulator and precautions

1. Cleaning of microstrip circuit includes cleaning before circuit connection and welding spot cleaning after copper strip interconnection. Cleaning should use alcohol, acetone and other neutral solvents to clean the flux, to avoid the cleaning agent infiltration into the bonding area between the permanent magnet, ceramic sheet and circuit substrate, affecting the bonding strength. When the user has special requirements, the flux can be cleaned by ultrasonic cleaning with neutral solvents such as alcohol and deionized water, and the temperature should not exceed 60 ° C and the time should not exceed 30 minutes. After cleaning with deionized water, heat and dry, the temperature does not exceed 100°C.

2, should pay attention to use

a. Exceeding the operating frequency range and operating temperature range of the product, the product performance will be reduced, or even have no non-reciprocal characteristics.

b. The microstrip circulator is recommended to be derated. The actual power is recommended to be less than 75% of the rated power.

c. There should be no strong magnetic field near the installation of the product to avoid the strong magnetic field changing the product bias magnetic field and causing product performance changes.