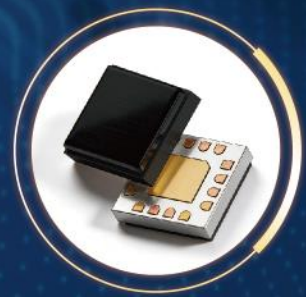
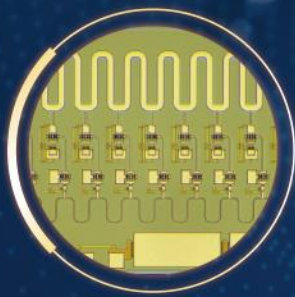


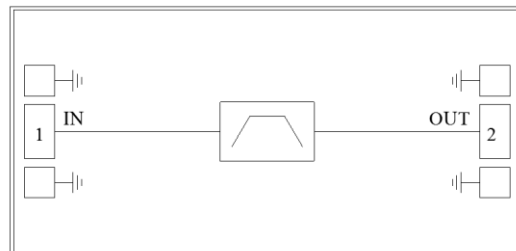
Wideband GaAs & GaN MMIC



Features

- ◆ Wide Frequency Bandwidth
- ◆ Low Insertion Loss
- ◆ Excellent Stopband Rejection

Functional Block Diagram



Description

The QTBF101D is a GaAs bandpass filter chip. It covers a passband of 0.9 GHz to 1.5 GHz, with a typical insertion loss of 1.8 dB and stopband rejection over 20 dB. The input and output are both fully matched to 50Ω, and it is equipped with a passivation layer.

Electrical Specifications :TA = +25°C

Parameters		Min	Typ	Max	Units
Frequency		0.9		1.5	GHz
Insertion Loss			1.8	2.2	dB
Stopband Attenuation	@0.52GHz&2.05GHz	20			dB
	@0.43GHz&2.15GHz	40			dB
Input Return Loss			-15		dB
Output Return Loss			-15		dB

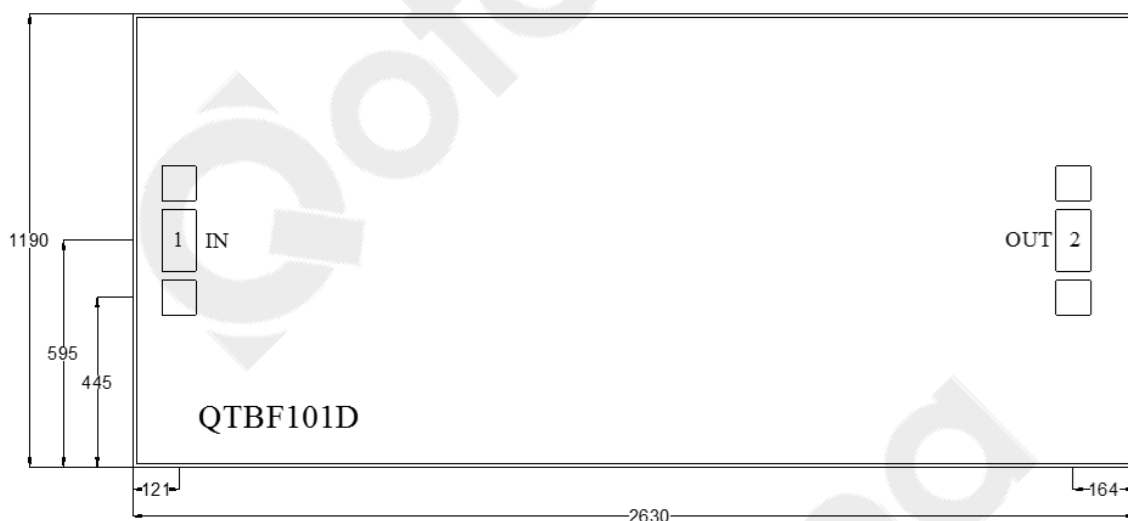
Absolute Maximum Ratings

Parameter	Rating
RF Input Power	+30dBm
Operating Temperature	-55°C to +120°C
Storage Temperature	-65°C to +150°C

Ordering Information

Part No.	Package	Description
QTBF101D	Die	0.9-1.5 GHz Band Pass Filter

Outline Drawing: All Dimensions in μm



Notes:

- ◆ 1. Die is 100 microns thick
- ◆ 2. RF bond pads are 90 x 160 microns

Pad Description



Notes:

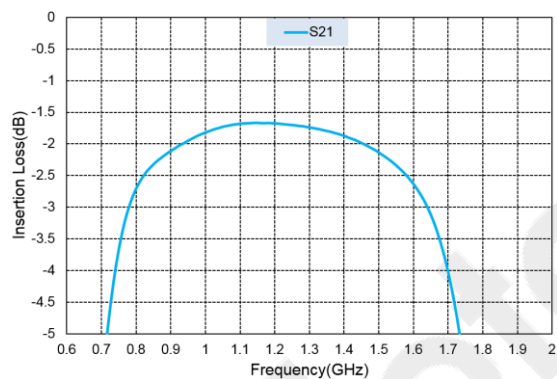
- ◆ 1. No connection required for unlabeled pads
- ◆ 2. Backside and bond pad metal: Gold

Pad	Function	Description
1	IN	This pad is ac coupled and matched to 50 Ohm, no blocking capacitor required.
2	OUT	This pad is ac coupled and matched to 50 Ohm, no blocking capacitor required.
Backside	Ground	Connect to RF / DC ground

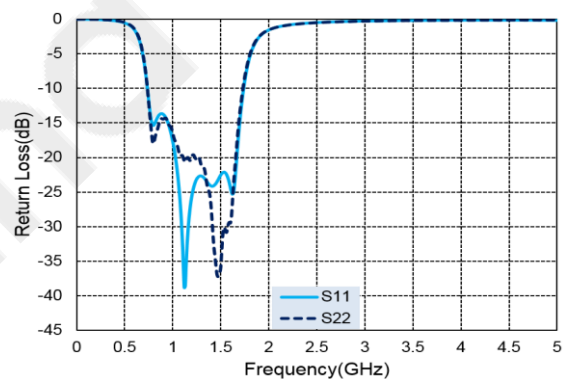
Typical Performance Plots

 $T_A = +25^{\circ}\text{C}$

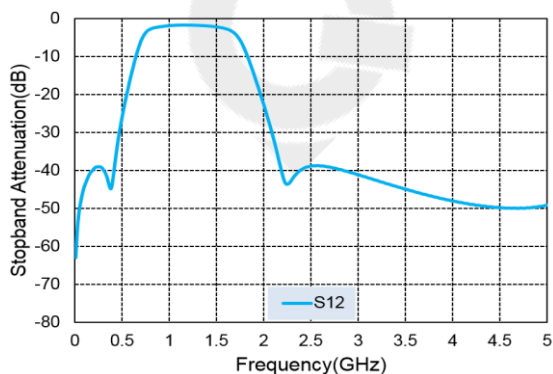
Insertion Loss



Return Loss



Stopband Attenuation



Assembly Instructions

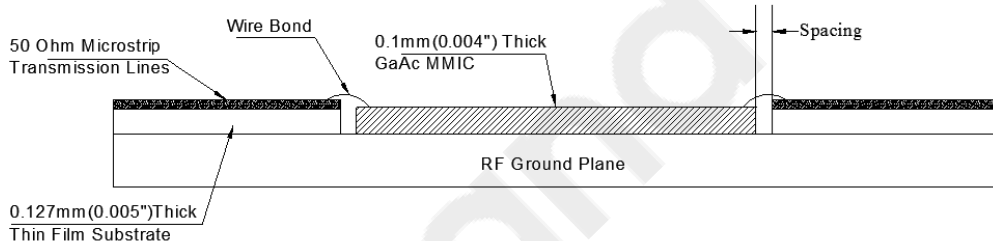


Figure1

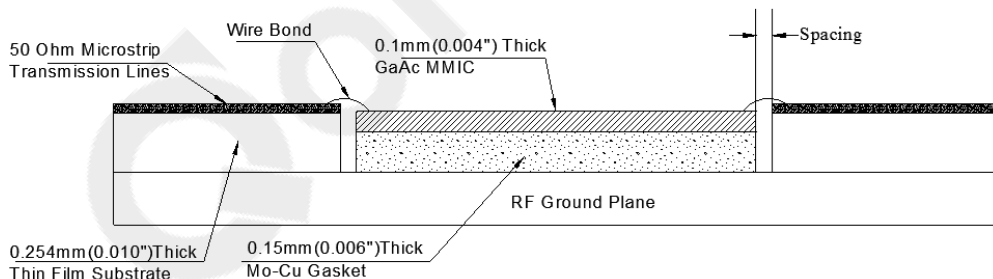


Figure2

- ◆ The small signal die can be bonded with conductive adhesive.
- ◆ It is recommended to use AuSn alloy for the power amplifier die, and weld it on a molybdenum copper substrate in the nitrogen or nitrogen-hydrogen atmosphere using the eutectic welding process. The time at temperatures above 320°C should not exceed 20 seconds.
- ◆ Thermosonic wedge bonding is an excellent interconnection technology.
- ◆ In general, the 25μm gold wire will be used to connect the die and microstrip lines. But if the pad size is less than 80μm, the 18μm gold wire is the best choice.
- ◆ During the process of assembling, the spacing should be between 0.06mm and 0.15mm when the frequency of the die is below 40GHz, but if the frequency is over 40GHz, the commend spacing is between 0.03mm and 0.06mm.
- ◆ You have to make sure that the surface of the die and microstrip line are almost keep in the same horizontal.