

## 1. 概述 INTRODUCTION

微波带通滤波器 LF 系列产品设计用于 WLAN、GSM、Bluetooth、PDA 和无绳电话机中，具有低的插入损耗、高的衰减和小体积 SMD 片式设计，能减少复杂的调校工作，可以简化电路设计。

Microwave Band-Pass filter LF series are designed to be used in WLAN、GSM、Bluetooth、PDA & cordless phones with low insertion loss and high attenuation as well as small size SMD chip design , which can simplify your complex tuning and circuit design .

## 2. 型号 Part Number

LF 32 B2450 P56 - N04

标准规格，编号 N04/ Normal Type: N04

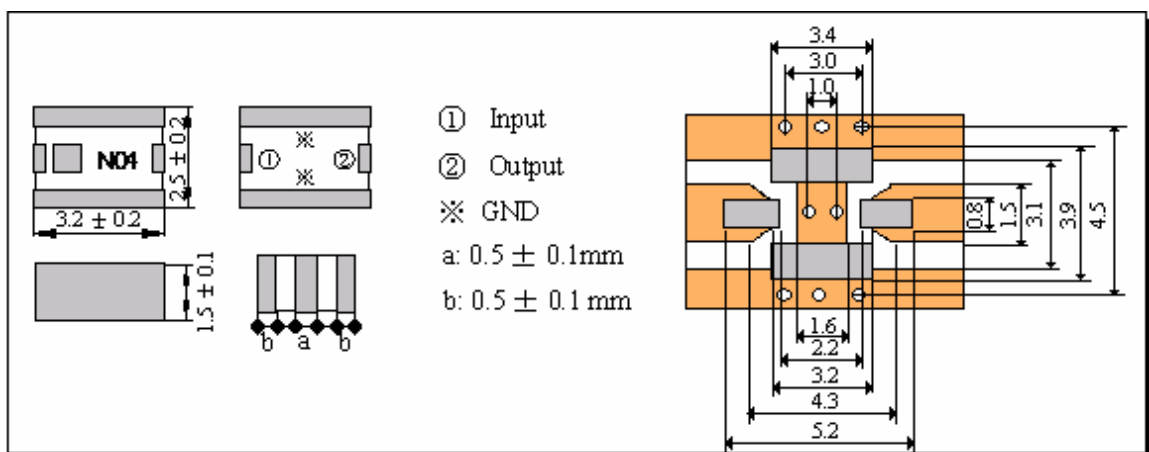
平面设计结构/Planar Design Series: P56

带通滤波器/Band Pass Filter: 2450MHz

产品尺寸/Size: 3.2×2.5×1.5

多层结构滤波器/Multi-layer Filter

## 3. 外型尺寸 Dimensions (Unit: mm)



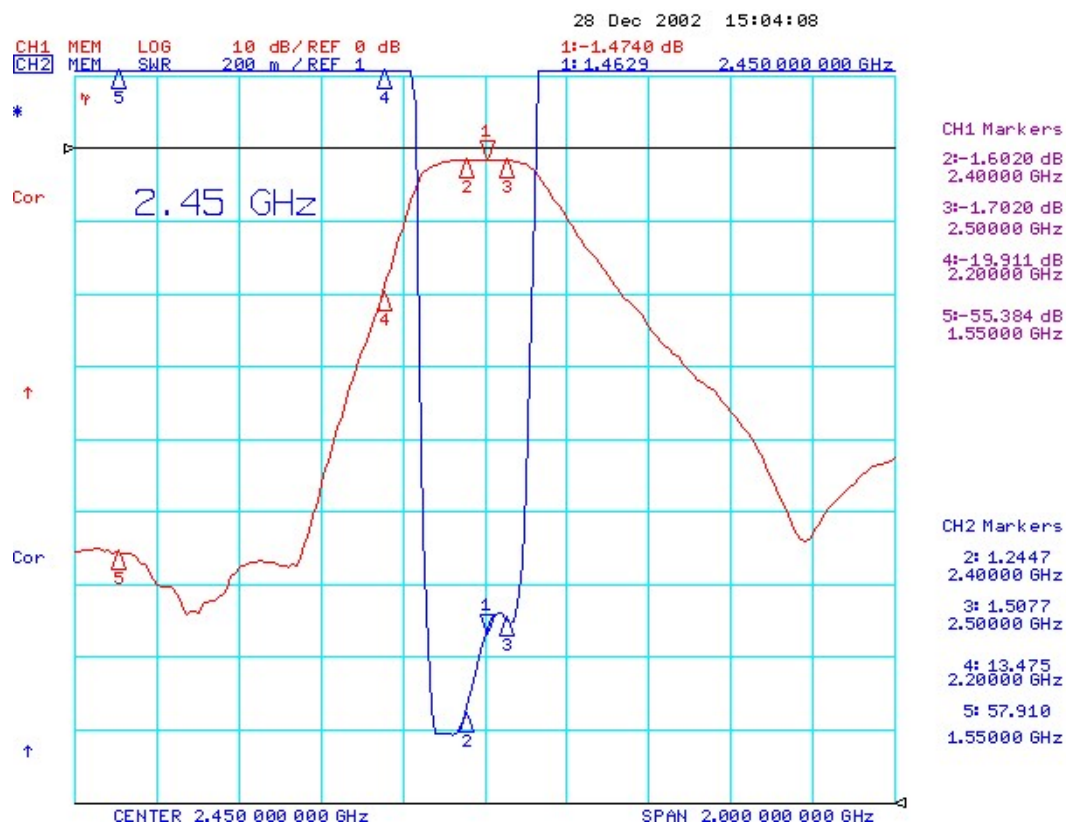
## 4. 结构及材料 Structure and Material

No	Part Name 名称	Structure and Material 结构及材料
4.1	Resonator 谐振体	Dielectric Material LTCC 介质材料
4.2	In/Output Terminals 输入/输出	Ag 银
4.3	Ground Base 接地面	Ag 银

### 5. 电气性能 **Electrical Characteristics**

No.	Item (项目)	Specifications (特性)	Post Environmental Tolerance (环境试验后允许附加误差)
5.1	Center Frequency 中心频率 fo	2450 MHz	±2.0 MHz
5.2	Insertion Loss 插入损耗	≤2.0dB (at 25°C ±5°C)	±0.5 dB
		≤2.3dB (at -40°C ~85°C)	
5.3	Band Width 通带宽度	fo ± 50 MHz	±1.0 MHz
5.4	Ripple (in BW) 通带波动	≤0.5 dB	±0.5 dB
5.5	V.S.W.R (in BW) 驻波比	≤2.0	±0.2
5.6	Attenuation 阻带衰耗	≥48dB (902~928MHz) ≥50dB (1500~1550MHz) ≥12dB (2150~2200MHz) ≥30dB (4800~5000MHz)	±3.0 dB
5.7	Permissible Input Power (MAX) 输入功率	1 W	—
5.8	In/Output Impedance 输入/输出阻抗	50 Ω	—

## 6. 特性曲线 Characteristic curve



## 7. 可靠性 Reliability: MTBF=1×10<sup>-6</sup>/pc.hr

试验条件: 温度 Temperature: 40°C±5°C  
 负荷 Load: DC=5V±0.5V  
 数量 Quantity: 2000 pcs  
 持续时间 Sustained Time: 480 h

## 8. 环境试验 Environmental Test

经环境试验后允许比起始读数偏差见表 2

Post Environmental Tolerance (Refer to the table 2)

基准条件: 温度范围 Temperature range 25 ± 5°C  
 相对湿度范围 Relative Humidity range 55~75%RH  
 工作温度 Operating Temperature range -40°C ~+85°C  
 贮藏温度 Storage Temperature range -40°C ~+85°C

### 8.1 耐振动 Vibration Resist

在振动频率为 10~55Hz 振幅为 1.5mm 沿 X.Y.Z 方向各振动 2 小时后测试符合表 5.1~5.6 规定。

The device should satisfy the electrical characteristics specified in paragraph 5.1~5.6 after applied to the vibration of 10 to 55Hz with amplitude of 1.5mm for 2 hours each in X, Y and Z directions.

### 8.2 耐跌落冲击 Drop Shock

在 100cm 高度处按 X, Y, Z 三个面分别自由跌落在木制地板上共 3 次后测试符合表 5.1~5.6 规定。

The device should satisfy the electrical characteristics specified in paragraph 5.1~5.6 after dropping onto the hard wooden board from the height of 100cm for 3 times each facet of the 3 dimensions of the device.

### 8.3 耐焊接热 Solder Heat Proof

能承受经 120~150℃ 的温度预热 120 秒后, 在 230℃+10℃ 的焊锡浸 5 ± 0.5 秒。

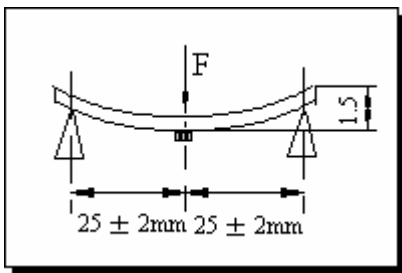
The device should be satisfied after preheating at 120℃~150℃ for 120 seconds and dipping in soldering Sn at 230℃+5℃ for 5 ± 0.5 seconds.

### 8.4 结合力试验 Tensile Strength of Terminal

在产品电极端子上或表面上应能承受 1kg 垂直拉力 10 ± 1 秒。

The device should not be broken after tensile force of 1.0kg is slowly applied to pull a lead pin of the fixed device in the lead axis direction for 10 ± 1 seconds.

### 8.5 耐弯曲试验 Bending Resist Test



将产品按图焊在 1.6 ± 0.2mm 的 PCB 板中间, 由箭头方向施力: 1mm/S, 弯曲距离: 1.5mm, 保持 5 ± 1S, 产品金属层无脱落。

Weld the product to the center part of the PCB with the thickness 1.6 ± 0.2mm as the illustration shows, and keep exerting force arrow-ward on it at speed of :1mm/S, and hold for 5 ± 1S at the position of 1.5mm bending

distance, so far, any peeling off of the product metal coating should not be detected.

### 8.6 耐湿热特性 Moisture Proof

在温度为 60 ± 2℃, 相对湿度 90~95% 的恒温湿箱中放置 96 小时, 在常温中恢复 1~2 小时后测试, 符合表 5.1~5.6 规定。

The device should satisfy the electrical characteristics specified in paragraph 5.1~5.6 after exposed to the temperature 60 ± 2℃ and the relative humidity 90~95% RH for 96 hours and 1~2 hours recovery time under normal condition.

### 8.7 高温特性 High Temperature Endurance

在温度为 85 ± 5℃ 的恒温箱中放置 24 ± 2 小时, 在常温中恢复 1~2 小时后测试。符合表 5.1~5.6 规定。

The device should satisfy the electrical characteristics specified in paragraph 5.1~5.6 after exposed to temperature 85 ± 5℃ for 24 ± 2 hours and 1~2 hours recovery time under normal temperature.

### 8.8 低温特性 Low Temperature Endurance

在温度为 -40℃ ± 5℃ 低温箱中放置 24 ± 2 小时后恢复 1~2 小时测试符合表 5.1~5.6 规定。

The device should also satisfy the electrical characteristics specified in paragraph

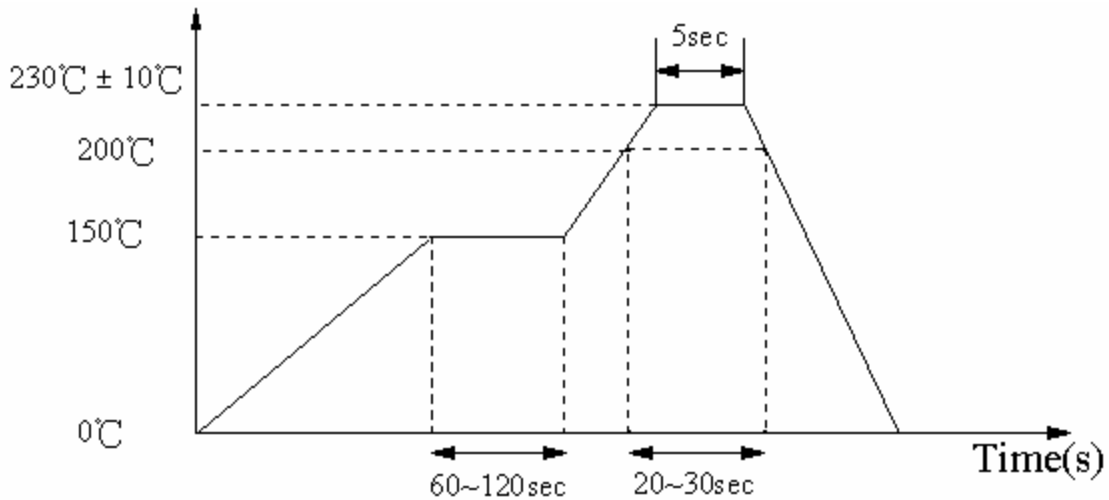
5.1~5.6 after exposed to the temperature  $-40^{\circ}\text{C} \pm 5^{\circ}\text{C}$  for  $24 \pm 2$  hours and to 2 hours recovery time under normal temperature.

### 8.9 温度循环 Temperature Cycle Test

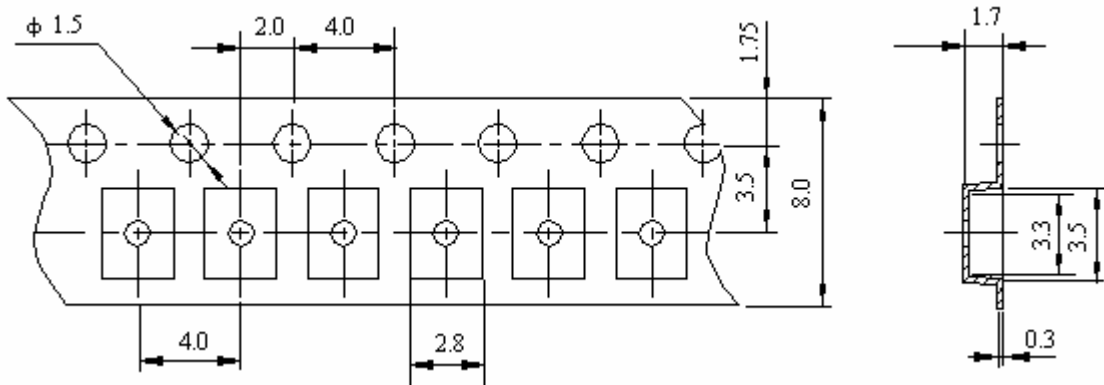
在 $-25^{\circ}\text{C}$ 温度中保持 30 分钟，再在 $+85^{\circ}\text{C}$ 温度中保持 30 分钟，共循环 5 次后在常温中恢复 1~2 小时后测试符合表 5.1~5.6 规定。

The device should also satisfy the electrical characteristics specified in paragraph 5.1~5.6 after exposed to the low temperature  $-25^{\circ}\text{C}$  and high temperature  $+85^{\circ}\text{C}$  for  $30 \pm 2$  min each by 5 cycles and 1 to 2 hours recovery time under normal temperature.

### 9. 回流焊温度 Reflow Soldering Standard Condition



#### ● Plastic Tape



#### ● Reel (2000 pcs/Reel)

