

## SPECIFICATION

TO:STE

Model Name: Microwave Multilayer Filter

PART NO: SLFS2012B2450H24N828K

CUSTOMER PART NO.:

Application:

Samples Approval sheet:

|                                                                     |             |
|---------------------------------------------------------------------|-------------|
| Approved                                                            | Yes         |
|                                                                     | No.         |
| Customer's comments are welcomed here.                              |             |
| Please return this copy as a certificate of your approval by email. |             |
| Approved By                                                         | Date: _____ |

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## History Record

| Date                                               | Part No.                                                                                                                                                                                                      | SPEC No.     | Description. | Remarks.     |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|
|                                                    |                                                                                                                                                                                                               |              |              |              |
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| RoHS Compliant<br>Lead free<br>Lead-free soldering |  conflict mineral free  REACH compliant |              |              |              |
| ISO9001:2000                                       | ISO14001:2004                                                                                                                                                                                                 | Approved by  | Check by     | Design by    |
|                                                    |                                                                                                                                                                                                               | JULY-31-2015 | JULY-20-2015 | JULY-31-2015 |
| Versions                                           | Total Page                                                                                                                                                                                                    | Xu gang dong | Liu jun      | Wang hon     |

1. 概述 INTRODUCTION

"思硕"微波带通滤波器 LF 系列产品设计用于 WLAN、DSTV、Bluetooth、卫星电视、PHS 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。

"StrongFirst" Microwave Band-Pass filter LF series are designed to be used in WLAN、DSTV、Bluetooth、LNB、PHS & 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

SLF S2012 B2450H24 N828K

标准规格，编号 N828/K/ Normal Type:N828/K

过孔设计结构 / Via Design Series:

H24 带通滤波器 /Band Pass Filter:

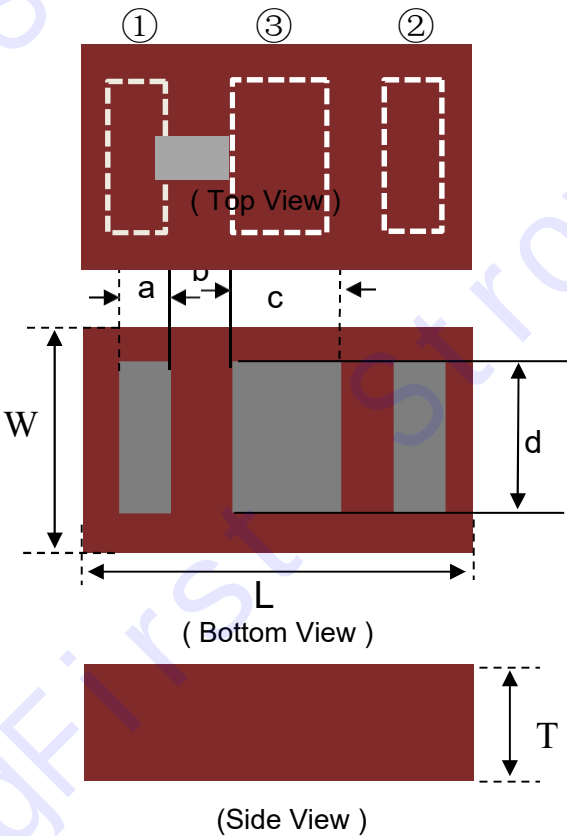
2450MHz 产 品 尺 寸 /Size :

2.0×1.25×0.8

多层结构滤波器/Multi-layer Filter

StrongFirst

3. 外型尺寸 Dimensions (Unit: mm)

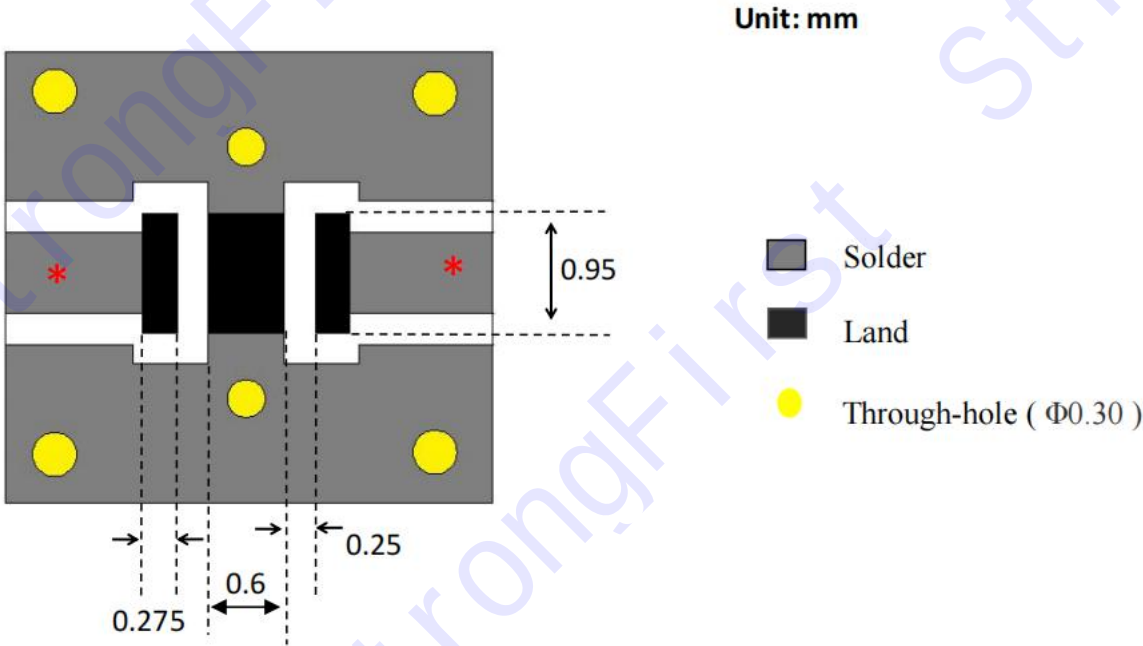


| Number | Terminal Name |
|--------|---------------|
| ①      | INPUT         |
| ②      | OUTPUT        |
| ③      | GND           |



| Symbols    | L         | W          | T         | a           | b          | c         | d          |
|------------|-----------|------------|-----------|-------------|------------|-----------|------------|
| Dimensions | 2.0+/-0.2 | 1.25+/-0.2 | 0.8+/-0.2 | 0.275+/-0.1 | 0.25+/-0.1 | 0.6+/-0.1 | 0.95+/-0.1 |

建议的 PCB 布局 ( Recommended PCB Layout )



\*Line width should be designed to match 50 $\Omega$  characteristic impedance, depending on PCB material and thickness.

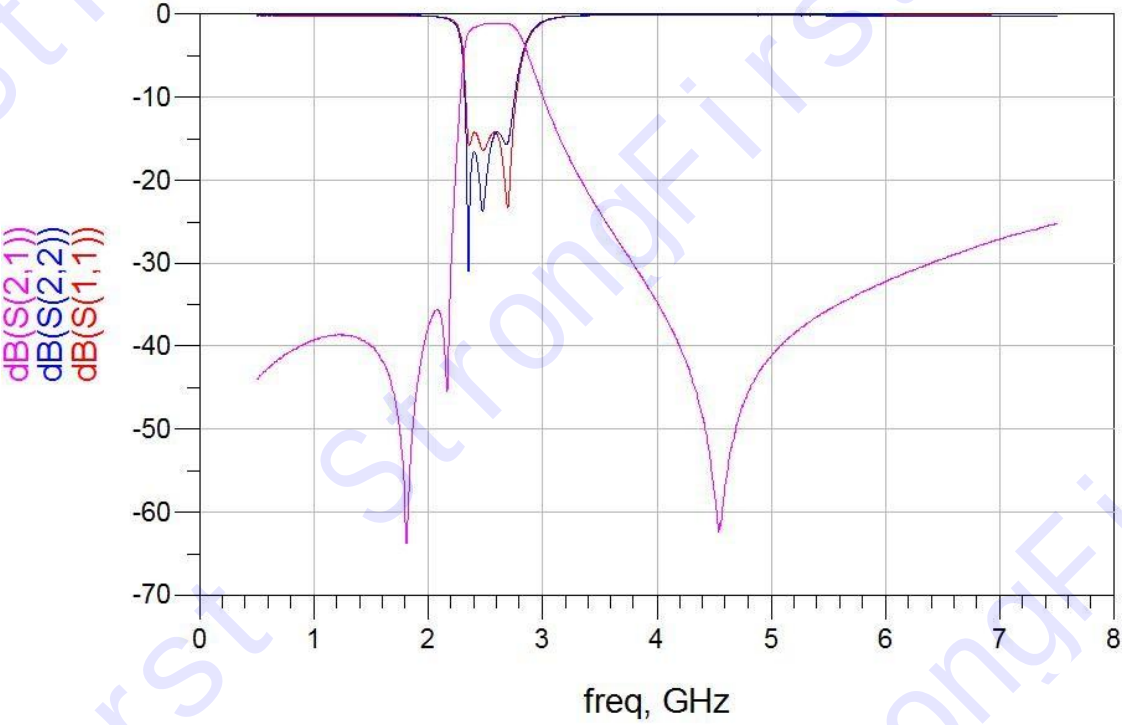
4. 结构及材料      Structure and Material

| 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+Ni+Sn               | 银+ 镍+锡    |
| 4.3 | Ground Base         | 接地面   | Ag+Ni+Sn               | 银+ 镍+锡    |

5. 电气性能 Electrical Characteristics

| No. | Item (项目)                             | Specifications (特性)                                                                                                                                                                                            |
|-----|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.1 | Center Frequency 中心频率 $f_0$           | 2450.0 MHz                                                                                                                                                                                                     |
| 5.2 | Insertion Loss 插入损耗<br>(2400~2500MHz) | $\leq 1.8\text{dB}$ (at $25^\circ\text{C} \pm 5^\circ\text{C}$ )                                                                                                                                               |
|     |                                       | $\leq 2.0\text{dB}$ (at $-40^\circ\text{C} \sim 85^\circ\text{C}$ )                                                                                                                                            |
| 5.3 | Band Width 通带宽度                       | $f_0 \pm 50.0\text{ MHz}$                                                                                                                                                                                      |
| 5.4 | V.S.W.R (in BW) 驻波比                   | $\leq 2.0$                                                                                                                                                                                                     |
| 5.5 | Attenuation 阻带衰减                      | $\geq 30\text{ dB}$ (at 860 ~ 960 MHz)<br>$\geq 30\text{ dB}$ (at 1545 ~ 1605 MHz)<br>$\geq 35\text{ dB}$ (at 1710 ~ 1990 MHz)<br>$\geq 30\text{ dB}$ (at 2170MHz)<br>$\geq 30\text{ dB}$ (at 4800 ~ 5000 MHz) |
| 5.6 | In/Output Impedance 输入/输出阻抗           | $50\ \Omega$                                                                                                                                                                                                   |

6. 特性曲线 Characteristic curve



## 7 可靠性试验 Reliability Test

基准条件: 温度范围 Temperature range  $25\pm5^{\circ}\text{C}$

相对湿度范围 Relative Humidity range  $55\sim75\%\text{RH}$

工作温度 Operating Temperature range  $-40^{\circ}\text{C}\sim+85^{\circ}\text{C}$

贮藏温度 Storage Temperature range  $-40^{\circ}\text{C}\sim+85^{\circ}\text{C}$

### 7.1 耐振动 Vibration Resist

在振动频率为  $10\sim55\text{Hz}$  振幅为  $1.5\text{mm}$  沿X.Y.Z 方向各振动 2 小时后测试需符合电气性能指标。

The device should fulfill the electrical specification after applied to the vibration of 10 to 55Hz with amplitude of 1.5mm for 2 hours each in X , Y and Z directions.

### 7.2 耐跌落冲击 Drop Shock

在  $100\text{cm}$  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, 要求无机械损伤。

The device should have no mechanical damage after dropping onto the hard wooden board from the height of 100cm for 3 times each facet of the 3 dimensions of the device.

### 7.3 耐焊接热 Solder Heat Proof

能承受经  $120\sim150^{\circ}\text{C}$  的温度预热 120 秒后, 在  $255^{\circ}\text{C}+10^{\circ}\text{C}$  的焊锡浸  $5\pm0.5$  秒, 或  $300^{\circ}\text{C}-10^{\circ}\text{C}$  的电烙铁焊接  $3\pm0.5$  秒, 焊接面无损伤。

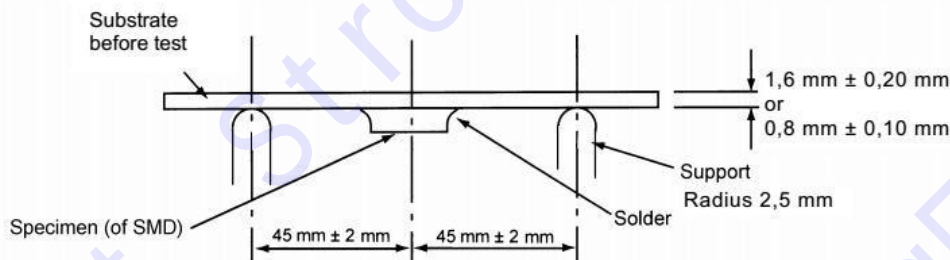
The device should be satisfied after preheating at  $120^{\circ}\text{C}\sim150^{\circ}\text{C}$  for 120 seconds and dipping in soldering Sn at  $255^{\circ}\text{C}+10^{\circ}\text{C}$  for  $5\pm0.5$  seconds, or electric iron  $300^{\circ}\text{C}-10^{\circ}\text{C}$  for  $3\pm0.5$  seconds, without damage.

### 7.4 推力试验 Adhesive Strength of Termination

在产品电极端子上或表面上可承受  $5\text{N}(\leq 0603)$ ;  $10\text{N}(>0603)$  水平推力  $10\pm1$  秒而无明显外观损坏 与电极移位。

The device have no remarkable damage or removal of the termination after horizontal force of  $5\text{N}(\leq 0603)$ ;  $10\text{N}(>0603)$  with  $10\pm1$  seconds.

### 7.5 耐弯曲试验 Bending Resist Test



将产品按图焊在  $1.6\pm0.2\text{mm}$  或  $0.8\pm0.1\text{mm}$  的 PCB 板中间, 由箭头方向施力:  $1\text{mm/S}$ , 弯曲距离:  $1.5\text{mm}$ , 保持  $5\pm1\text{S}$ , 产品金属层无脱落。

Weld the product to the center part of the PCB with the thickness  $1.6\pm0.2\text{mm}$  or  $0.8\pm0.1\text{mm}$  as the illustration shows, and keep exerting force arrow-ward on it at speed of  $1\text{mm/S}$ , and hold for  $5\pm1\text{S}$  at the

position of  $1.5\text{mm}$  bending distance, so far, any peeling off of the product metal coating should not be detected.

### 7.6 耐湿热特性 Moisture Proof

在温度为  $60\pm 2^{\circ}\text{C}$ ，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，测试需符合电气性能指标。

The device should fulfill the electrical specification after exposed to the temperature  $60\pm 2^{\circ}\text{C}$  and the relative humidity 90~95% RH for 96 hours and 1~2 hours recovery time under normal condition.

#### 7.7 高温特性 High Temperature Endurance

在温度为  $85\pm 5^{\circ}\text{C}$  的恒温箱中放置  $96\pm 2$  小时，在常温中恢复 1~2 小时后测试。测试需符合电气性能指标。

The device should fulfill the electrical specification after exposed to temperature  $85\pm 5^{\circ}\text{C}$  for  $96\pm 2$  hours and 1~2 hours recovery time under normal temperature.

#### 7.8 低温特性 Low Temperature Endurance

在温度为  $-40\pm 5^{\circ}\text{C}$  低温箱中放置  $96\pm 2$  小时后恢复 1~2 小时，测试需符合电气性能指标。

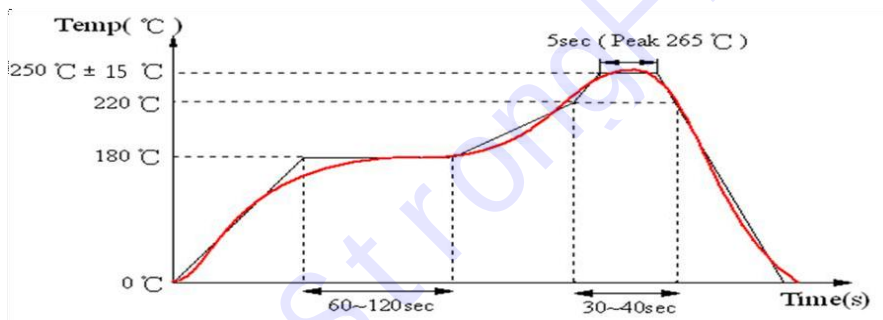
The device should fulfill the electrical specification after exposed to the temperature  $-40\pm 5^{\circ}\text{C}$  for  $96\pm 2$  hours and to 2 hours recovery time under normal temperature.

#### 7.9 温度循环 Temperature Cycle Test

在  $-40^{\circ}\text{C}$  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 小时后测试需符合电气性能指标。

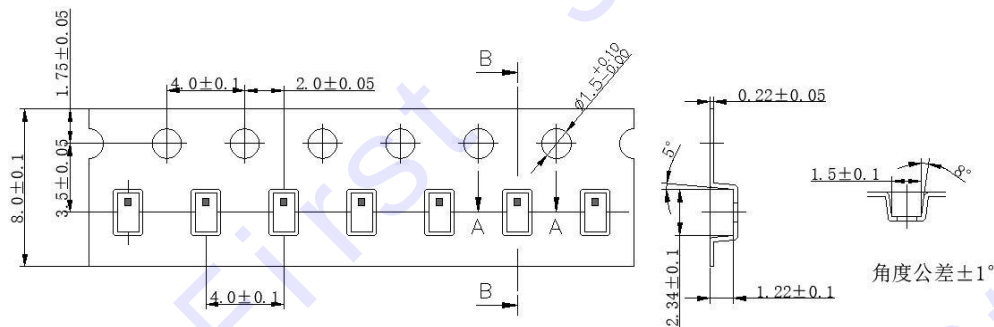
The device should fulfill the electrical specification after exposed to the low temperature  $-40^{\circ}\text{C}$  and high temperature  $+85^{\circ}\text{C}$  for  $30\pm 2$  min each by 5 cycles and 1 to 2 hours recovery time under normal temperature.

### 8 回流焊温度 Reflow Soldering Standard Condition



## 9 包装尺寸(2012) Packaging and Dimensions

## 9.1 Plastic Tape

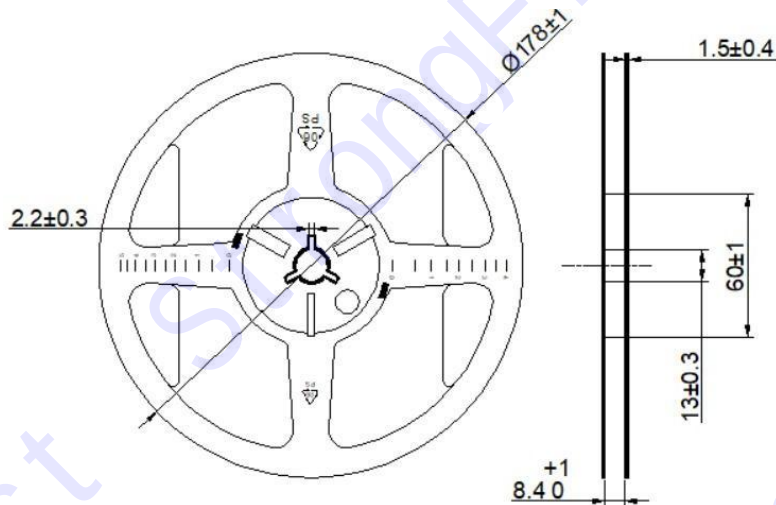


## 包装说明: Remarks for Package

载带尾部空穴长度至少 200mm，载带头部空穴长度至少 200mm，头部的盖带加长至少 200mm。

Reserve a length of 200mm at least for the trailer of the carrier and 200mm at least for the leader of the carrier and further 200mm at least of cover tape at the leading part of the carrier.

## 9.2 Reel (4000 pcs/Reel)



## 9.3 储存条件 Storage Period

产品收到后一年内使用完毕。

Product should be used within twelve months of receipt.

湿敏等级 1 / 储存温度与湿度:

MSL 1 / Storage Temperature Range : -40~85 degree C, Humidity : <85%RH

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