



# APPROVAL SHEET

Approval Specification	Customer's Approval Certificate
<b>TO:</b>  <b>Part No.:</b>  <b>Customer's Part No.:</b>	Please return this copy as a certification of your approval  <b>Checked &amp; Approved by:</b>  <b>Date:</b>

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Part No.	:	SF0512
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<b>Approved by:</b>	

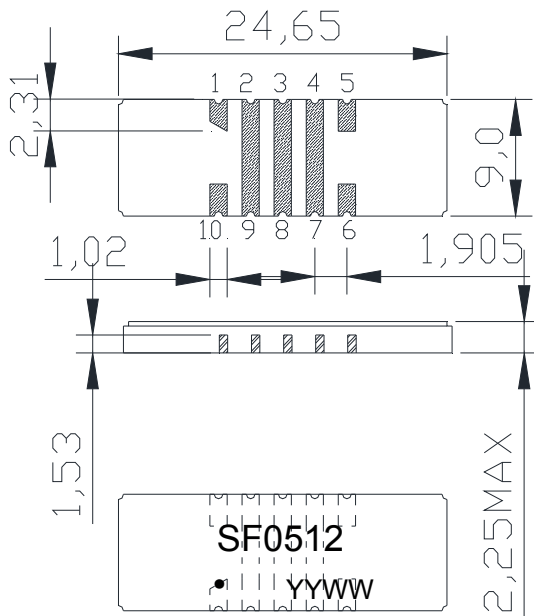
**Application**

- Low -loss SAW component
- Low amplitude ripple
- Sharp rejections at both out-bands
- Passband 2.2 MHz

**Features**

- Ceramic Package for **Surface Mounted Technology (SMT)**
- **RoHS** compatible
- Package size 24.65x9.00x2.25mm<sup>3</sup>
- Package Code SMD24
  
- **Electrostatic Sensitive Device(ESD)**

**Package Dimensions (Unit: mm)**



**Pin Configuration**

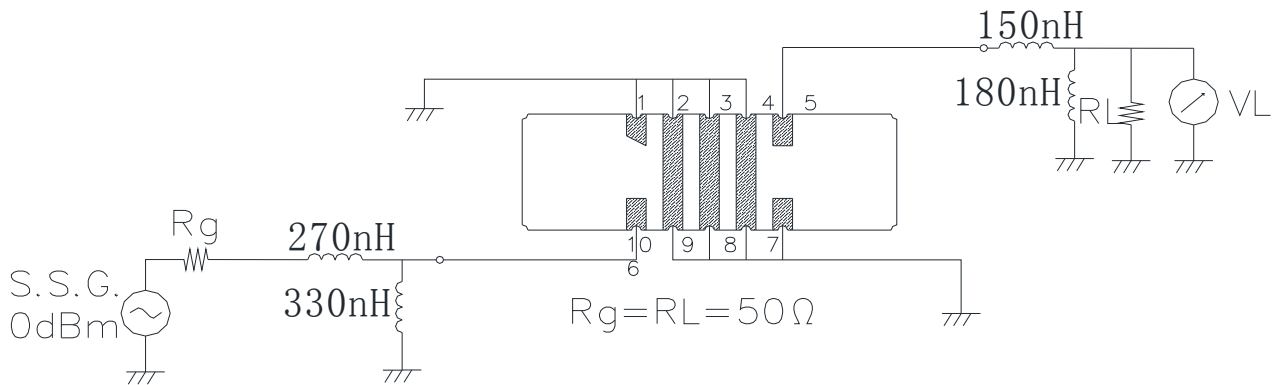
Pin No.	Description
10	Input
5	Output
1,2,3,4,6,7,8,9	Ground

**Marking Description**

<b>S</b>	Trademark
<b>F</b>	SAW Filter
<b>0512</b>	Part Number
●	Pin 1
<b>YYWW</b>	Year Code & Week Code

\*Fig: If the products produced in 06<sup>th</sup> week of 2012, The year code & week code is 1206.

**Test Circuit(Bottom View)**



**Performance****Maximum Rating**

Item		Value	Unit
DC Voltage	V <sub>DC</sub>	3	V
Operation Temperature	T	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ +125	°C
RF Power Dissipation	P	10	dBm

**Electronic Characteristics**

Test Temperature: 25°C ± 2°C

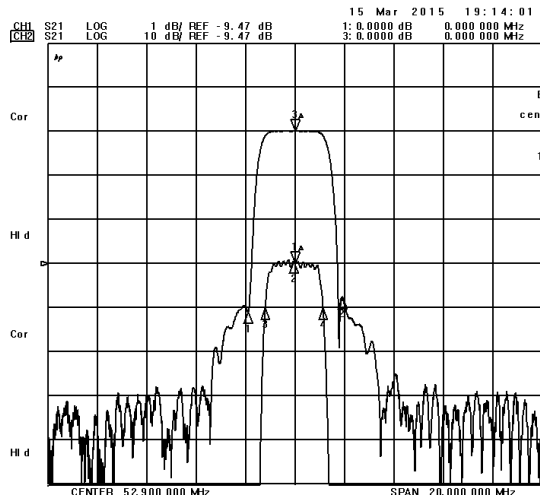
Terminating source impedance: 50Ω

Terminating load impedance: 50Ω

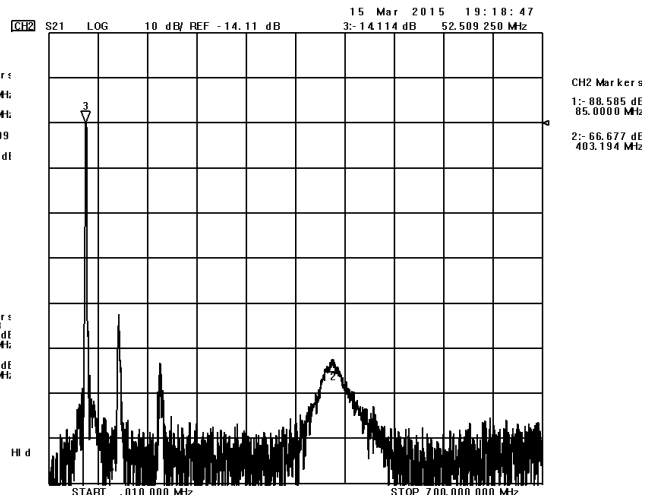
Item		Minimum	Typical	Maximum	Unit
Center Frequency	f <sub>c</sub>		52.9		MHz
Insertion Loss(min)	IL		9.5	11.0	dB
1 dB Bandwidth	BW <sub>1dB</sub>	2.20	2.34	2.40	MHz
Phase Linearity 51.80-54.00MHz			7.0	8.0	deg
Absolute Attenuation	α				
	51.00MHz	35.0	41.0		dB
	54.80MHz	35.0	37.7		dB
	85.00MHz	60.0	70.0		dB

Frequency Characteristics

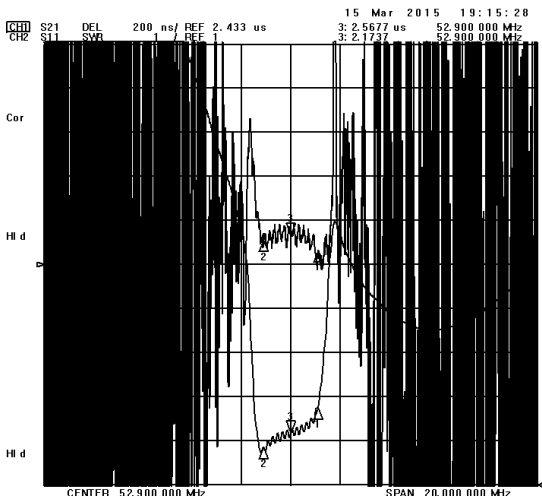
Frequency Response



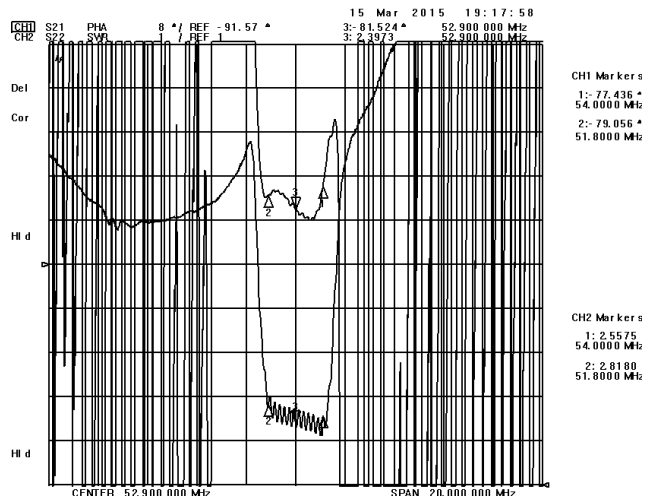
Frequency Response (wideband)



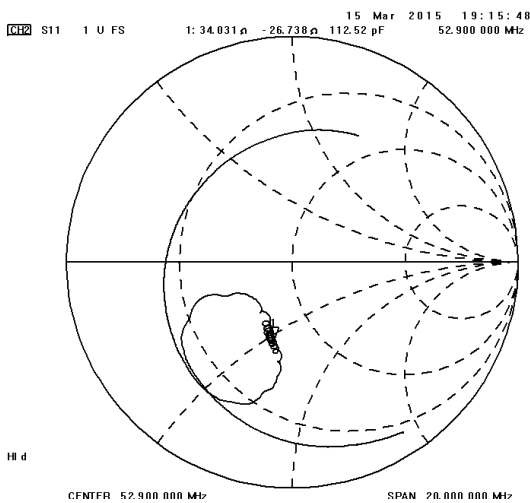
Delay Ripple & S11 VSWR



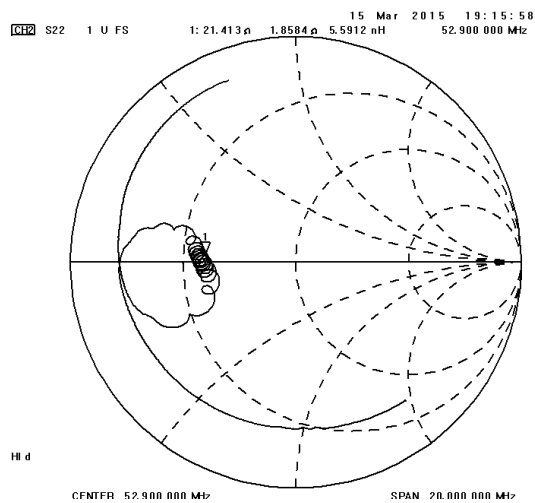
Phase Linearity & S22 VSWR



S11 Smith Chart

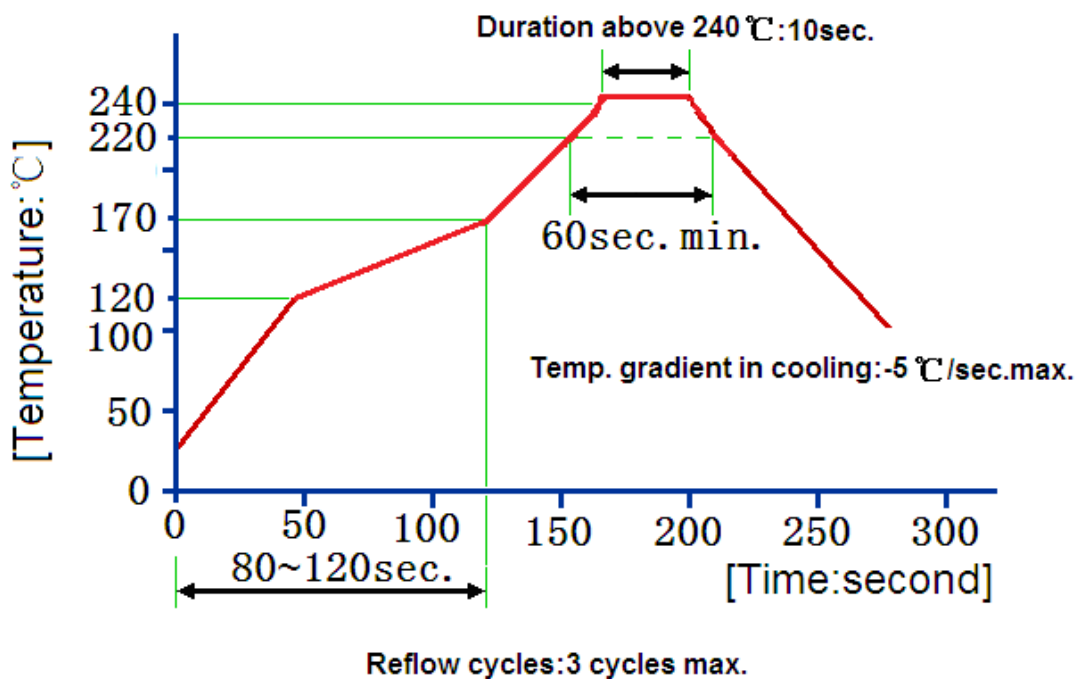


S22 Smith Chart



**Reliability (The SAW components shall remain electrical performance after tests)**

No.	Test item	Test condition
1	Temperature Storage	(1) Temperature: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , Duration: 250h , Recovery time: $2\text{h} \pm 0.5\text{h}$ (2) Temperature: $-55^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , Duration: 250h ,Recovery time: $2\text{h} \pm 0.5\text{h}$
2	Humidity Test	Conditions: $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , 90~95% RH          Duration: 250h
3	Thermal Shock	Heat cycle conditions: $T_A = -55^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , $T_B = 85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , $t_1 = t_2 = 30\text{min}$ , Switch time: $\leq 3\text{min}$ , Cycle time: 100 times, Recovery time: $2\text{h} \pm 0.5\text{h}$ .
4	Vibration Fatigue	Frequency of vibration: 10~55Hz          Amplitude: 1.5mm Directions: X,Y and Z          Duration: 2h
5	Drop Test	Cycle time: 10 times          Height: 1.0m
6	Solder Ability Test	Temperature: $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Duration: 3.0s--5.0s Depth: DIP--2/3 , SMD--1/5
7	Resistance to Soldering Heat	(1)Thickness of PCB:1mm , Solder condition: $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ , Duration: $10 \pm 1\text{s}$ (2)Temperature of Soldering Iron: $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ , Duration: 3~4s , Recovery time : $2 \pm 0.5\text{h}$

**Recommended Reflow Soldering Diagram****Notes**

1. As a result of the particularity of inner structure of SAW products, it easy to be breakdown by electrostatic, so we should pay attention to **ESD protect** in the test.
2. **Static voltage** between signal load and ground may cause deterioration and destruction of the component. Please avoid static voltage.
3. **Ultrasonic cleaning** may cause deterioration and destruction of the component. Please avoid ultrasonic cleaning.
4. Only leads of component may **be soldered**. Please avoid soldering another part of component.
5. There is a close relationship between the device's performance and **matching network**. The specifications of this device are based on the test circuit shown above. L and C values may change depending on board layout. Values shown are intended as a guide only.