

### APPROVAL SHEET

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

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Part No.	:	SF1166
Pages	:	6
Date	:	2013/5/14
Revision	:	1.0



Prepared by:	
Checked by:	
Approved by:	

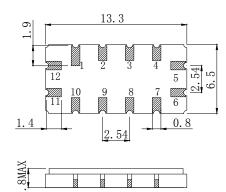
#### **Application**

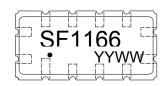
- Low amplitude ripple
- Sharp rejections at both out-bands
- Usable passband 15 MHz

#### **Features**

- Ceramic Package for Surface Mounted Technology (SMT)
- **RoHS** compatible
- Package size 13.30x6.50x1.80mm<sup>3</sup>
- Package Code QCC12
- Electrostatic Sensitive Device(ESD)

#### Package Dimensions (Unit: mm)





#### **Test Circuit**

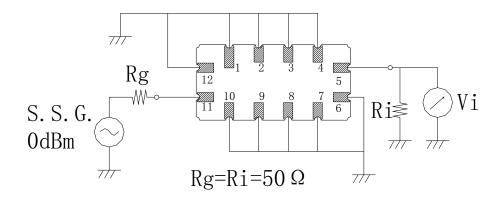
## Pin Configuration

Pin No.	Description
11	Input
5	Output
1,2,3,4,6,7,8,9,10,12	Ground

#### **Marking Description**

S	Trademark	
F	SAW Filter	
1166	Part Number	
•	Pin 1	
YYWW	Year Code & Week Code	

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



#### **Performance**

#### **Maximum Rating**

Item		Value	Unit
DC Voltage	V <sub>DC</sub>	3	V
Operation Temperature	Т	-40 ~ +85	${\mathbb C}$
Storage Temperature	T <sub>stg</sub>	-55 ~ +125	${\mathbb C}$
RF Power Dissipation	Р	10	dBm

#### **Electronic Characteristics**

Test Temperature:  $25^{\circ}C \pm 2^{\circ}C$ 

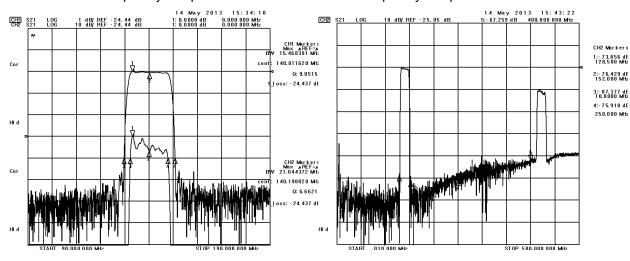
Terminating source impedance:  $50\Omega$  Terminating load impedance:  $50\Omega$ 

Item			Minimum	Typical	Maximum	Unit
Center Frequency		fc		140.0		MHz
Insertion Loss(min)		IL		24.5	25.0	dB
Amplitude Ripple (p-p)	133.00-147.00MHz	△a		0.8	1.0	dB
3 dB Bandwidth		BW3dB	15.0	16.7		MHz
Absolute Attenuation		а				
	10.00-128.00 MHz		45.0	48.0		dB
	152.00-200.00MHz		45.0	46.0		dB
2	200.00 -400.00MHz		35.0	40.0		dB

#### **Frequency Characteristics**

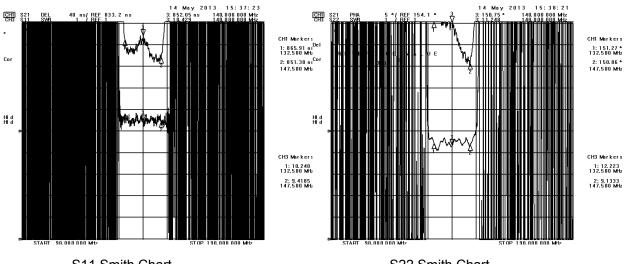
#### Frequency Response

#### Frequency Response (wideband)



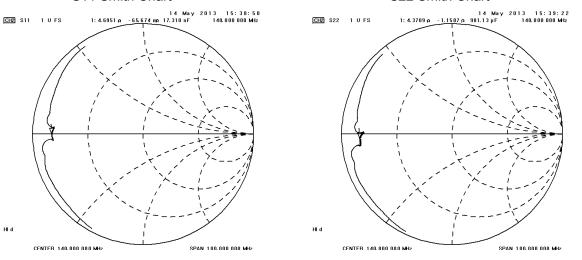
Delay Ripple & S11 VSWR

Phase Linearity & S22 VSWR



S11 Smith Chart

S22 Smith Chart

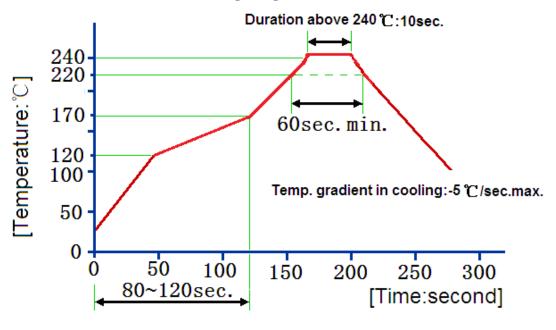


- 4 -

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

No.	Test item	Test condition		
4	Temperature	(1) Temperature: 85℃±2℃,Duration: 250h,Recovery time: 2h±0.5h		
ļ	Storage	(2) Temperature: –55°C±3°C , Duration: 250h ,Recovery time: 2h±0.5h		
2	Humidity Test	Conditions: 60℃±2℃,90~95% RH		
3	Thermal Shock	Heat cycle conditions: TA=-55°C±3°C, TB=85°C±2°C, t1=t2=30min, Switch		
3	Thermal Shock	time: ≤3min, Cycle time: 100 times, Recovery time: 2h±0.5h.		
4	4 Vibration Fatigue	Frequency of vibration: 10~55Hz Amplitude:1.5mm		
	Vibration ratigue	Directions: X,Y and Z Duration: 2h		
5	Drop Test	Cycle time: 10 times Height: 1.0m		
		Temperature: 245 ℃±5 ℃ Duration: 3.0s5.0s		
6	Solder Ability Test	Depth: DIP2/3 , SMD1/5		
		(1)Thickness of PCB:1mm , Solder condition: 260 ℃±5 ℃ , Duration: 10±1s		
7	Resistance to Soldering Heat (2)Temperature of Soldering Iron: 350 ℃±10 ℃ , Duration: 3~4s ,			
		Recovery time: 2 ± 0.5h		

#### **Recommended Reflow Soldering Diagram**



Reflow cycles:3 cycles max.

140.00MHz SAW Filter SF1166 15 MHz Bandwidth

#### **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.

Please read notes at the end of this document.