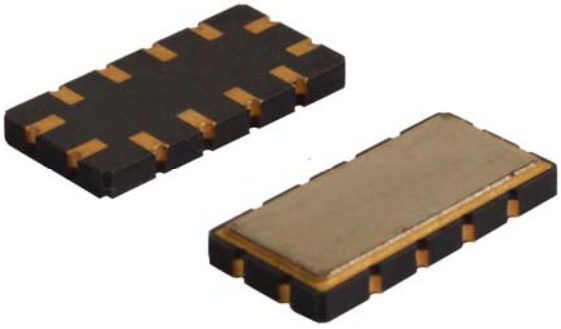
Application

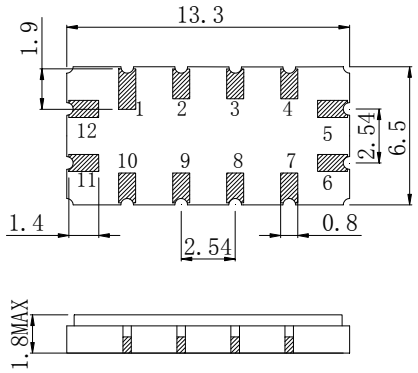


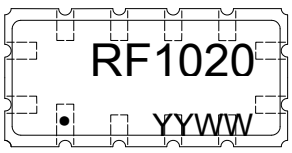
- Low-loss SAW component
- Low amplitude ripple
- Sharp rejections at both out-bands
- Usable passband 19.65 MHz

Features

- Ceramic Package for **S**urface **M**ounted **T**echnology (**SMT**)
- **RoHS** compatible
- Package size 13.30x6.50x1.80mm^3
- Package Code QCC12
- **E**lectrostatic **S**ensitive **D**evice(**ESD)**

Package Dimensions (Unit: mm)





Pin Configuration

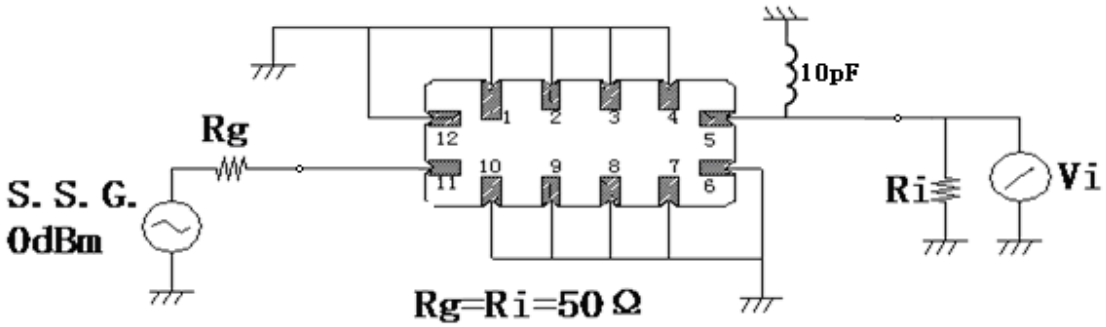
Pin No.	Description
11	Input
5	Output
1,2,3,4,7,8,9,10	Case Ground
6,12	To be Grounded

Marking Description

RF	**R**	Manufacturer
	F	SAW Filter
1020	Part Number	
●	Pin 1	
YYWW	Year Code & Week Code	

*Fig：If the products produced in 06th week of 2015, The year code & week code is 1506.

Test Circuit（Bottom View）



Performance

Maximum Rating

Item		Value	Unit
DC Voltage	V_{DC}	3	V
Operation Temperature	T	-40 ~ +85	℃
Storage Temperature	T_{stg}	-55 ~ +125	℃
RF Power Dissipation	P	15	dBm

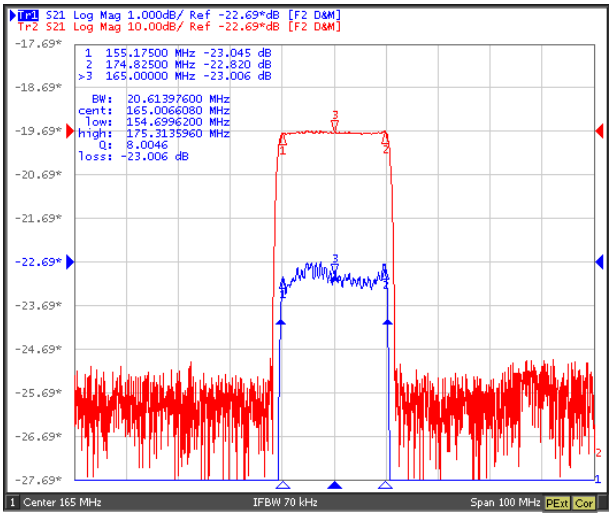
Electronic Characteristics

Test Temperature: 25℃±2℃
Terminating source impedance: 50Ω
Terminating load impedance: 50Ω

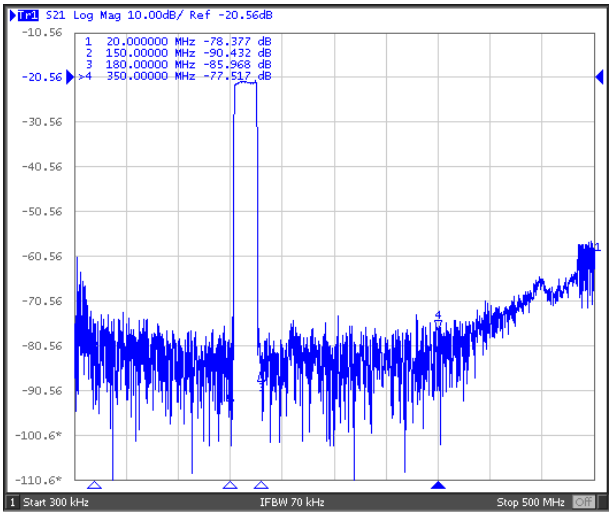
Item			Minimum	Typical	Maximum	Unit
Center Frequency		fc	164.80	165.00	165.20	MHz
Insertion Loss	@165.00MHz	IL		23.0	24.5	dB
Amplitude Ripple (p-p)	Fo±9.825MHz	△α		0.6	1.0	dB
1 dB Bandwidth	@165.00MHz	BW_{1dB}	20.45	20.61		MHz
3 dB Bandwidth	@165.00MHz	BW_{3dB}		21.16		MHz
40 dB Bandwidth	@165.00MHz	BW_{40dB}		23.34	23.5	MHz
Group Delay Ripple	Fo±9.825MHz	GDR		30.0	60.0	ns
Absolute Group Delay	@165.00MHz	GDR		1.248		us
Absolute Attenuation						
20.00 – 150.00 MHz			45.0	52.0		dB
180.00 – 350.00 MHz			45.0	52.0		dB

Frequency Characteristics

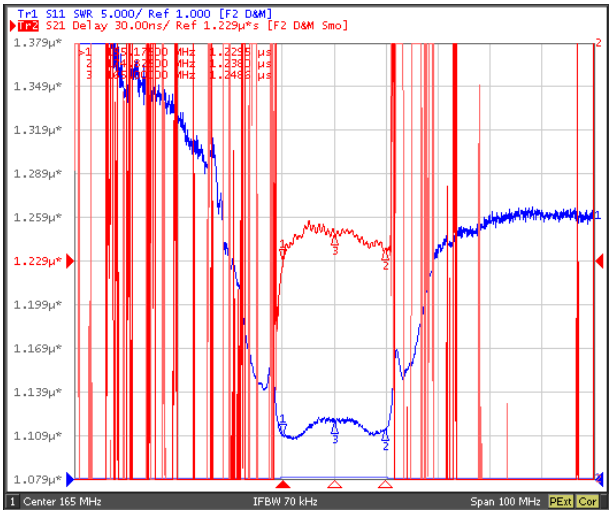
Frequency Response



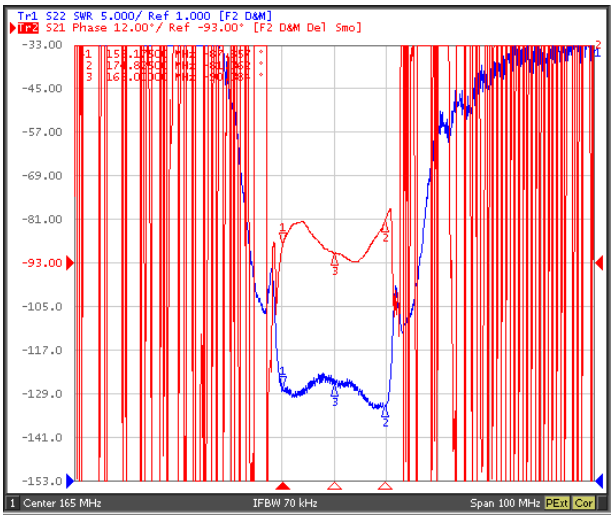
Frequency Response（wideband）



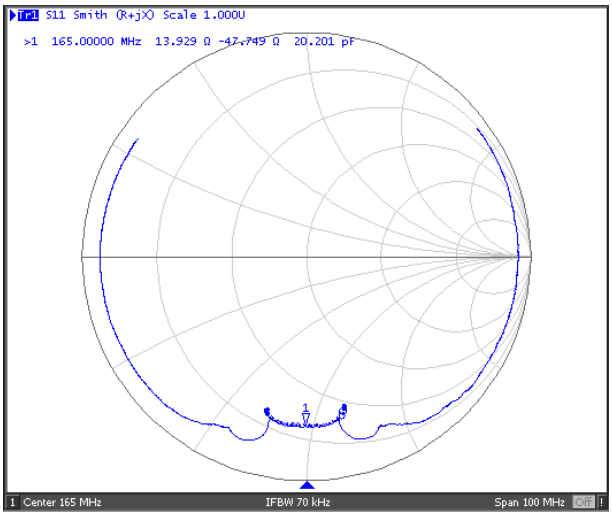
Delay Ripple & S11 VSWR



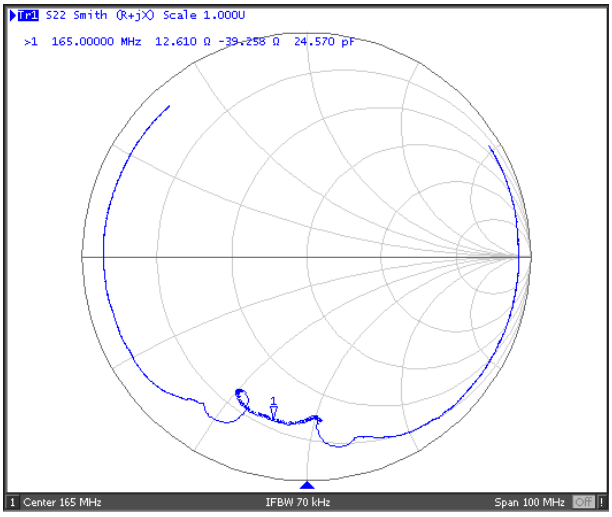
Phase Linearity & S22 VSWR



S11 Smith Chart



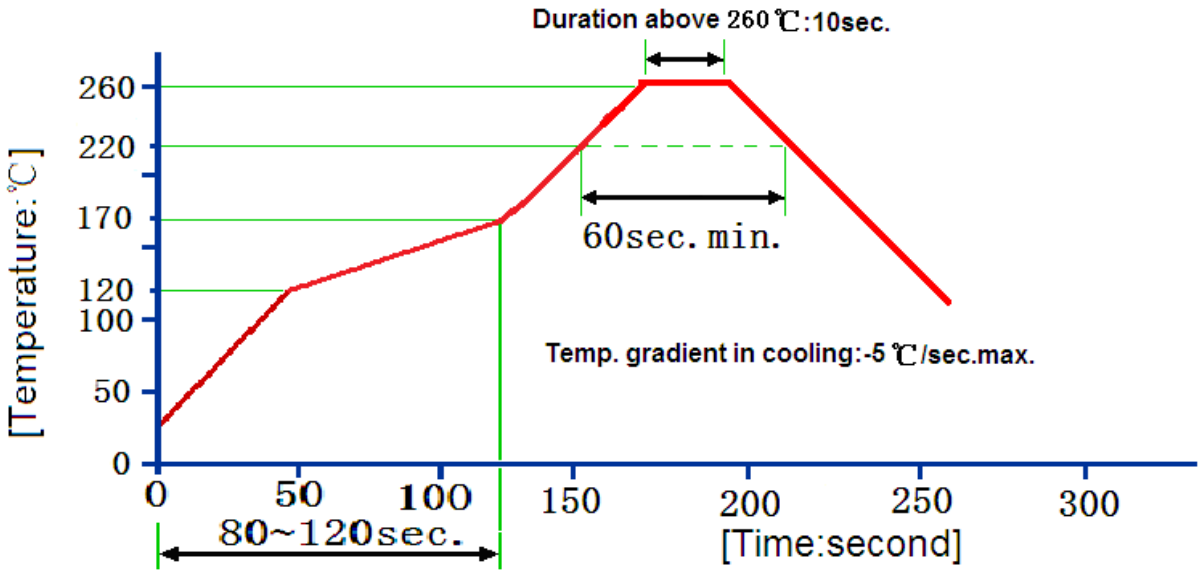
S22 Smith Chart



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

No.	Test item	Test condition
1	Temperature Storage	(1) Temperature: 85℃±2℃ , Duration: 250h , Recovery time: 2h±0.5h (2) Temperature: –55℃±3℃ , Duration: 250h ,Recovery time: 2h±0.5h
2	Humidity Test	Conditions: 60℃±2℃ , 90~95% RH Duration: 250h
3	Thermal Shock	Heat cycle conditions: TA=-55℃±3℃, TB=85℃±2℃, t1=t2=30min, Switch time: ≤3min, Cycle time: 100 times, Recovery time: 2h±0.5h.
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℃±5℃ 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℃±5℃ , Duration: 10±1s (2)Temperature of Soldering Iron: 350℃±10℃ , Duration: 3~4s , Recovery time : 2 ± 0.5h

Recommended Reflow Soldering Diagram



Reflow cycles:3 cycles max.

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.