



# APPROVAL SHEET

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

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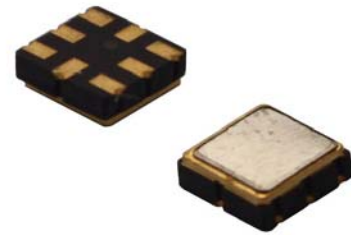


Part No.	:	SF4002
Pages	:	6
Date	:	2012/12/12
Revision	:	1.0

<b>Prepared by:</b>	
<b>Checked by:</b>	
<b>Approved by:</b>	

### Application

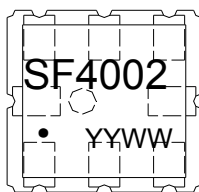
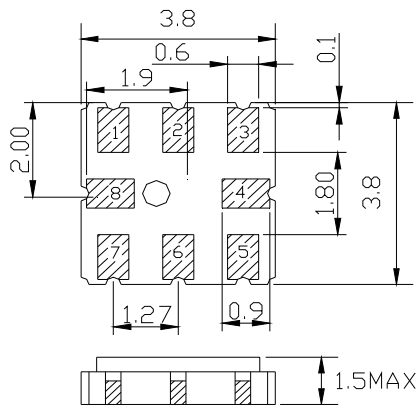
- Low-loss SAW component
- Low amplitude ripple
- Sharp rejections at both out-bands
- Usable passband 4 MHz



### Features

- Ceramic Package for **Surface Mounted Technology (SMT)**
- **RoHS** compatible
- Package size 3.80x3.80x1.50mm<sup>3</sup>
- Package Code QCC8B
- **Electrostatic Sensitive Device(ESD)**

### Package Dimensions (Unit: mm)



### Pin Configuration

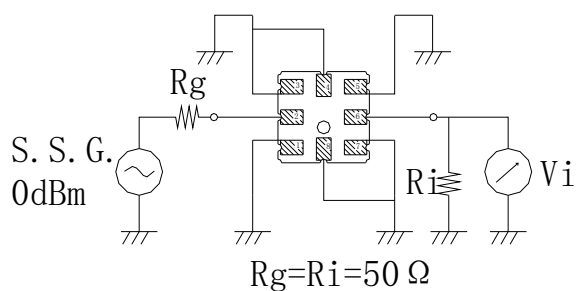
Pin No.	Description
2	Input
6	Output
1,3,4,5,7,8	Ground

### Marking Description

<b>S</b>	Trademark
<b>F</b>	SAW Filter
<b>4002</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



## Performance

### Maximum Rating

Item		Value	Unit
DC Voltage	$V_{DC}$	3	V
Operation Temperature	T	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-55 ~ +125	°C
RF Power Dissipation	P	10	dBm

### Electronic Characteristics

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

Terminating source impedance:  $50\Omega$

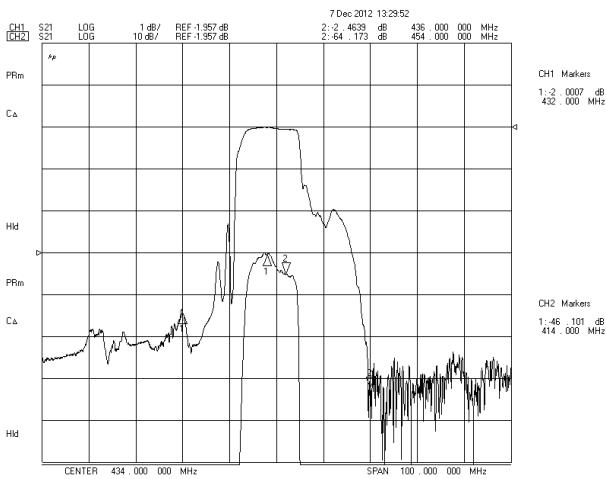
Terminating load impedance:  $50\Omega$

Item		Minimum	Typical	Maximum	Unit
Center Frequency	$f_c$		434.00		MHz
Insertion Loss(min)	IL		2.0	2.5	dB
Insertion Loss	IL		2.4	3.0	dB
Amplitude Ripple (p-p)	$\Delta a$		0.5	1.0	dB
Group Delay Ripple	GDR		15	40	ns
Absolute Attenuation	$a$				
	DC - 334.00 MHz	50	55		dB
	334.00 - 394.00 MHz	40	48		dB
	411.00 - 414.00 MHz	40	45		dB
	454.00 - 457.00 MHz	45	55		dB
	474.00 - 534.00 MHz	50	55		dB
	534.00 - 1000.00MHz	38	43		dB
	1000.00 - 2000.00MHz	35	38		dB

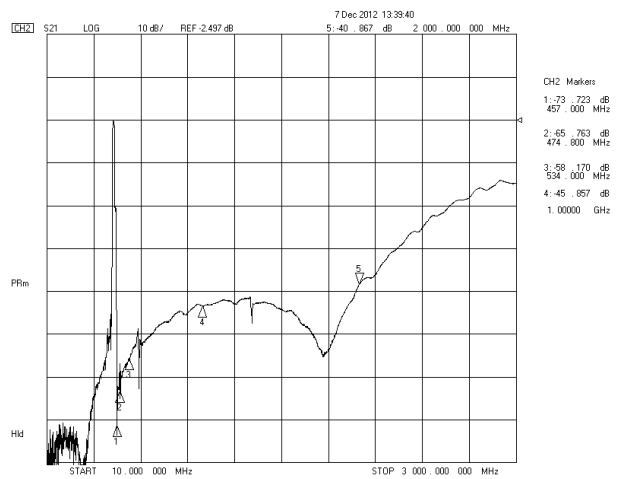
	2000.00 - 3000.00MHz		10	15		dB
Input VSWR	432.00 - 436.00 MHz			1.6:1	2.0:1	/
Output VSWR	432.00 - 436.00 MHz			1.6:1	2.0:1	/

Frequency Characteristics

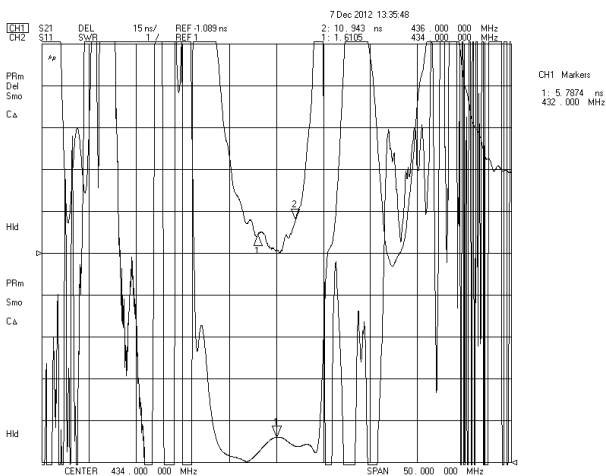
Frequency Response



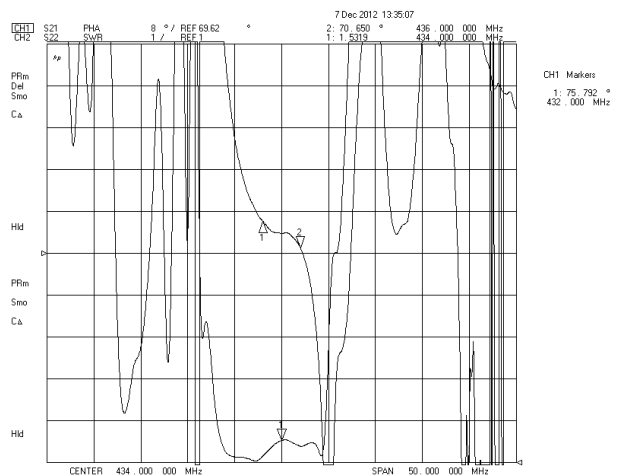
Frequency Response (wideband)



Delay Ripple & S11 VSWR



Phase Linearity & S22 VSWR



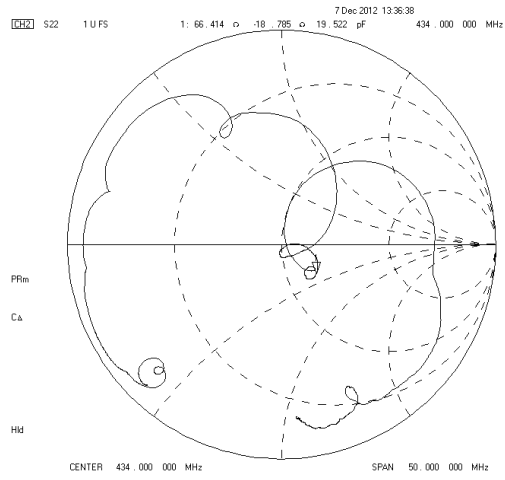
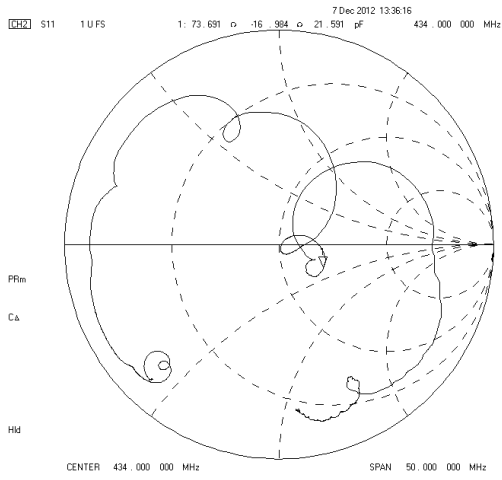
S11 Smith Chart

S22 Smith Chart

**434.00MHz SAW Filter**

**SF4002**

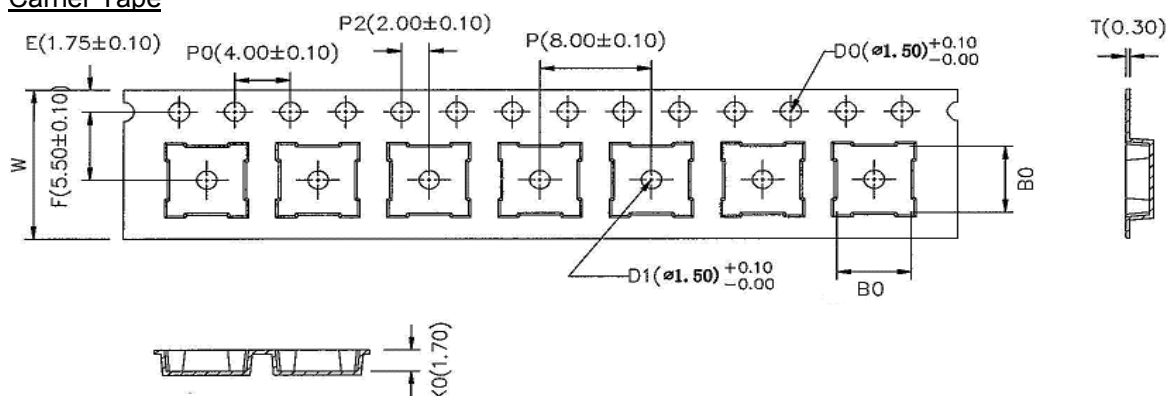
**4MHz Bandwidth**





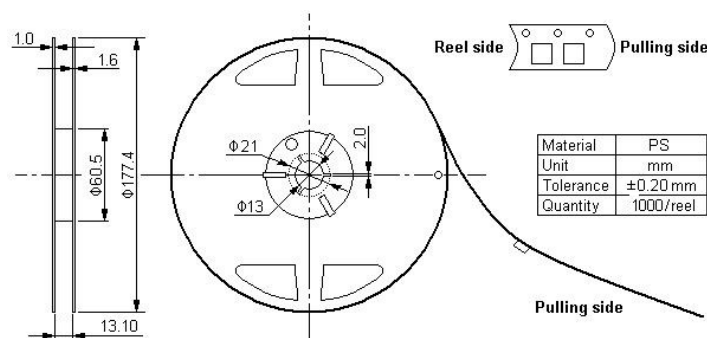
**Packing Information**

Carrier Tape



\* B0: 5.35 for QCC8C; 4.15 for DCC6/QCC8B; 3.35 for DCC6C/QCC8D

Reel Dimensions



Outer Packing

Type	Quantity	Dimension	Description	Weight
Internal box	1000	190×188×42	carton box 2 reel / internal box	0.18
External box	10000	235×205×210	5 boxes / external box	1.80

Unit: mm

Unit: kg

**Notes**

1. As a result of the particularity of inner structure of SAW products, it is 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.

