



APPROVAL SHEET

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

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| | | |
|----------|---|-----------|
| Part No. | : | SF0319 |
| Pages | : | 6 |
| Date | : | 2013/3/11 |
| Revision | : | 1.0 |

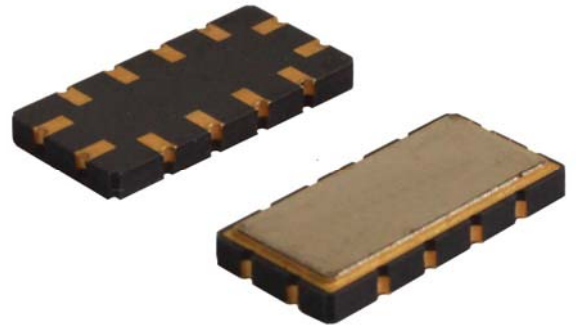
| | |
|---------------------|--|
| Prepared by: | |
| Checked by: | |
| Approved by: | |

Application

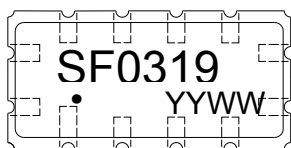
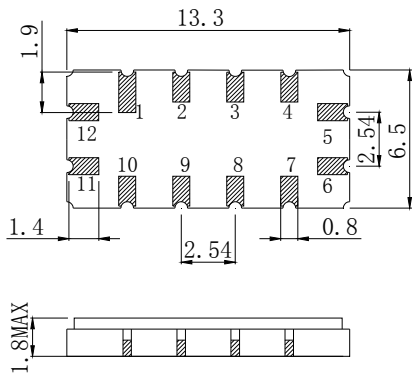
- Low amplitude ripple
- Sharp rejections at both out-bands
- Usable passband 20.5 MHz

Features

- Ceramic Package for **Surface Mounted Technology (SMT)**
- **RoHS** compatible
- Package size 13.30x6.50x1.80mm³
- Package Code QCC12
- **Electrostatic Sensitive Device(ESD)**



Package Dimensions (QCC12)



Pin Configuration

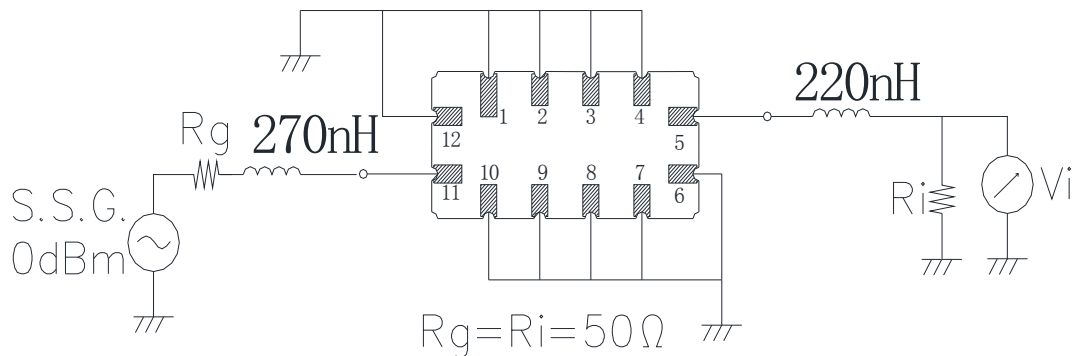
| Pin No. | Description |
|-----------------------|-------------|
| 11 | Input |
| 5 | Output |
| 1,2,3,4,6,7,8,9,10,12 | Ground |

Marking Description

| | |
|-------------|-----------------------|
| S | Trademark |
| F | SAW Filter |
| 0319 | Part Number |
| ● | Pin 1 |
| YYWW | Year Code & Week Code |

*Fig: If the products produced in 06th 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: $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$

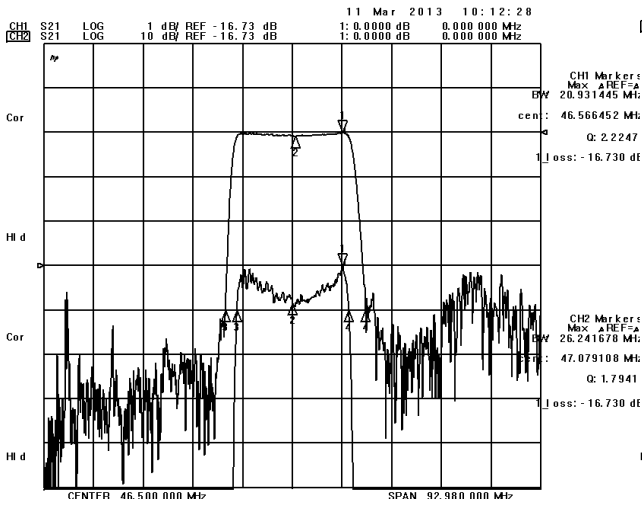
Terminating source impedance: 50Ω

Terminating load impedance: 50Ω

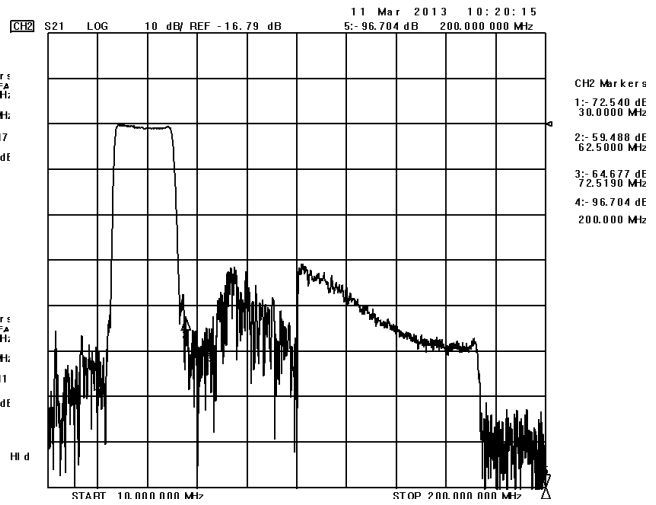
| Item | | Minimum | Typical | Maximum | Unit |
|------------------------|----------------------------------|---------|---------|---------|------|
| Center Frequency | f_c | 46.45 | 46.50 | 46.55 | MHz |
| Insertion Loss(min) | IL | | 16.7 | 18.0 | dB |
| Amplitude Ripple (p-p) | 36.25-56.75MHz $\Delta\alpha$ | | 0.9 | 1.0 | dB |
| 1 dB Bandwidth | BW_{1dB} | 20.5 | 20.9 | | MHz |
| Absolute Attenuation | α | | | | |
| | DC -30.50 MHz | 35.0 | 40.0 | | dB |
| | 62.50-200.00 MHz | 30.0 | 35.0 | | dB |
| Input VSWR | 36.25-56.75MHz | | 6.2:1 | 8.0:1 | / |
| Output VSWR | 36.25-56.75MHz | | 6.4:1 | 8.0:1 | / |

Frequency Characteristics

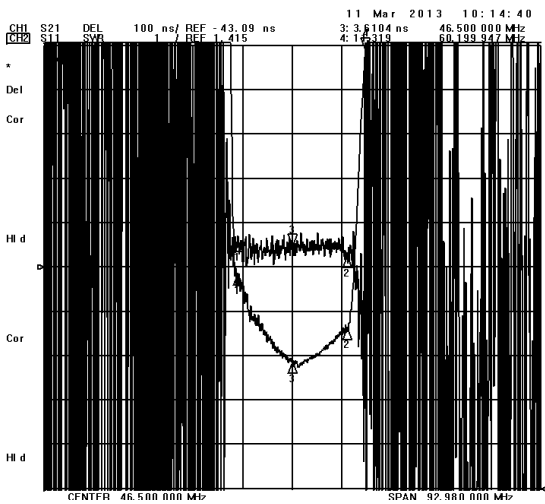
Frequency Response



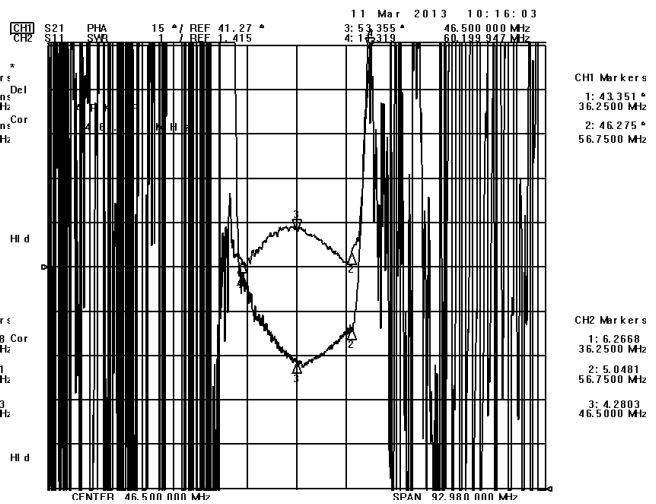
Frequency Response (wideband)



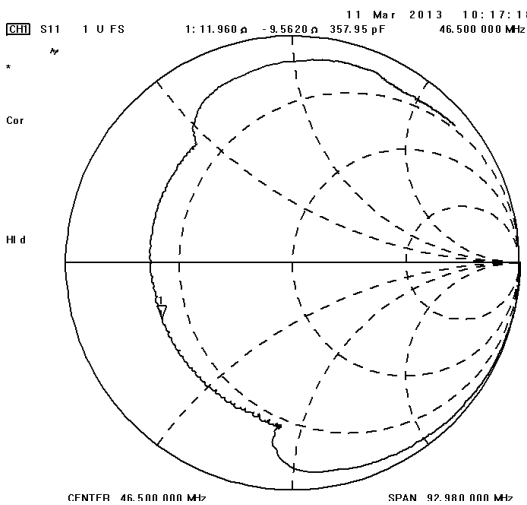
Delay Ripple & S11 VSWR



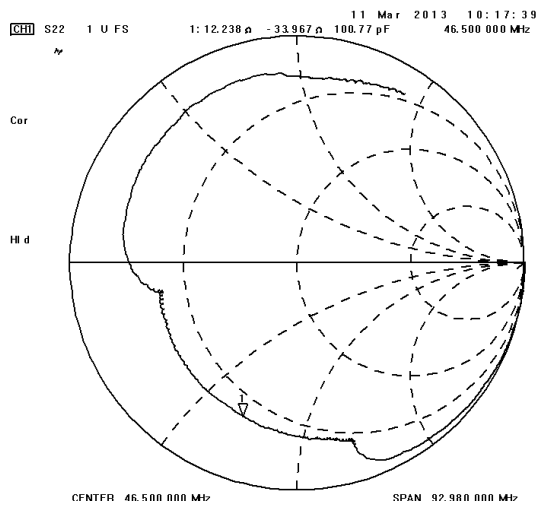
Phase Linearity & S22 VSWR



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: $T\text{A} = -55^{\circ}\text{C} \pm 3^{\circ}\text{C}$, $T\text{B} = 85^{\circ}\text{C} \pm 2^{\circ}\text{C}$, $t_1 = t_2 = 30\text{min}$, 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 is easy to be broken down 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.