



# 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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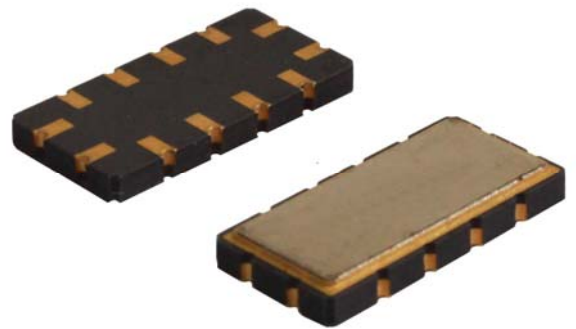


|          |   |            |
|----------|---|------------|
| Part No. | : | SF1301     |
| Pages    | : | 6          |
| Date     | : | 2013/12/21 |
| Revision | : | 1.2        |

|                     |     |
|---------------------|-----|
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| <b>Checked by:</b>  |     |
| <b>Approved by:</b> |     |

**Application**

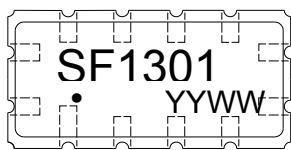
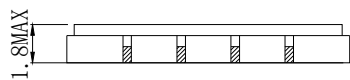
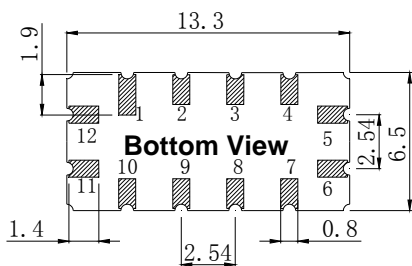
- Low-loss SAW component
- Low amplitude ripple
- Sharp rejections at both out-bands
- Usable passband 50 MHz



**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)**



**Pin Configuration**

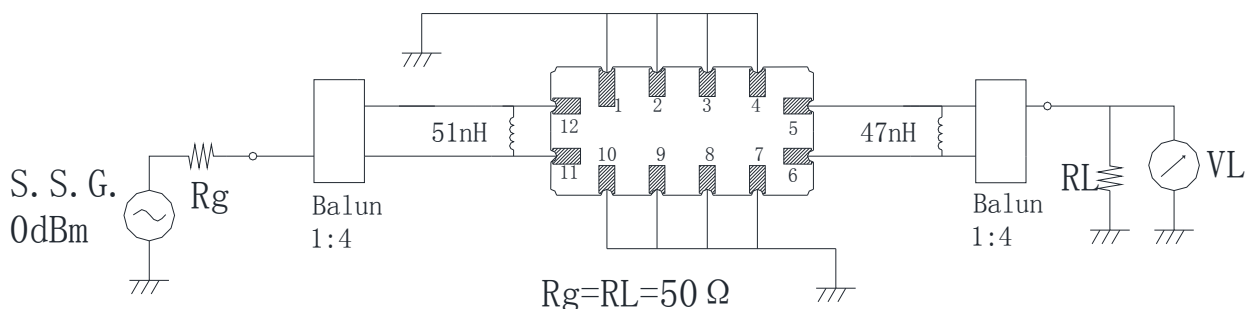
| Pin No.          | Description |
|------------------|-------------|
| 11,12            | Input       |
| 5,6              | Output      |
| 1,2,3,4,7,8,9,10 | Ground      |

**Marking Description**

|             |                       |
|-------------|-----------------------|
| <b>S</b>    | Trademark             |
| <b>F</b>    | SAW Filter            |
| <b>1301</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

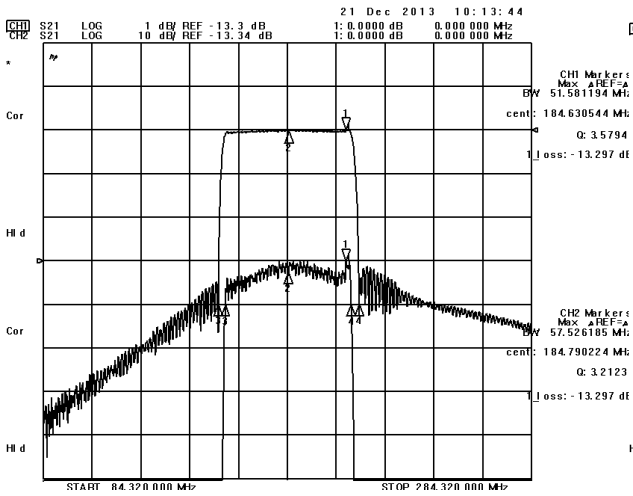
Terminating source impedance: 200Ω

Terminating load impedance: 200Ω

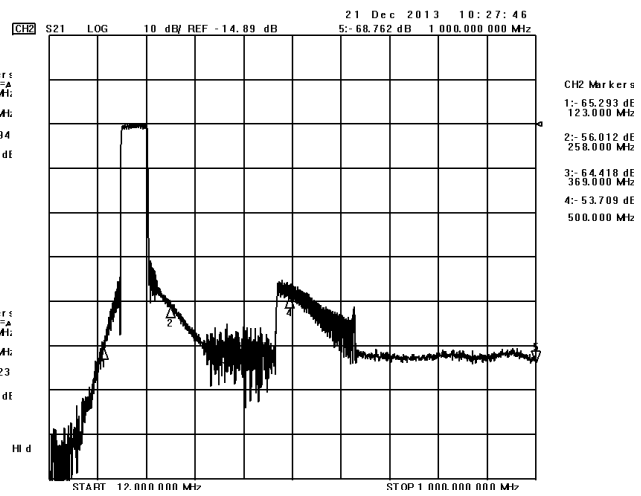
| Item                                       |                    | Minimum | Typical | Maximum | Unit |
|--|--------------------|---------|---------|---------|------|
| Center Frequency                           | f <sub>c</sub>     |         | 184.32  |         | MHz  |
| Insertion Loss(min)                        | IL                 |         | 13.3    | 15.0    | dB   |
| Amplitude Ripple (p-p)<br>159.32-209.32MHz | Δα                 |         | 0.8     | 1.0     | dB   |
| 1 dB Bandwidth                             | BW <sub>1dB</sub>  | 50.0    | 51.0    |         | MHz  |
| 3 dB Bandwidth                             | BW <sub>3dB</sub>  | 51.0    | 52.5    |         | MHz  |
| 40 dB Bandwidth                            | BW <sub>40dB</sub> |         | 57.5    | 60.0    | MHz  |
| Phase Linearity<br>159.32-209.32MHz        |                    |         | 15.0    | 20.0    | deg  |
| Group Delay Ripple<br>159.32-209.32MHz     | GDR                |         | 25.0    | 50.0    | ns   |
| Absolute Delay<br>184.32MHz                |                    |         | 0.7     |         | us   |
| Absolute Attenuation                       | α                  |         |         |         |      |
|  | 12.00 -123.00 MHz  | 45.0    | 50.0    |         | dB   |
|  | 258.00-369.00MHz   | 40.0    | 42.0    |         | dB   |
|  | 500.00-1000.00MHz  | 20.0    | 35.0    |         | dB   |

Frequency Characteristics

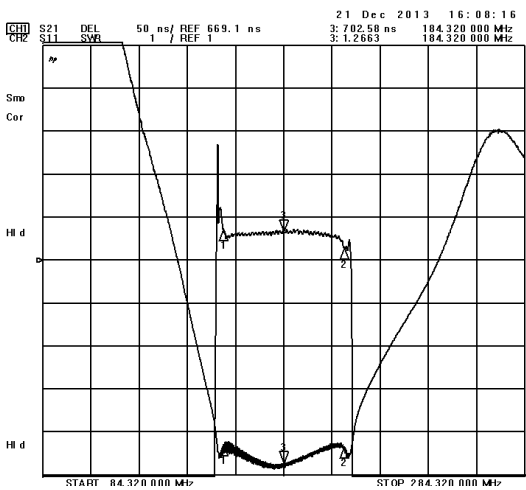
Frequency Response



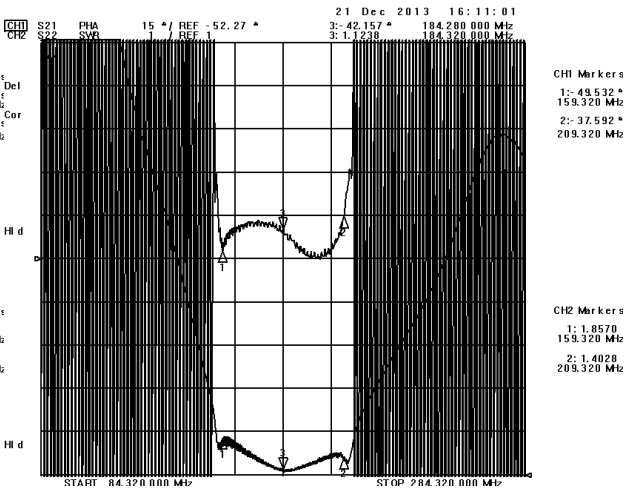
Frequency Response (wideband)



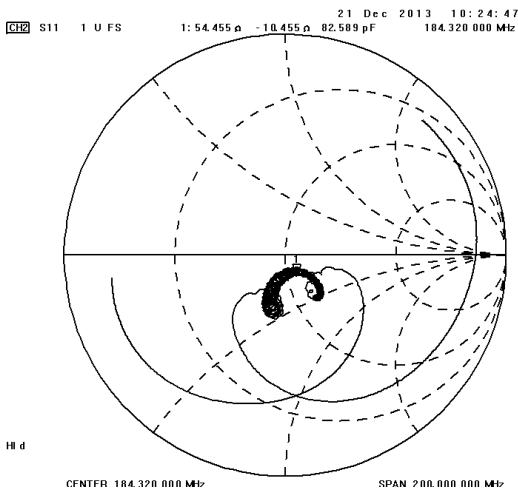
Delay Ripple & S11 VSWR



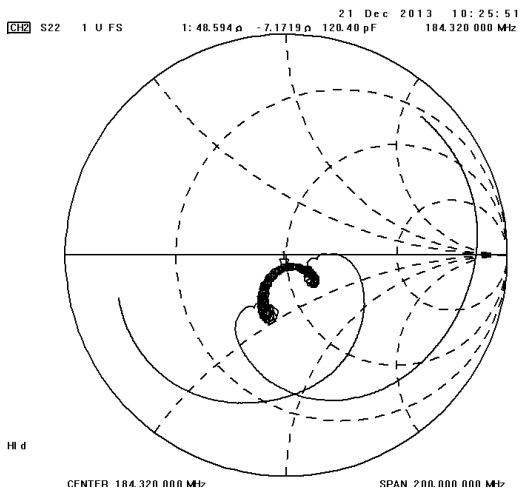
Phase Linearity & S22 VSWR



S11 Smith Chart



S22 Smith Chart





**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.