



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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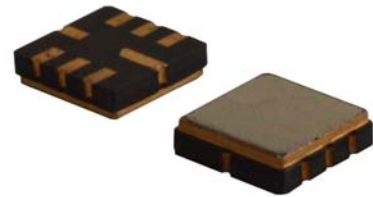


| | | |
|----------|---|----------|
| Part No. | : | SF2138 |
| Pages | : | 6 |
| Date | : | 2013/4/1 |
| Revision | : | 1.0 |

| | |
|---------------------|-----|
| Prepared by: | 郑宝琴 |
| Checked by: | |
| Approved by: | |

Application

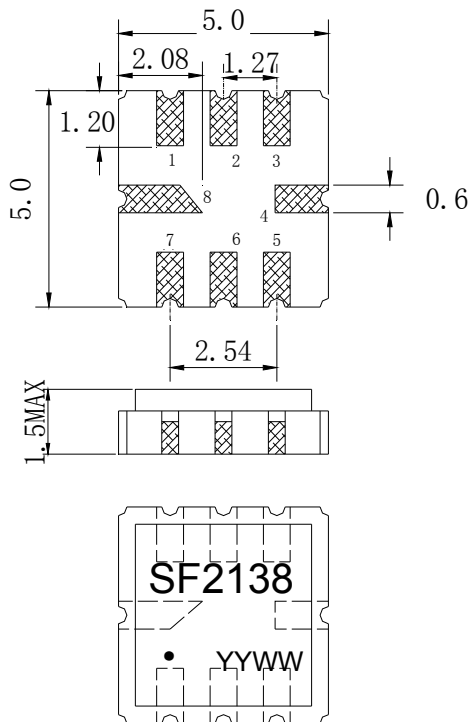
- Low-loss SAW component
- Low amplitude ripple
- Sharp rejections at both out-bands
- Usable passband 10 MHz



Features

- Ceramic Package for **Surface Mounted Technology (SMT)**
- **RoHS** compatible
- Package size 5.00x5.00x1.50mm³
- Package Code QCC8C
- **Electrostatic Sensitive Device(ESD)**

Package Dimensions (Unit: mm)



Pin Configuration

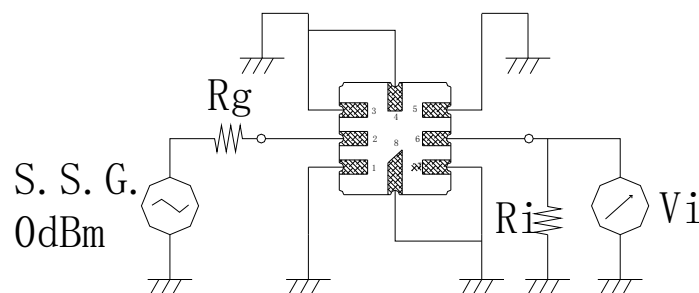
| Pin No. | Description |
|-------------|-------------|
| 2 | Input |
| 6 | Output |
| 1,3,4,5,7,8 | Ground |

Marking Description

| | |
|-------------|-----------------------|
| S | Trademark |
| F | SAW Filter |
| 2138 | 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: $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$

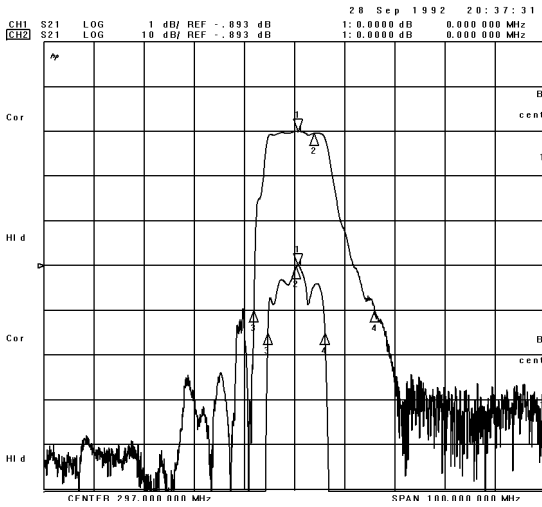
Terminating source impedance: 50Ω

Terminating load impedance: 50Ω

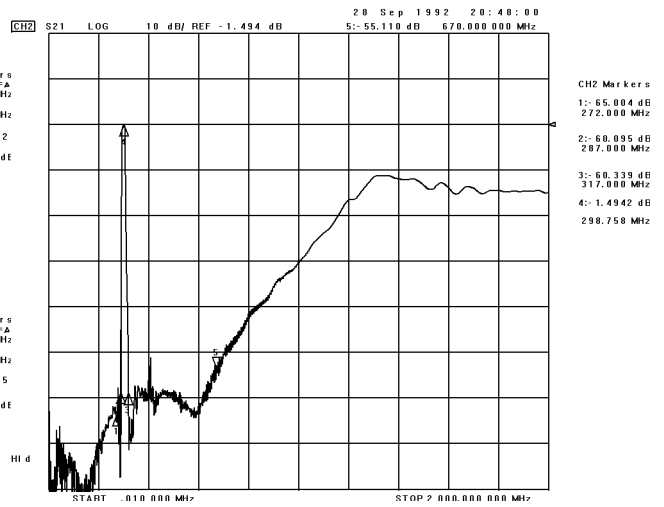
| Item | | Minimum | Typical | Maximum | Unit |
|---|--------------------|---------|---------|---------|------|
| Center Frequency | f_c | 296.2 | 297.0 | 297.8 | MHz |
| Insertion Loss(min) | IL | | 0.9 | 2.5 | dB |
| Amplitude Ripple (p-p) 292.00-302.00 MHz | $\Delta\alpha$ | | 0.9 | 1.5 | dB |
| 1.5 dB Bandwidth | $BW_{1.5dB}$ | 10.0 | 11.3 | | MHz |
| Absolute Attenuation | α | | | | |
| | DC-277.00 MHz | 50.0 | 58.0 | | dB |
| | 317.00- 600.00 MHz | 50.0 | 52.0 | | dB |
| Input VSWR | 292.00-302.00 MHz | | 2.2:1 | 2.5:1 | / |
| Output VSWR | 292.00-302.00 MHz | | 2.2:1 | 2.5:1 | / |

Frequency Characteristics

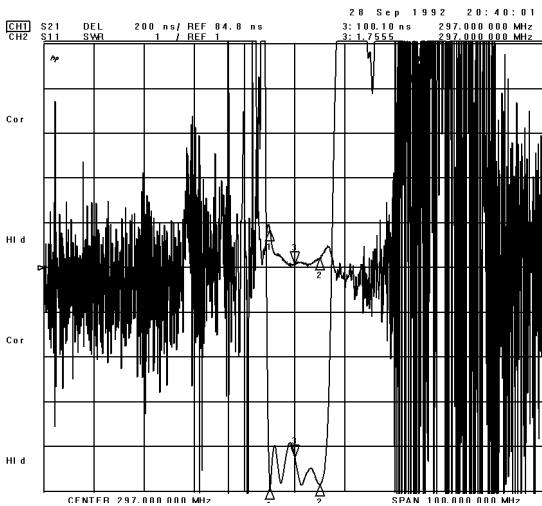
Frequency Response



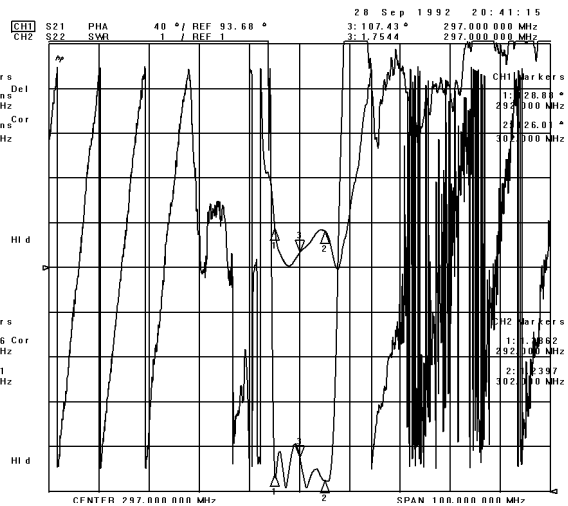
Frequency Response (wideband)



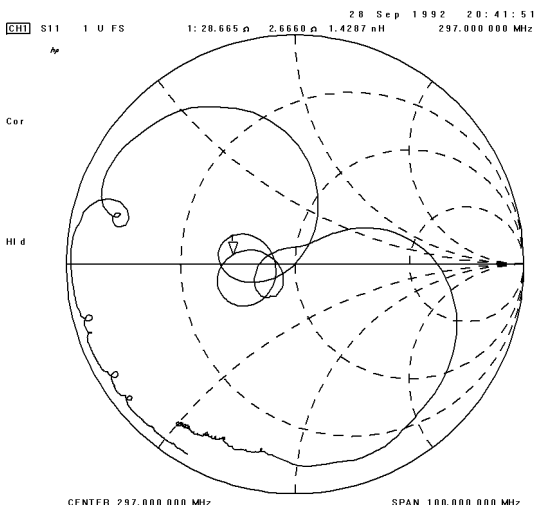
Delay Ripple & S11 VSWR



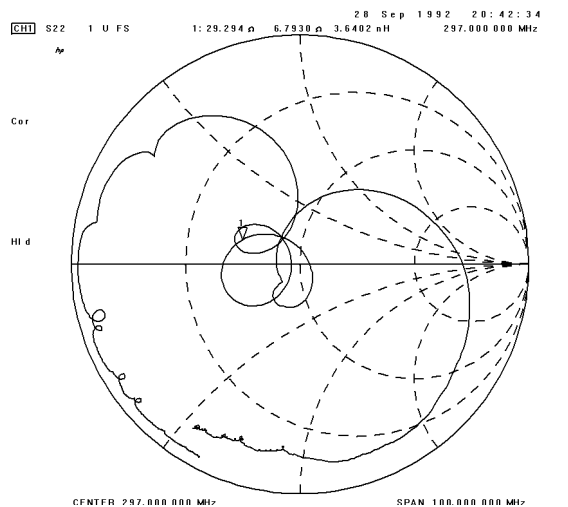
Phase Linearity & S22 VSWR



S11 Smith Chart



S22 Smith Chart



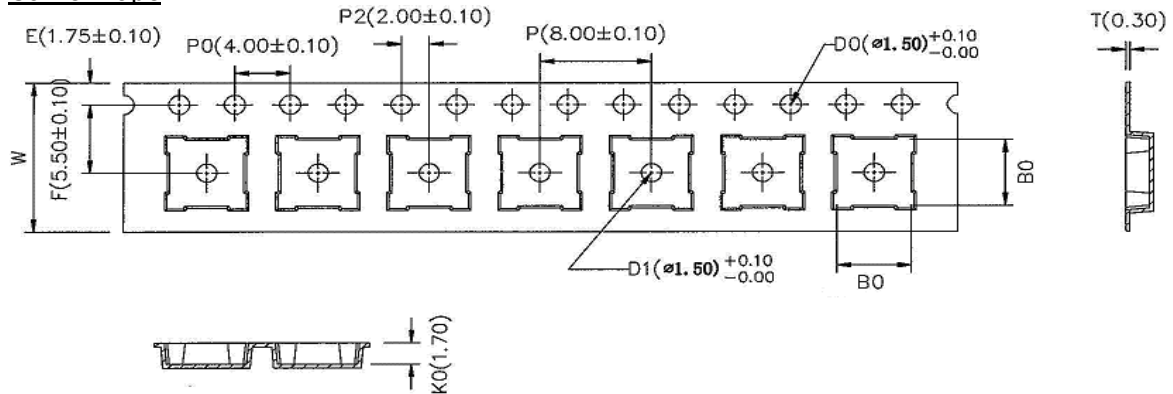
Reliability (The SAW components shall remain electrical performance after tests)

| 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: $T_A=-55^{\circ}\text{C}\pm 3^{\circ}\text{C}$, $T_B=85^{\circ}\text{C}\pm 2^{\circ}\text{C}$, $t_1=t_2=30\text{min}$, 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

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 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.