



***SAW Components***  
***Data Sheet***  
***CQTSF1790M48.01***

|   |       |
|---|-------|
| Customer's Approval Certificate                                       |       |
| Complies with Directive 2002/95/EC (RoHS)                             |       |
| Please return this Page Via email as a certification of Your approval |       |
| Checked & Approval by:  | Date: |
|   |       |

Hangzhou Freq-control Electronics Technology Co.,Ltd.

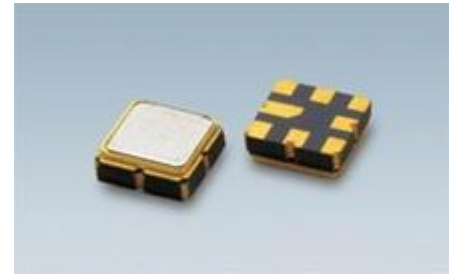
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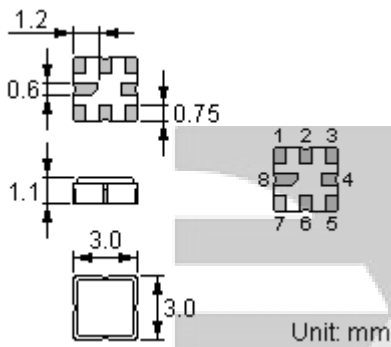
**Features**

- Low-loss RF filter for digital television
- Ceramic Package for **Surface Mounted Technology (SMT)**
- Lead-free Production and **RoHS** Compliance



**1.Package Dimensions**

Ceramic Package: **QCC8D**



**Pin Configuration**

|      |                |
|------|----------------|
| 1, 2 | Input          |
| 5, 6 | Output         |
| 3, 7 | To Be Grounded |
| 4, 8 | Case Ground    |

**2.Marking**

CQTSF\*  
.XXXX

**(1) Laser Marking**

**(2) D: Manufacture's logo**

(3) SF: SAW Filter

(4) XXXX: Part Number

(5) ∴ Pin 1 Identifier

(6) \*: Lot number (The code shown below varies in a 4-year cycle)

| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|------|---|---|---|---|---|---|---|---|---|----|----|----|
| 2011 | a | b | c | d | e | f | g | h | i | j  | k  | m  |
| 2012 | n | p | q | r | s | t | u | v | w | x  | y  | z  |
| 2013 | A | B | C | D | E | F | G | H | J | K  | L  | M  |
| 2014 | N | P | Q | R | S | T | U | V | W | X  | Y  | Z  |

### 3. Maximum Ratings

| Rating                      |           | Value     | Unit |
|-----------------------------|-----------|-----------|------|
| Source Power                | $P$       | 0         | dBm  |
| DC Voltage                  | $V_{DC}$  | 6         | V    |
| Operating Temperature Range | $T_A$     | -40 ~ +85 | °C   |
| Storage Temperature Range   | $T_{stg}$ | -40 ~ +85 | °C   |

### Electrical Characteristics

Operating temperature range:  $T = -40\text{ °C} \dots +85\text{ °C}$   
 Terminating source impedance ( difference):  $Z_S = 150\ \Omega$  and matching network  
 Terminating load impedance (difference):  $Z_L = 150\ \Omega$  and matching network

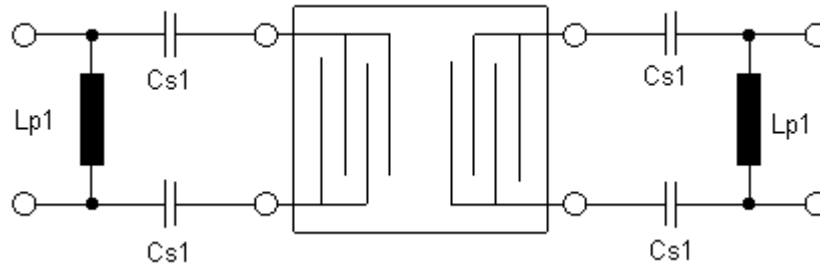
| Characteristic  |                 | Min.                         | Typ.                       | Max. | Unit                 |
|---|-----------------|------------------------------|----------------------------|------|----------------------|
| <b>Nominal frequency</b>  | $f_c$           | —                            | 1790.48                    | —    | MHz                  |
| <b>Maximum insertion attenuation</b> max<br>1770.48 ... 1810.48MHz  | $IL$            | —                            | 4.0                        | 5.0  | dB                   |
| <b>Amplitude ripple (p-p)</b><br>1770.48 ... 1810.48MHz   | $\Delta \alpha$ | —                            | 1.5                        | 2.0  | dB                   |
| <b>Pass bandwidth at -1.5dB</b>   | $\Delta \alpha$ | 40                           | 55                         | -    | MHz                  |
| <b>Phase error</b><br>In any 30MHz band<br>1770.48 ... 1810.48MHz   |                 |                              | 1.5                        | 3.5  |                      |
| <b>I/O VSWR</b><br>1770.48 ... 1810.48MHz   |                 | —                            | 2.1                        | 2.5  |                      |
| <b>Group delay ripple</b><br>1770.48 ... 1810.48MHz   |                 |                              | 10.0                       | 40.0 | ns                   |
| <b>Relative attenuation</b> (relative to max)<br>50.00 ... 1708.42MHz<br>1872.54 ... 1900 MHz<br>1900.00~2000MHz<br>2000 ~ 6000 MHz | $\alpha$        | 46.0<br>40.0<br>45.0<br>25.0 | 51.0<br>45.0<br>50.0<br>-- |      | dB<br>dB<br>dB<br>dB |

 RoHS Compliant

 Electrostatic Sensitive Device

RoHS Compliant  
Lead free

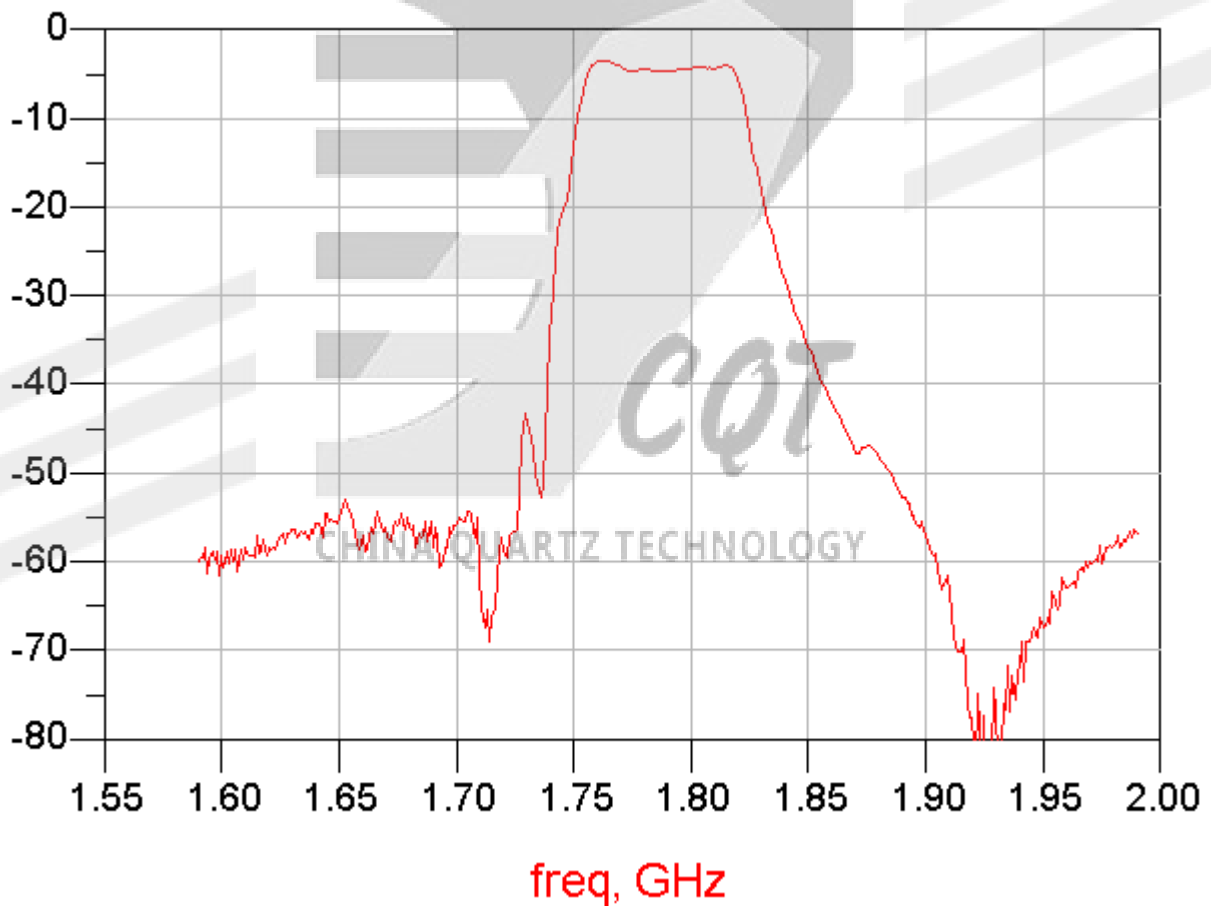
**Matching Network** (Input and output balanced)



**CS1=5.6pF LP1=22nH**

(Notes: Component values may change depending on board layout.)

**Typical Frequency Response**



**Stability Characteristics**

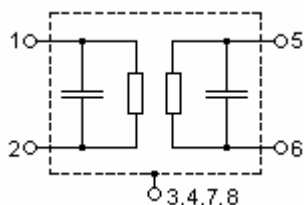
|   | Test item                 | Condition of test  |
|---|---------------------------|--|
| 1 | Mechanical shock          | (a) Drops: 3 times on concrete floor<br>(b) Height: 1.0 m  |
| 2 | Vibration resistance      | (a) Frequency of vibration: 10~55Hz (b) Amplitude: 1.5 mm<br>(c) Directions: X,Y and Z (d) Duration: 2 hours   |
| 3 | Moisture resistance       | (a) Condition: 40°C, 90~95% R.H. (b) Duration: 96 hours<br>(c) Wait 4 hours before measurement   |
| 4 | Climatic sequence         | (a) +70°C for 16 hours (b) +55°C for 24 hours, 90~95% R.H.<br>(c) -25°C for 2 hours (d) +40°C for 24 hours, 90~95% R.H.<br>(e) Wait 4 hours before measurement |
| 5 | High temperature exposure | (a) Temperature: 70°C (b) Duration: 250 hours<br>(c) Wait 4 hours before measurement   |
| 6 | Thermal impact            | (a) +70°C for 30 minutes ⇒ -25°C for 30 minutes repeated 3 times<br>(b) Wait 4 hours before measurement  |

**Requirements:** The SAW filter shall remain within the electrical specifications after tests.

**Remarks**

- SAW devices should not be used in any type of fluid such as water, oil, organic solvent, etc.
- Be certain not to apply voltage exceeding the rated voltage of components.
- Do not operate outside the recommended operating temperature range of components.
- Sudden change of temperature shall be avoided, deterioration of the characteristics can occur.
- Be careful of soldering temperature and duration of components when soldering.
- Do not place soldering iron on the body of components.
- Be careful not to subject the terminals or leads of components to excessive force.
- SAW devices are electrostatic sensitive. Please avoid static voltage during operation and storage.
- Ultrasonic cleaning shall be avoided. Ultrasonic vibration may cause destruction of components.

**Equivalent LC Model**



**Recommended Land Pattern**

