

- **Ideal for 873.00 MHz Transmitters**
- **Nominal Phase Shift of 180° at Resonance**
- **Quartz Stability**
- **Ultra Miniature Ceramic SMD Package (QCC8C)**

SQ5903

| Absolute Maximum Rating (Ta=25°C) | | |
|-----------------------------------|-----------|-----------|
| Parameter | Rating | Unit |
| CW RF Power Dissipation | P | 10 |
| DC Voltage | V_{DC} | ±30 |
| Operating Temperature Range | T_A | -10 ~ +60 |
| Storage Temperature Range | T_{stg} | -40 ~ +85 |

| Electronic Characteristics | | | | | | |
|---|--------------------------------------|--------------|---------|----------|-------|---------------------|
| Parameter | Sym | Minimum | Typical | Maximum | Unit | |
| Frequency (25°C) | Nominal Frequency | f_c | NS | 873.00 | NS | MHz |
| | Tolerance from 873.00 MHz | Δf_c | - | - | ± 150 | KHz |
| Insertion Loss | | IL | - | 7.0 | 9.0 | dB |
| Quality Factor | Unloaded Q-Value | Q_u | - | 9,050 | - | - |
| | 50Ω Loaded Q-Value | Q_L | - | 5,000 | - | - |
| Temperature Stability | Turnover Temperature | T_o | 25 | - | 55 | °C |
| | Turnover Frequency | f_o | - | f_c | - | KHz |
| | Frequency Temperature Coefficient | FTC | - | 0.032 | - | ppm/°C ² |
| Frequency Aging | Absolute Value during the First Year | $ f_A $ | - | - | 10 | ppm/yr |
| DC Insulation Resistance Between any Two Pins | | - | 1.0 | - | - | MΩ |
| RF Equivalent RLC Model | Motional Resistance | R_M | - | 124.0 | 182.0 | Ω |
| | Motional Inductance | L_M | - | 204.2886 | - | μH |
| | Motional Capacitance | C_M | - | 0.1629 | - | fF |
| | Shunt Static Capacitance | C_o | 1.10 | 1.35 | 1.60 | pF |

NS = Not Specified

Note:

- The frequency f_c is the frequency of minimum IL with the resonator in the specified test fixture in a 50Ω test system with VSWR ≤ 1.2:1.
- Unless noted otherwise, case temperature TC = +25°C±2°C.
- Frequency aging is the change in fC with time and is specified at +65°C or less. Aging may exceed the specification for prolonged temperatures above +65°C. Typically, aging is greatest the first year after manufacture, decreasing in subsequent years.
- Turnover temperature, T₀, is the temperature of maximum (or turnover) frequency, f₀. The nominal frequency at any case temperature, TC, may be calculated from: $f = f_o [1 - FTC (T_o - T_o)^2]$.
- This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance C₀ is the measured static (nonmotional) capacitance between input terminal and ground or output terminal and ground.
- The measurement includes case parasitic capacitance.
- Derived mathematically from one or more of the following directly measured parameters: f_c , IL, 3 dB bandwidth, f_c versus T_C, and C₀.
- The specifications of this device are based on the test circuit shown above and subject to change or obsolescence without notice.
- Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
- Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) per se, not for applications, processes and circuits implemented within components or assemblies.
- For questions on technology, prices and delivery, please contact our sales offices or e-mail to sales@vanlong.com.

Package Dimensions (QCC8C)



Electrical Connections

| Terminals | Connection |
|-----------|-------------|
| 2 | Terminal 1 |
| 6 | Terminal 2 |
| 4,8 | Case-Ground |
| 1,3,5,7 | NC |

Package Dimensions

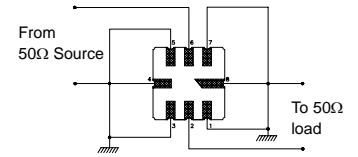
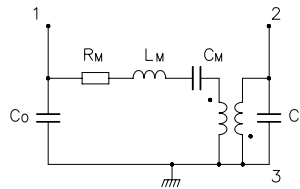
| Dimensions | Nom (mm) | Dimensions | Nom (mm) |
|------------|----------|------------|----------|
| A | 2.08 | E | 1.20 |
| B | 0.60 | F | 1.35 |
| C | 1.27 | G | 5.00 |
| D | 2.54 | H | 5.00 |

Marking



1. Q5903 - Part Code
2. Frequency in MHz
3. Date Code:
 Y : Last digit of year
 WW : Week No.

Equivalent LC Model and Test Circuit

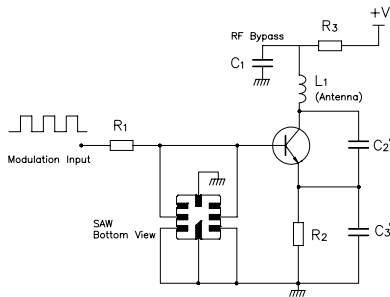


Equivalent LC Model

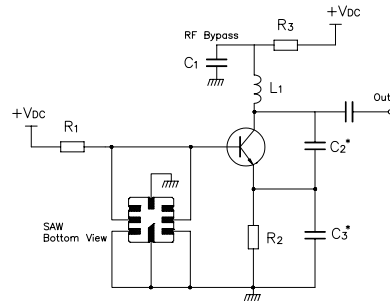
Test Circuit

Typical Application Circuit

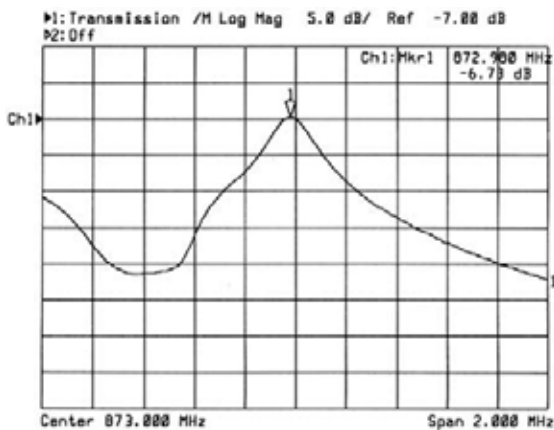
Low Power Transmitter Application



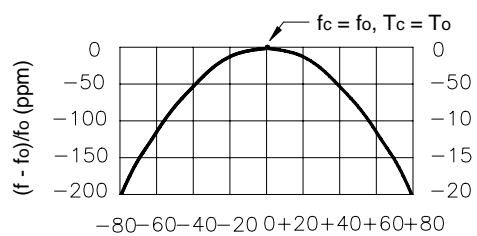
Local Oscillator Application



Typical Frequency Response



Temperature Characteristics



$$\Delta T = T_c - T_o \text{ (}^\circ\text{C)}$$

The curve shown above accounts for resonator contribution only and does not include oscillator temperature characteristics.