

深圳市晶友嘉电子有限公司

SHENZHEN JINGYOUJIA ELECTRONIC CO., LTD



CRYSTAL RESONATOR SPECIFICATIONS

石英晶体谐振器承认书

| | |
|---------------------|-------------|
| 客户 Customer: | 立创商城 |
| 型号 Product: | D-11 声表谐振器 |
| 料号 Code No: | SB1143392TT |
| 频率 Frequency: | 433.920MHz |
| 数量 Sample Quantity: | |
| 日期 Date: | 2021-9-22 |

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SHENZHEN JINGYOUJIA ELECTRONIC CO., LTD
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TEL: 86-755-32840201 32850080

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供应商确认栏:

| 制作 Handler | 确认 Checked | 核审 Approved |
|------------|------------|-------------|
| 戴晓嘉 | 陈斌 | 李晨 |

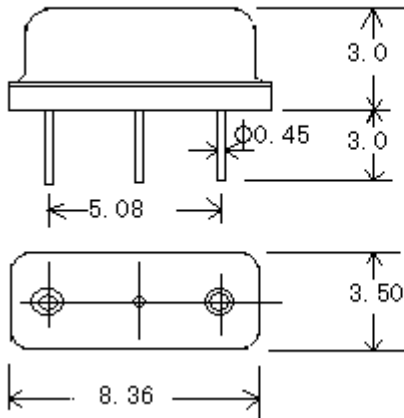
客户承认栏:

| 承认 Checked | 核审 Approved |
|------------|-------------|
| | |

1. Package Dimension

(P72)

Unit: mm

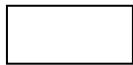


D11

UNT: mm

| Pin No. | Function |
|---------|-----------------|
| Pin 1 | Input or Output |
| Pin 2 | Ground |
| Pin 4 | Output or Input |

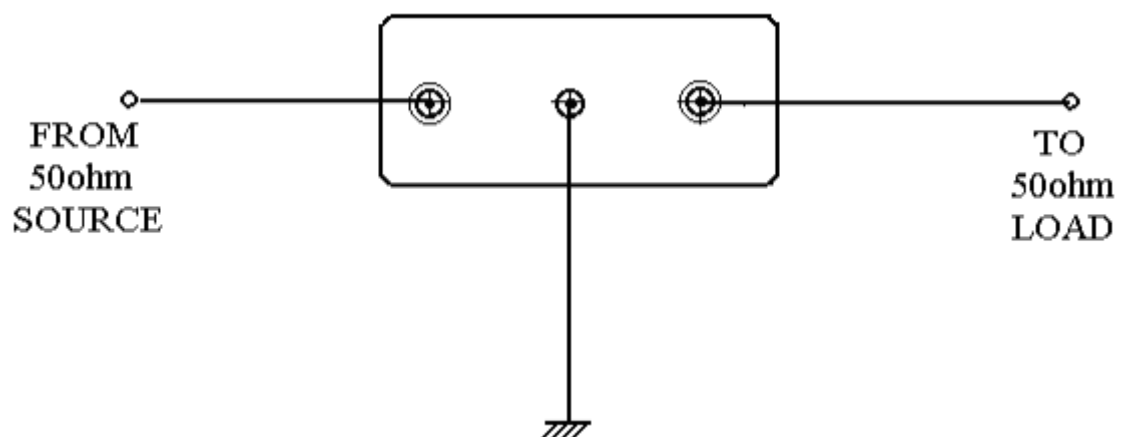
2. Marking



1. R: SAW Resonator

2. : Model code (Center Frequency 433.92MHz)

3. Equivalent LC Model



4. Performance

4.1 Maximum Rating

| Item | Value |
|-----------------------------|----------------|
| DC Voltage V_{DC} | 12V |
| Operation Temperature Range | -40°C to +85°C |
| Storage Temperature Range | -40°C to +85°C |
| RF Power Dissipation | 0dBm |

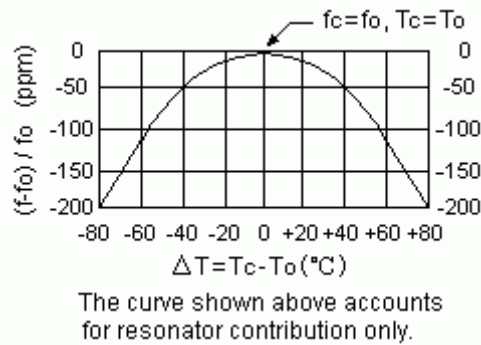
4.2 Electronic Characteristics

| Item | Unit | Minimum | Typical | Maximum |
|---|---------------------|---------|---------|---------|
| Center Frequency (f_c) | MHz | 433.845 | 433.92 | 433.995 |
| Insertion Loss | dB | — | 2.2 | 2.6 |
| Quality Factor | | | | |
| Unloaded Q | — | — | 7340 | — |
| 50Ω Loaded Q | — | — | 1650 | — |
| Temperature Stability | | | | |
| Turnover Temperature (T_0) | °C | 25 | - | 55 |
| Turnover Frequency (f_0) | MHz | | f_c | |
| Frequency Temperature Coefficient (FTC) | ppm/°C ² | — | 0.032 | — |
| Frequency Aging | ppm/yr | — | <±10 | |
| DC Insulation Resistance | MΩ | 1.0 | — | — |
| RF Equivalent RLC Model | | | | |
| Motional Resistance R_1 | Ω | — | 29 | 35 |
| Motional Inductance L_1 | μH | — | 78.1096 | — |
| Motional Capacitance C_1 | fF | — | 1.7241 | — |
| Shunt Static Capacitance C_0 | pF | 1.90 | 2.15 | 2.40 |

Notes:

- Unless noted otherwise, case temperature $T_C = +25^\circ\text{C} \pm 2^\circ\text{C}$.
- The center frequency, f_c , is measured at the minimum insertion loss point with the resonator in the 50Ω test system.
- Frequency aging is the change in f_c 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, T_0 , is the temperature of maximum (or turnover) frequency, f_0 . The nominal frequency at any case temperature, T_C , may be calculated from: $f = f_0 [1 - \text{FTC} (T_0 - T_C)^2]$.
- This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance C_0 is the static capacitance between Pin 1 and Pin 2 measured at low frequency (10MHz) with a capacitance meter. The measurement includes case parasitic capacitance.

4.3 Temperature Characteristics



4.4 Test Circuit

5. Remarks

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