



SAW Components

SAW resonator

Short range devices

| | |
|-----------------------|-------------------------|
| Series/type: | R 770 |
| Ordering code: | B39431R 770U310 |
| Date: | October 09, 2006 |
| Version: | 2.0 |



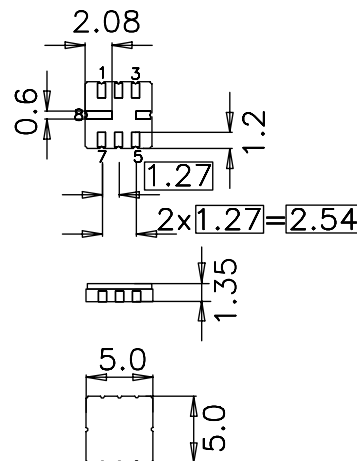
Application

- 1-port resonator (2 Resonators in 1 housing)
- Provides reliable, fundamental mode, quartz frequency stabilization i.e. in transmitters or local oscillators



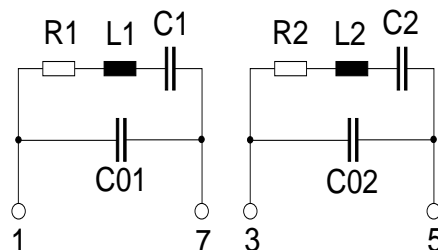
Features

- Package size 5.0 x 5.0 x 1.35 mm³
- Package code QCC8C
- RoHS compatible
- Approximate weight 0.1 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- Protection layer: Protec
- AEC-Q200 qualified component family
- **Electrostatic Sensitive Device (ESD)**



Pin configuration

- 1 Input Reso 1
- 3 Input Reso 2
- 7 Output Reso 1
- 5 Output Reso 2
- 4,8 Ground (case)
- 2,6 float





Data sheet



Characteristics Resonator 1

Reference temperature: $T_A = 25\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 50\ \Omega$

| | | min. | typ. | max. | |
|--|-----------------------|---------|---------|---------|--------------------|
| Center frequency Resonator 1¹⁾ | f_C | 433.745 | 433.810 | 433.845 | MHz |
| Frequency offset Resonator 2 to Resonator 1 | f_{offset} | 200.0 | 250.0 | 300.0 | KHz |
| Minimum insertion attenuation | α_{min} | — | 1.3 | 1.7 | dB |
| Unloaded quality factor | Q_U | 7500 | 10100 | — | |
| Ageing of f_C | | — | — | -50/+50 | ppm |
| Equivalent circuit elements | | | | | |
| Motional capacitance | C_1 | — | 2.12 | — | fF |
| Motional inductance | L_1 | — | 63.43 | — | μH |
| Motional resistance | R_1 | — | 17 | 23 | Ω |
| Parallel capacitance ²⁾ | C_0 | — | 2.4 | — | pF |
| Temperature coefficient of frequency³⁾ | TC_f | — | -0.03 | — | ppm/K ² |
| Turnover temperature | T_0 | 5 | — | 35 | $^{\circ}\text{C}$ |

1) Center frequency is defined as maximum of the real part of the admittance.

2) If used in two port configuration (pin 1 - input, pin 7 - output) C_0 is reduced by approx. 0.3 pF.

3) Temperature dependence of f_C : $f_C(T_A) = f_C(T_0) (1 + TC_f (T_A - T_0)^2)$


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433.81 / 434.06 MHz
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Characteristics Resonator 2

| | |
|-------------------------------|----------------------|
| Reference temperature: | $T_A = 25\text{ °C}$ |
| Terminating source impedance: | $Z_S = 50\ \Omega$ |
| Terminating load impedance: | $Z_L = 50\ \Omega$ |

| | | min. | typ. | max. | |
|--|-----------------------|-------------|-------------|-------------|--------------------|
| Center frequency Resonator 2¹⁾ | f_C | 433.995 | 434.060 | 434.095 | MHz |
| Frequency offset Resonator 2 to Resonator 1 | f_{offset} | 200.0 | 250.0 | 300.0 | KHz |
| Minimum insertion attenuation | α_{min} | — | 1.3 | 1.7 | dB |
| Unloaded quality factor | Q_U | 7500 | 10100 | — | |
| Ageing of f_C | | — | — | -50/+50 | ppm |
| Equivalent circuit elements | | | | | |
| Motional capacitance | C_1 | — | 2.14 | — | fF |
| Motional inductance | L_1 | — | 62.86 | — | μH |
| Motional resistance | R_1 | — | 17 | 23 | Ω |
| Parallel capacitance ²⁾ | C_0 | — | 2.4 | — | pF |
| Temperature coefficient of frequency³⁾ | TC_f | — | -0.03 | — | ppm/K ² |
| Turnover temperature | T_0 | 5 | — | 35 | $^{\circ}\text{C}$ |

1) Center frequency is defined as maximum of the real part of the admittance.

2) If used in two port configuration (pin 3 - input, pin 5 - output) C_0 is reduced by approx. 0.3 pF.

3) Temperature dependence of f_C : $f_C(T_A) = f_C(T_0) (1 + TC_f (T_A - T_0)^2)$

Maximum ratings

| | | | | |
|----------------------------|------------------|----------|--------------------|-----------------------|
| Operable temperature range | T_A | -45/+120 | $^{\circ}\text{C}$ | between any terminals |
| Storage temperature range | T_{stg} | -45/+120 | $^{\circ}\text{C}$ | |
| DC voltage | V_{DC} | 12 | V | |
| Source power | P_S | 0 | dBm | |

Please read *cautions and warnings and important notes* at the end of this document.



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SAW resonator

433.81 / 434.06 MHz

Data sheet



References

| | |
|---------------------|--|
| Type | R 770 |
| Ordering code | B39431R 770U310 |
| Marking and package | C61157-A7-A56 |
| Packaging | F61074-V8169-Z000 |
| Date codes | L_1126 |
| Soldering profile | S_6001 |
| RoHS compatible | defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment." |

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com.

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Please read *cautions and warnings and important notes* at the end of this document.



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