

# SAW Components

## SAW resonator

Short range devices

|                       |                          |
|-----------------------|--------------------------|
| <b>Series/type:</b>   | <b>R880</b>              |
| <b>Ordering code:</b> | <b>B39431R 880H210</b>   |
| <b>Date:</b>          | <b>February 04, 2013</b> |
| <b>Version:</b>       | <b>2.0</b>               |

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R880

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433.92 MHz

#### Data sheet

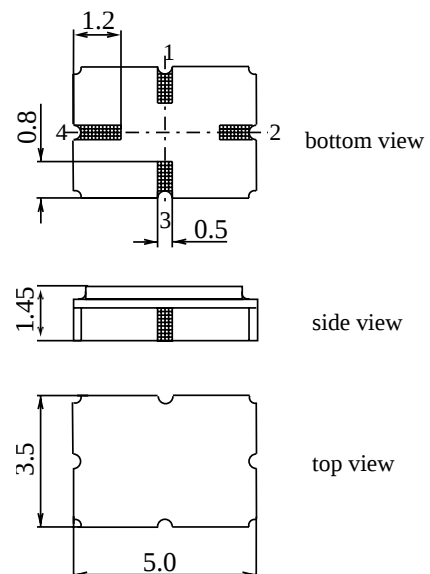


#### Application

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

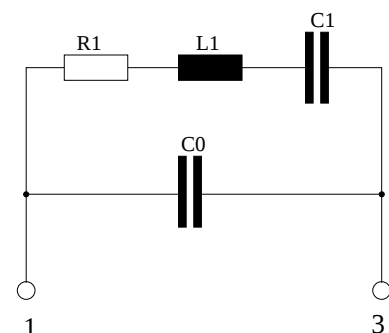
#### Features

- Package size 5.0 x 3.5 x 1.45 mm<sup>3</sup>
- Package code QCC4A
- RoHS compatible
- Approximate weight 0.1 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- Passivation layer Elpas
- AEC-Q200 qualified component family
- **Electrostatic Sensitive Device (ESD)**



#### Pin configuration

- 1 Input
- 3 Output, grounded in 1-port conf.
- 2,4 Ground (case)



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**Characteristics**

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

|                                                          |                 | min.    | typ.    | max.    |                    |
|----------------------------------------------------------|-----------------|---------|---------|---------|--------------------|
| <b>Center frequency<sup>1)</sup></b>                     | $f_C$           | 433.820 | 433.920 | 433.020 | MHz                |
| <b>Minimum insertion attenuation</b>                     | $\alpha_{\min}$ | —       | 1.2     | 1.7     | dB                 |
| Unloaded quality factor                                  | $Q_U$           | 7500    | 11500   | —       |                    |
| <b>Ageing of <math>f_C</math></b>                        |                 | —       | —       | −50/+50 | ppm                |
| <b>Equivalent circuit elements</b>                       |                 |         |         |         |                    |
| Motional capacitance                                     | $C_1$           | —       | 2.13    | —       | fF                 |
| Motional inductance                                      | $L_1$           | —       | 63.16   | —       | $\mu\text{H}$      |
| Motional resistance                                      | $R_1$           | —       | 14      | 22      | $\Omega$           |
| Parallel capacitance <sup>2)</sup>                       | $C_0$           | —       | 2.5     | —       | pF                 |
| <b>Temperature coefficient of frequency<sup>3)</sup></b> | $TC_f$          | —       | −0.032  | —       | ppm/K <sup>2</sup> |
| <b>Turnover temperature</b>                              | $T_0$           | 15      | —       | 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 2 - 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 | $T$              | −45/+125 | $^{\circ}\text{C}$ |  |
| Storage temperature range  | $T_{\text{stg}}$ | −45/+125 | $^{\circ}\text{C}$ |  |
| DC voltage                 | $V_{\text{DC}}$  | 12       | V                  |  |
| Source power               | $P_S$            | 0        | dBm                |  |

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**References**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Type</b>                | R880                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Ordering code</b>       | B39431R 880H210                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Marking and package</b> | C61157-A7-A86                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Packaging</b>           | F61074-V8120-Z000                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Date codes</b>          | L_1126                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Soldering profile</b>   | S_6001                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>RoHS compatible</b>     | RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8 <sup>th</sup> , 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases. |
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