



# SAW Components

## SAW resonator

Short range devices

**Series/type:** R1900  
**Ordering code:** B39431R1900A310

**Date:** February 11, 2011  
**Version:** 2.0

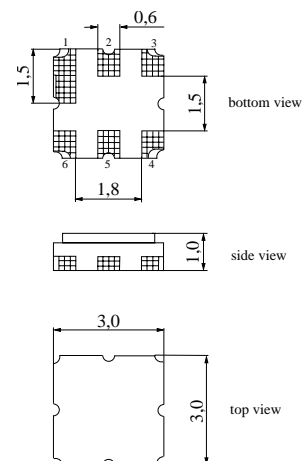
Data sheet


**Application**

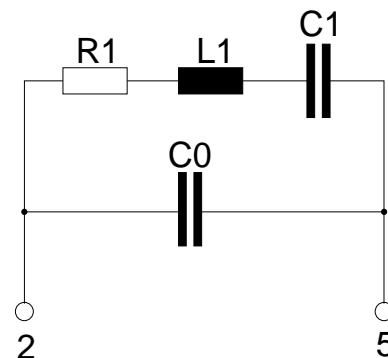
- 1-port resonator
- Provides reliable, fundamental mode, quartz frequency stabilization i.e. in transmitters or local oscillators


**Features**

- Package size 3.0 x 3.0 x 1.0 mm<sup>3</sup>
- Package code DCC6G
- RoHS compatible
- Approximate weight 0.037 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- Passivation layer Elpas
- AEC-Q200 qualified component family
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)


**Pin configuration**

- 2            Input
- 5            Output, grounded in 1-port conf.
- 1,3,4,6     Ground (case)





|                       |                   |
|-----------------------|-------------------|
| <b>SAW Components</b> | <b>R1900</b>      |
| <b>SAW resonator</b>  | <b>433.92 MHz</b> |

Data sheet



### Characteristics

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

|  |                 | min.   | typ.   | max.    |                    |
|--|-----------------|--------|--------|---------|--------------------|
| <b>Center frequency<sup>1)</sup></b>                     | $f_C$           | 433.87 | 433.92 | 433.97  | MHz                |
| <b>Minimum insertion attenuation</b>                     | $\alpha_{\min}$ | —      | 1.4    | 1.9     | dB                 |
| Unloaded quality factor                                  | $Q_U$           | 7000   | 10000  | —       |                    |
| <b>Ageing of <math>f_C</math></b>                        |                 | —      | —      | -50/+50 | ppm                |
| <b>Equivalent circuit elements</b>                       |                 |        |        |         |                    |
| Motional capacitance                                     | $C_1$           | —      | 1.906  | —       | fF                 |
| Motional inductance                                      | $L_1$           | —      | 70.57  | —       | $\mu\text{H}$      |
| Motional resistance                                      | $R_1$           | —      | 18     | 26      | $\Omega$           |
| Parallel capacitance <sup>2)</sup>                       | $C_0$           | —      | 2.9    | —       | pF                 |
| <b>Temperature coefficient of frequency<sup>3)</sup></b> | $TC_f$          | —      | -0.032 | —       | ppm/K <sup>2</sup> |
| <b>Turnover temperature</b>                              | $T_0$           | 10     | —      | 30      | $^{\circ}\text{C}$ |

<sup>1)</sup> Center frequency is defined as maximum of the real part of the admittance.

<sup>2)</sup> If used in two port configuration (pin 2 - input, pin 5 - output)  $C_0$  is reduced by approx. 0.3 pF.

<sup>3)</sup> 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                |  |

**SAW Components****R1900****SAW resonator****433.92 MHz**

Data sheet

**References**

|                            |  |
|----------------------------|--|
| <b>Type</b>                | R1900  |
| <b>Ordering code</b>       | B39431R1900A310  |
| <b>Marking and package</b> | C61157-A7-A172   |
| <b>Packaging</b>           | F61074-V8228-Z000  |
| <b>Date codes</b>          | L_1126   |
| <b>Soldering profile</b>   | S_6001   |
| <b>RoHS compatible</b>     | defined as compatible with the following documents:<br>"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." |
| <b>Coils</b>               | See Inductor pdf-catalog<br><a href="http://www.tdk.co.jp/tefe02/coil.htm#aname1">http://www.tdk.co.jp/tefe02/coil.htm#aname1</a><br>and Data Library for circuit simulation<br><a href="http://www.tdk.co.jp/etvcl/index.htm">http://www.tdk.co.jp/etvcl/index.htm</a>  |

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