# SAW Components

## SAW resonator

Short range devices

| | |
|---|---|
| **Series/type:** | **R 903** |
| **Ordering code:** | **B39321R 903H110** |
| Date: | April 20, 2006 |
| Version: | 2.0 |

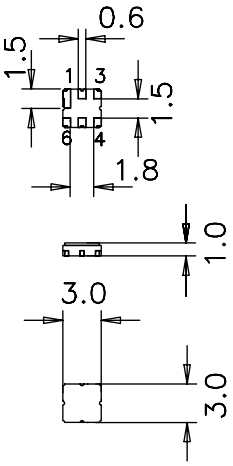
**Data sheet** SMD

## Application

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

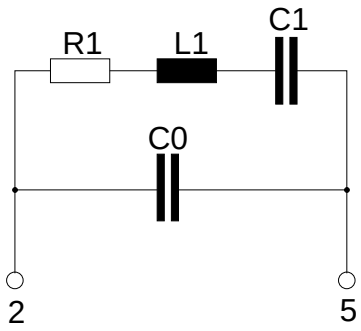

## Features

- Package size 3.0 x 3.0 x 1.0 mm$^3$
- Package code DCC6E
- 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**lectrostactic **S**ensitive **D**evice (**ESD**)




## Pin configuration

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



Data sheet SMD

## Characteristics

Reference temperature: $T_A$ = 25 ˚C
Terminating source impedance: $Z_S$ = 50 Ω
Terminating load impedance: $Z_L$ = 50 Ω

| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Center frequency**[1] | $f_C$ | 315.425 | 315.50 | 315.575 | MHz |
| **Minimum insertion attenuation** | $\alpha_{min}$ | — | 1.5 | 1.9 | dB |
| Unloaded quality factor | $Q_U$ | 7600 | 10500 | — | |
| **Ageing of $f_C$** | | — | — | –50/+50 | ppm |
| **Equivalent circuit elements** | | | | | |
| Motional capacitance | $C_1$ | — | 2.42 | — | fF |
| Motional inductance | $L_1$ | — | 105.4 | — | µH |
| Motional resistance | $R_1$ | — | 19 | 27 | Ω |
| Parallel capacitance[2] | $C_0$ | — | 3.2 | — | pF |
| **Temperature coefficient of frequency**[3] | $TC_f$ | — | –0.032 | — | ppm/K² |
| **Turnover temperature** | $T_0$ | 10 | — | 30 | ˚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 3 - 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 | –40/+125 | ˚C | |
| Storage temperature range | $T_{stg}$ | –40/+125 | ˚C | |
| DC voltage | $V_{DC}$ | 12 | V | |
| Source power | $P_S$ | 0 | dBm | |

**References**

| | |
|---|---|
| **Type** | R 903 |
| **Ordering code** | B39321R 903H110 |
| **Marking and package** | C61157-A7-A143 |
| **Packaging** | F61074-V8168-Z000 |
| **Date codes** | L_1126 |
| **Soldering profile** | S_6001 |
| **RoHS compatible** | 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." |

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