



## **SAW Components**

### **SAW resonator**

Short range devices

|                       |                        |
|-----------------------|------------------------|
| <b>Series/type:</b>   | <b>R 983</b>           |
| <b>Ordering code:</b> | <b>B39401R 983H110</b> |
| <b>Date:</b>          | <b>May 20, 2008</b>    |
| <b>Version:</b>       | <b>2.0</b>             |



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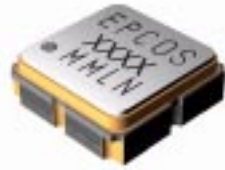
403.55 MHz

#### Data sheet



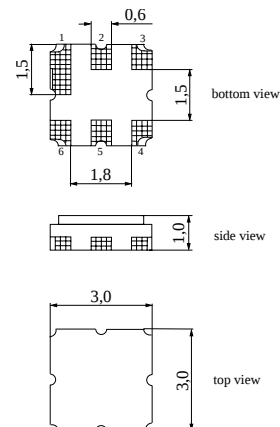
#### Application

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



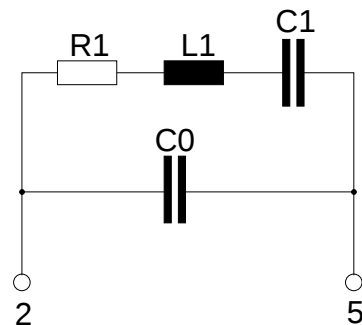
#### Features

- Package size 3.0 x 3.0 x 1.0 mm<sup>3</sup>
- Package code DCC6E
- RoHS compatible
- Approximate weight 0.037 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

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





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#### Characteristics

Reference temperature:  $T_A = 25\text{ °C}$   
 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>                     | $f_C$           | 403.45 | 403.55 | 403.65  | MHz                |
| <b>Minimum insertion attenuation</b>                     | $\alpha_{\min}$ | —      | 1.5    | 1.9     | dB                 |
| Unloaded quality factor                                  | $Q_U$           | 8600   | 12200  | —       |                    |
| <b>Ageing of <math>f_C</math></b>                        |                 | —      | —      | -50/+50 | ppm                |
| <b>Equivalent circuit elements</b>                       |                 |        |        |         |                    |
| Motional capacitance                                     | $C_1$           | —      | 1.7    | —       | fF                 |
| Motional inductance                                      | $L_1$           | —      | 91.84  | —       | $\mu\text{H}$      |
| Motional resistance                                      | $R_1$           | —      | 19     | 27      | $\Omega$           |
| 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>                              | $T_0$           | 10     | —      | 30      | °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 | °C  |  |
| Storage temperature range  | $T_{\text{stg}}$ | -45/+125 | °C  |  |
| DC voltage                 | $V_{\text{DC}}$  | 12       | V   |  |
| Source power               | $P_S$            | 0        | dBm |  |

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Data sheet

**References**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Type</b>                | R 983                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Ordering code</b>       | B39401R 983H110                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Marking and package</b> | C61157-A7-A143                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Packaging</b>           | F61074-V8168-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." |

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