SAW Components

SAW resonator
Short range devices

Series/type: R 960
Ordering code: B39431R 960H110
Date: July 21, 2010
Version: 2.2
SAW Components  
SAW resonator  

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 mm³
- 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)
Characteristics

Reference temperature: \( T_A = 25 \, ^\circ \text{C} \)
Terminating source impedance: \( Z_S = 50 \, \Omega \)
Terminating load impedance: \( Z_L = 50 \, \Omega \)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>min.</th>
<th>typ.</th>
<th>max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center frequency 1) ( f_C )</td>
<td>433.87</td>
<td>433.92</td>
<td>433.97</td>
</tr>
<tr>
<td>Minimum insertion attenuation ( \alpha_{\text{min}} )</td>
<td>—</td>
<td>1.3</td>
<td>1.8</td>
</tr>
<tr>
<td>Unloaded quality factor ( Q_U )</td>
<td>8400</td>
<td>12400</td>
<td>—</td>
</tr>
<tr>
<td>Ageing of ( f_C )</td>
<td>—</td>
<td>—</td>
<td>—50/+50</td>
</tr>
</tbody>
</table>

Equivalent circuit elements

<table>
<thead>
<tr>
<th>Element</th>
<th>min.</th>
<th>typ.</th>
<th>max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motional capacitance ( C_1 )</td>
<td>—</td>
<td>1.72</td>
<td>—</td>
</tr>
<tr>
<td>Motional inductance ( L_1 )</td>
<td>—</td>
<td>77.9</td>
<td>—</td>
</tr>
<tr>
<td>Motional resistance ( R_1 )</td>
<td>—</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Parallel capacitance 2) ( C_0 )</td>
<td>—</td>
<td>2.3</td>
<td>—</td>
</tr>
<tr>
<td>Temperature coefficient of frequency 3) ( T_Cf )</td>
<td>—</td>
<td>—0.032</td>
<td>—</td>
</tr>
<tr>
<td>Turnover temperature ( T_0 )</td>
<td>10</td>
<td>—</td>
<td>30</td>
</tr>
</tbody>
</table>

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 \( f_C \): \( f_C(T_A) = f_C(T_0) (1 + T_Cf (T_A - T_0)^2) \)

Maximum ratings

<table>
<thead>
<tr>
<th>Rating</th>
<th>min.</th>
<th>typ.</th>
<th>max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operable temperature range ( T )</td>
<td>—40/+125</td>
<td>50</td>
<td>125</td>
</tr>
<tr>
<td>Storage temperature range ( T_{\text{stg}} )</td>
<td>—40/+125</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>DC voltage ( V_{\text{DC}} )</td>
<td>12</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Source power ( P_S )</td>
<td>0</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

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

Type: R 960
Ordering code: B39431R 960H110
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:

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

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