



## SAW Components

### SAW resonator

Short range devices

<b>Series/type:</b>	<b>R 964</b>
<b>Ordering code:</b>	<b>B39431R 964H110</b>
Date:	December 19, 2008
Version:	2.1

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Data sheet



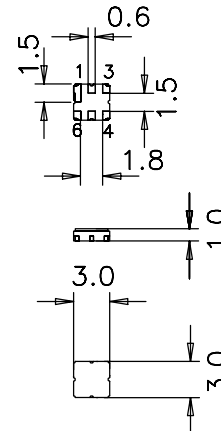
### Application

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



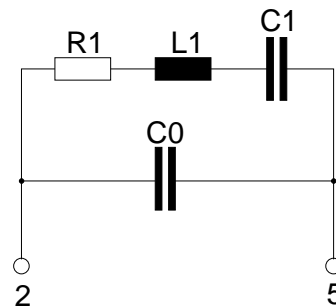
### Features

- 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)



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


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**Characteristics**

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

		<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Center frequency<sup>1)</sup></b>	$f_C$	434.10	434.15	434.20	MHz
<b>Minimum insertion attenuation</b>	$\alpha_{\min}$	—	1.3	1.8	dB
Unloaded quality factor	$Q_U$	8000	12300	—	
<b>Ageing of <math>f_C</math></b>		—	—	-50/+50	ppm
<b>Equivalent circuit elements</b>					
Motional capacitance	$C_1$	—	1.75	—	fF
Motional inductance	$L_1$	—	76.66	—	$\mu\text{H}$
Motional resistance	$R_1$	—	17	25	$\Omega$
Parallel capacitance <sup>2)</sup>	$C_0$	—	2.4	—	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

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	-40/+125	°C	
Storage temperature range	$T_{\text{stg}}$	-40/+125	°C	
DC voltage	$V_{\text{DC}}$	12	V	
Source power	$P_S$	0	dBm	

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## References

Type	R 964
Ordering code	B39431R 964H110
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: "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."

For further information please contact your local EPCOS sales office or visit our webpage at [www.epcos.com](http://www.epcos.com).

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



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