



## SAW Components

### SAW resonator

Short range devices

<b>Series/type:</b>	<b>R 770</b>
<b>Ordering code:</b>	<b>B39431R 770U310</b>
Date:	October 09, 2006
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Data sheet



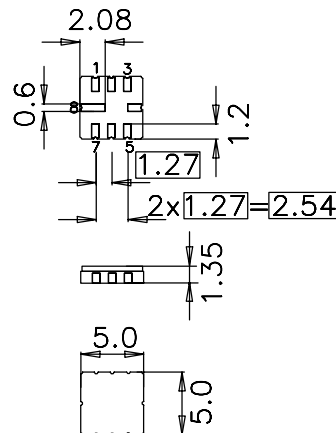
### Application

- 1-port resonator (2 Resonators in 1 housing)
- Provides reliable, fundamental mode, quartz frequency stabilization i.e. in transmitters or local oscillators



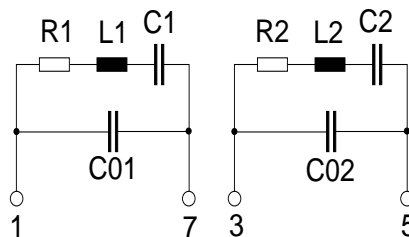
### Features

- Package size 5.0 x 5.0 x 1.35 mm<sup>3</sup>
- Package code QCC8C
- RoHS compatible
- Approximate weight 0.1 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- Protection layer: Protec
- AEC-Q200 qualified component family
- **Electrostatic Sensitive Device (ESD)**



### Pin configuration

- 1 Input Reso 1
- 3 Input Reso 2
- 7 Output Reso 1
- 5 Output Reso 2
- 4,8 Ground (case)
- 2,6 float



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



Data sheet



Characteristics Resonator 1

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 Resonator 1<sup>1)</sup></b>	$f_C$	433.745	433.810	433.845	MHz
<b>Frequency offset Resonator 2 to Resonator 1</b>	$f_{\text{offset}}$	200.0	250.0	300.0	KHz
<b>Minimum insertion attenuation</b>	$\alpha_{\text{min}}$	—	1.3	1.7	dB
Unloaded quality factor	$Q_U$	7500	10100	—	
<b>Ageing of <math>f_C</math></b>		—	—	-50/+50	ppm
<b>Equivalent circuit elements</b>					
Motional capacitance	$C_1$	—	2.12	—	fF
Motional inductance	$L_1$	—	63.43	—	$\mu\text{H}$
Motional resistance	$R_1$	—	17	23	$\Omega$
Parallel capacitance <sup>2)</sup>	$C_0$	—	2.4	—	pF
<b>Temperature coefficient of frequency<sup>3)</sup></b>	$TC_f$	—	-0.03	—	ppm/K <sup>2</sup>
<b>Turnover temperature</b>	$T_0$	5	—	35	$^{\circ}\text{C}$

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 7 - output)  $C_0$  is reduced by approx. 0.3 pF.  
 3) Temperature dependence of  $f_C$ :  $f_C(T_A) = f_C(T_0) (1 + TC_f (T_A - T_0)^2)$



**SAW Components**

**R 770**

**SAW resonator**

**433.81 / 434.06 MHz**

Data sheet



**Characteristics Resonator 2**

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 Resonator 2<sup>1)</sup></b>	$f_C$	433.995	434.060	434.095	MHz
<b>Frequency offset Resonator 2 to Resonator 1</b>	$f_{\text{offset}}$	200.0	250.0	300.0	KHz
<b>Minimum insertion attenuation</b>	$\alpha_{\text{min}}$	—	1.3	1.7	dB
Unloaded quality factor	$Q_U$	7500	10100	—	
<b>Ageing of <math>f_C</math></b>		—	—	-50/+50	ppm
<b>Equivalent circuit elements</b>					
Motional capacitance	$C_1$	—	2.14	—	fF
Motional inductance	$L_1$	—	62.86	—	$\mu\text{H}$
Motional resistance	$R_1$	—	17	23	$\Omega$
Parallel capacitance <sup>2)</sup>	$C_0$	—	2.4	—	pF
<b>Temperature coefficient of frequency<sup>3)</sup></b>	$TC_f$	—	-0.03	—	ppm/K <sup>2</sup>
<b>Turnover temperature</b>	$T_0$	5	—	35	°C

- 1) Center frequency is defined as maximum of the real part of the admittance.  
 2) If used in two port configuration (pin 3 - 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	$T_A$	-45/+120	°C	between any terminals
Storage temperature range	$T_{\text{stg}}$	-45/+120	°C	
DC voltage	$V_{\text{DC}}$	12	V	
Source power	$P_S$	0	dBm	

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R 770

SAW resonator

433.81 / 434.06 MHz

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## References

Type	R 770
Ordering code	B39431R 770U310
Marking and package	C61157-A7-A56
Packaging	F61074-V8169-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."

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



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