



Customer	WTL
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SPECIFICATION

维拓国际有限公司

WTL International Limited

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P/N: WTL6A20776

Saw Resonator



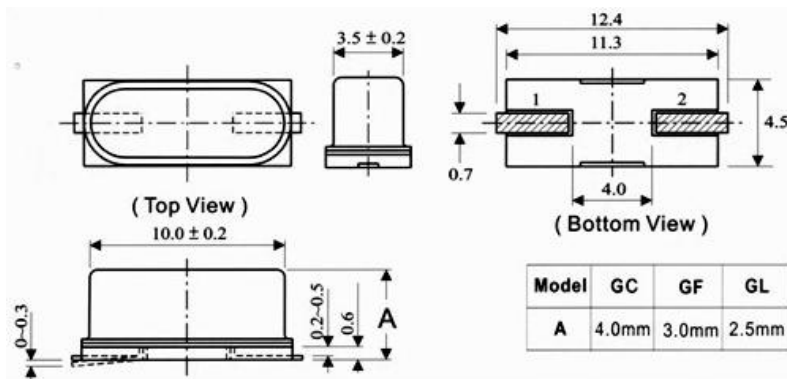
Features

- 1-port Resonator
- Metal Case for HC-49S-SMD
- **RoHS** compatible
- Package size 10.24x3.70x4.0mm³
- **Electrostatic Sensitive Device(ESD)**



Package Dimensions (HC-49S-SMD)

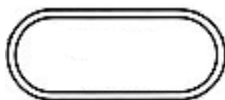
Pin Configuration



1	Input/Output
2	Output/Input

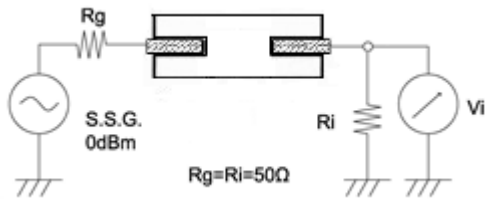
Model	GC	GF	GL
A	4.0mm	3.0mm	2.5mm

Marking

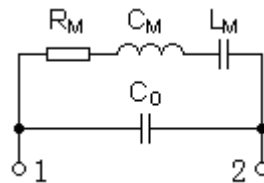


WTL	Trademark
R	SAW Resonator
315	Part number

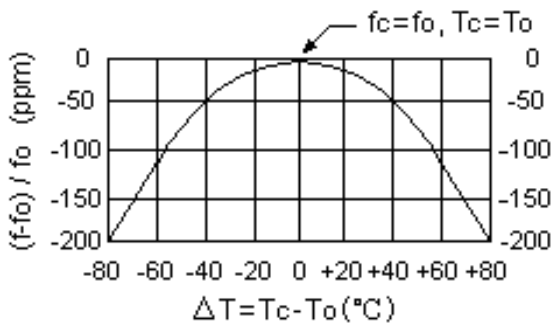
Test Circuit



Equivalent LC Model

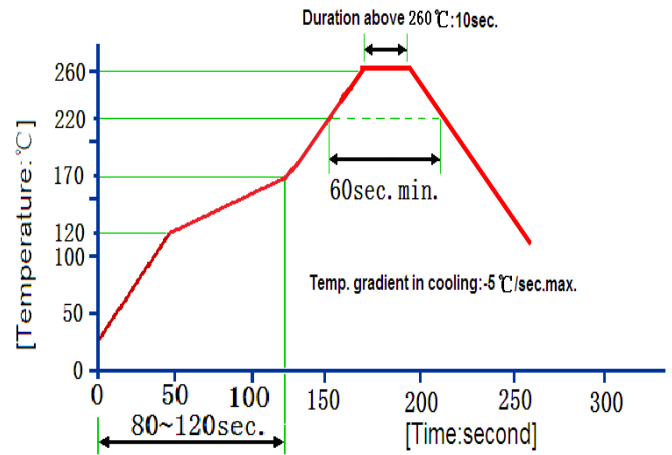


Temperature Characteristics Diagram



The curve shown above accounts for resonator contribution only and does not include LC component

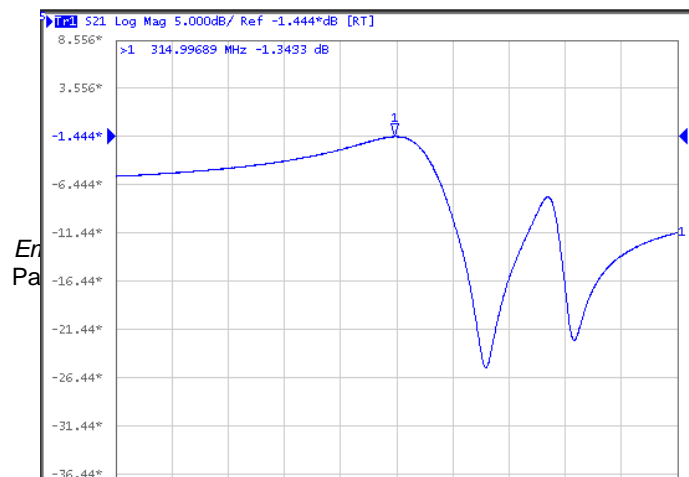
Recommended Reflow Soldering



Reflow cycles: 3 cycles max.

Frequency Response

<http://www.wtlcrystals.com>



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Performance

Maximum Rating

Item		Value	Unit
DC Voltage	V_{DC}	10	V
Operation Temperature	T	-40 ~ +85	°C
Storage Temperature	T_{stg}	-55 ~ +125	°C
RF Power Dissipation	P	10	dBm

Electronic Characteristics

Test Temperature: 25°C±2°C

Terminating source impedance: 50Ω

Terminating load impedance: 50Ω

Item			Minimum	Typical	Maximum	Unit
Center Frequency	Absolute Frequency	f_c		315.00		MHz
	Tolerance from 315.00MHz	Δf_c		±75		KHz
Insertion Loss(min)		IL		1.8	2.3	dB
Quality Factor	Unloaded Q	Q_U		21772		
	50Ω Loaded Q	Q_L		3569		
Temperature Stability	Turnover Temperature	T_0	25	40	55	°C
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
Frequency Aging	Absolute Value during the First Year	$ f_A $		≤10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			MΩ
RF Equivalent RLC	Motional Resistance	R_M		19.7	22.0	Ω
	Motional Inductance	L_M		215.5		μH

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Model	Motional Capacitance	C_M		1.18		fF
	Static Capacitance	C_0	1.80	2.08	2.4	pF

Reliability (The SAW components shall remain electrical performance after tests)

No.	Test item	Test condition
1	Temperature Storage	(1) Temperature: $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$, Duration: 250h, Recovery time: $2\text{h}\pm 0.5\text{h}$ (2) Temperature: $-55^{\circ}\text{C}\pm 3^{\circ}\text{C}$, Duration: 250h, Recovery time: $2\text{h}\pm 0.5\text{h}$
2	Humidity Test	Conditions: $60^{\circ}\text{C}\pm 2^{\circ}\text{C}$, 90~95% RH Duration: 250h
3	Thermal Shock	Heat cycle conditions: $T_A=-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$, $T_B=85^{\circ}\text{C}\pm 2^{\circ}\text{C}$, $t_1=t_2=30\text{min}$, Switch time: $\leq 3\text{min}$, Cycle time: 100 times, Recovery time: $2\text{h}\pm 0.5\text{h}$.
4	Vibration Fatigue	Frequency of vibration: 10~55Hz Amplitude: 1.5mm Directions: X, Y and Z Duration: 2h
5	Drop Test	Cycle time: 10 times Height: 1.0m
6	Solder Ability Test	Temperature: $245^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Duration: 3.0s--5.0s Depth: DIP--2/3, SMD--1/5
7	Resistance to Soldering Heat	(1) Thickness of PCB: 1mm, Solder condition: $260^{\circ}\text{C}\pm 5^{\circ}\text{C}$, Duration: $10\pm 1\text{s}$ (2) Temperature of Soldering Iron: $350^{\circ}\text{C}\pm 10^{\circ}\text{C}$, Duration: 3~4s, Recovery time: $2\pm 0.5\text{h}$

Notes

1. As a result of the particularity of inner structure of SAW products, it is easy to be

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breakdown by electrostatic, so we should pay attention to **ESD protect** in the test.

2. **Static voltage** between signal load and ground may cause deterioration and destruction of the component. Please avoid static voltage.

3. **Ultrasonic cleaning** may cause deterioration and destruction of the component. Please avoid ultrasonic cleaning.

4. Only leads of component may **be soldered**. Please avoid soldering another part of component.

5. There is a close relationship between the device's performance and **matching network**. The specifications of this device are based on the test circuit shown above. L and C values may change depending on board layout. Values shown are intended as a guide only.