

# 深圳市维拓精电科技有限公司

## WTL International Limited

### APPROVAL SHEET

DESCRIPTION :	7.4*3.4mm 3 pads SMD ceramic resonator			
NOMINAL FREQ.:	315.000MHz			
WTL P/N:	WTL6A35220PZ			
VERSION:	1			
DATE:	2019.09.29			
Customer	Customer P/N			
MICROS sp.j.	/			
Customer Signature	WTL			
	Approved by: <i>Kevin Liu</i>			
	Checked by: <i>Shu Ping</i>			
	Issued by: <i>Shengbiao</i>			
<b>REVISION HISTORY</b>				
Revised	Revision	Date	Ref. No.	Reviser



**P/N: WTL6A35211PZ**  
**7.4\*3.4mm 3 pads SMD ceramic resonator**



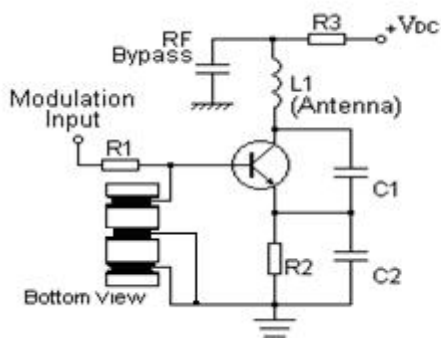
**Features**

- 1-port Resonator
- Ceramic Package for Surface Mounted Technology (SMT)
- RoHS compatible
- Package size 7.4\*3.4\*1.8mm<sup>3</sup>
- Package Code QCC3A
- Electrostatic Sensitive Device(ESD)

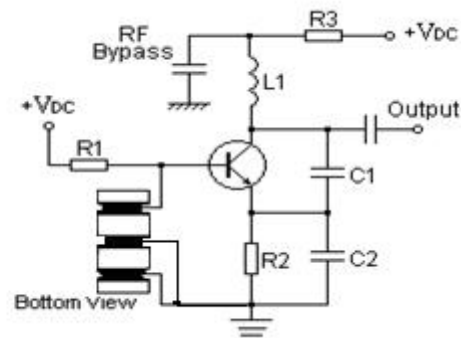


**Application**

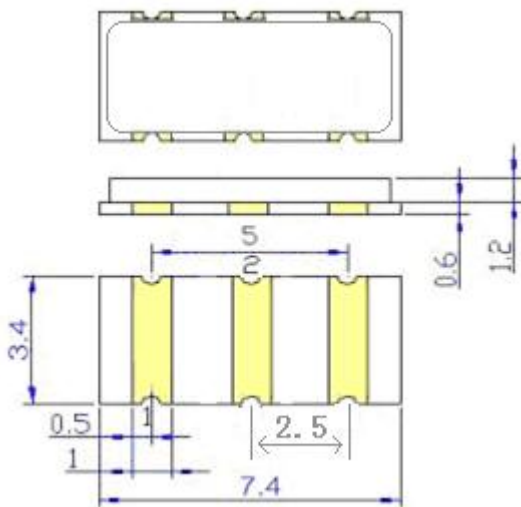
Typical Low-Power Transmitter Application



Typical Local Oscillator Application



**Package Dimensions**



**Pin Configuration**

<b>1</b>	Input/ Output
<b>3</b>	Output/input
<b>2</b>	Case Ground

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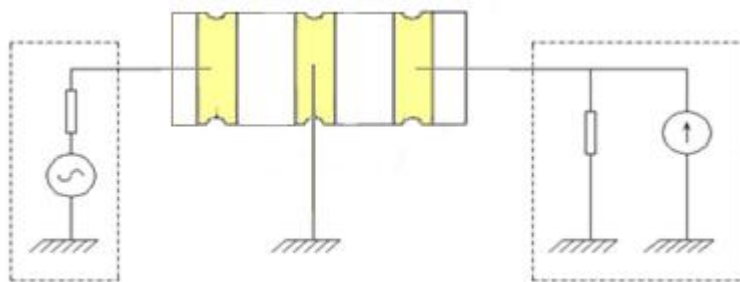


**Marking**

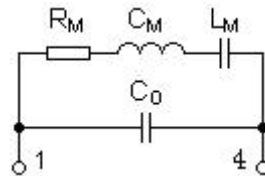


<b>R</b>	SAW Resonator
<b>315</b>	Part number

**Test Circuit**



**Equivalent LC Model**



**Performance**

**Maximum Rating**

Item		Value	Unit
DC Voltage	$V_{DC}$	$\pm 30$	V
Operation Temperature	T	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +85	°C
RF Power Dissipation	P	15	dBm

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**Electronic Characteristics**

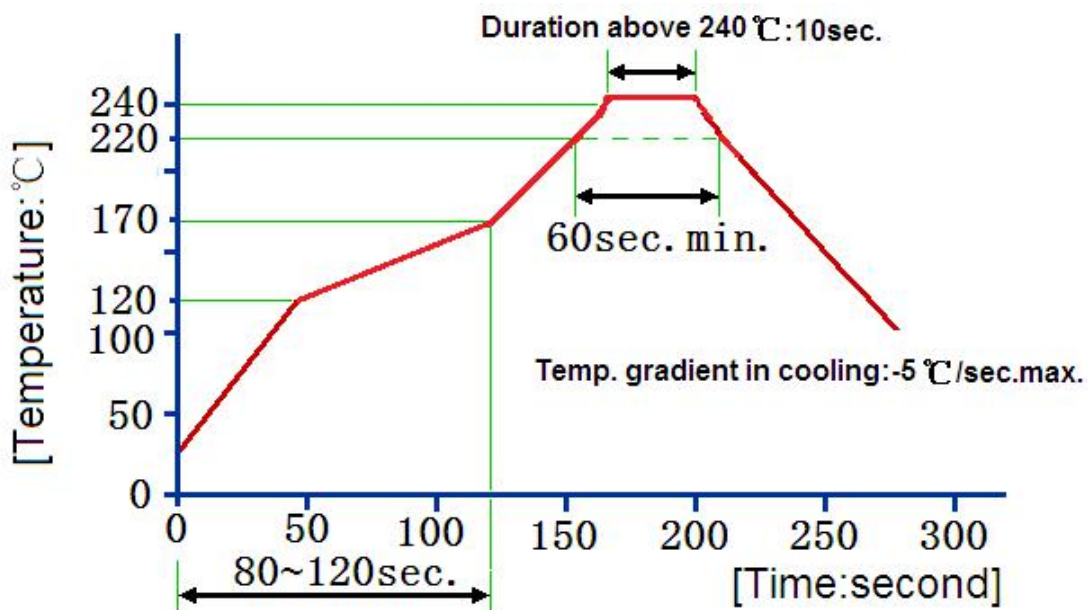
Test Temperature: 25°C ± 2°C  
 Terminating source impedance: 50Ω  
 Terminating load impedance: 50Ω

Item		Minimum	Typical	Maximum	Unit	
Center Frequency	Absolute Frequency	$f_c$	314.925	315.00	315.075	MHz
	Tolerance from 433.920MHz	$\Delta f_c$		± 75		KHz
Insertion Loss(min)		IL		1.6	2.0	dB
Quality Factor	Unloaded Q	$Q_U$		13991		
	50Ω Loaded Q	$Q_L$		2605		
Frequency Aging	Absolute Value during the First Year	$ f_A $		≤ 10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			M Ω
RF Equivalent RLC Model	Motional Resistance	$R_M$		22.8	26	Ω
	Motional Inductance	$L_M$		161.8		μH
	Motional Capacitance	$C_M$		1.57		fF
	Pin 1 to Pin 2 Static Capacitance	$C_0$		3.2		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: $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , 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 : $2 \pm 0.5\text{h}$

**Recommended Reflow Soldering Diagram**



**Reflow cycles:3 cycles max.**

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**Notes**

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

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**WTL PART NUMBER SYSTEM :**

For example: WTL6R25835CH

[Instructions: for project management, WTL will trace back the part number to developer wherever it goes]

WTL - 6R - 25835 - CH

WTL: Brand

6R : Package Code

25835: Serial number , flow code , without any rules

CH: WTL Developer Code, for example: VH,CH,PZ,RZ,ML