

# 深圳市维拓精电科技有限公司

## WTL International Limited

### APPROVAL SHEET

DESCRIPTION :	3.2*2.5mm 4 Pads SMD Crystal Oscillator			
NOMINAL FREQ.:	50.000MHz			
WTL P/N:	WTL3L55190CG			
VERSION:	1			
DATE:	2020.02.20			
Customer	Customer P/N			
IBS Technology	/			
Customer Signature	WTL			
	Approved by: <i>Kavin Liu</i>			
	Checked by: <i>Shu Ping</i>			
	Issued by: <i>Shengbia</i>			
<b>REVISION HISTORY</b>				
Revised Page	Revision Content	Date	Ref. No.	Reviser



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Attachment(s):

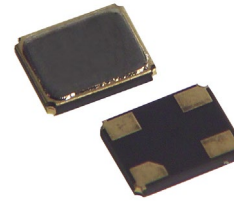
- 1.Product Specification Sheet
- 2.Electrical Testing Report
- 3.Reliability Report
- 4.ICP Test Report (SGS)

**FEATURE**

- Typical 3.2x2.5 ceramic SMD package
- Tight symmetry (45 to 55%) available
- Realize the standby function with Tri-state

**APPLICATIONS**

- xDSL, WLAN, Fiber / 10Gbit Ethernet
- Notebook, PDA
- PC main board, VGA card

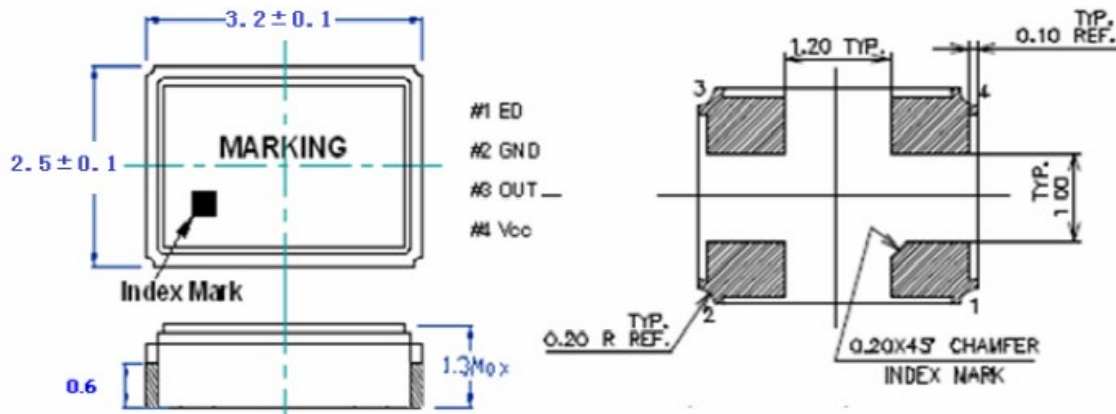


**1、 ELECTRICAL SPECIFICATIONS**

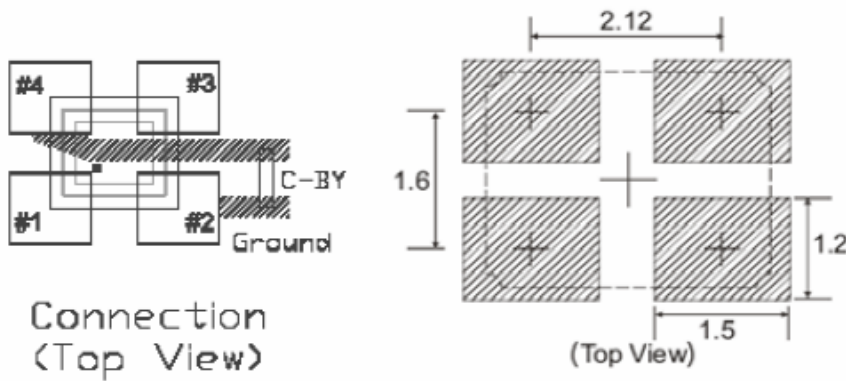
Parameter		Min.	Typ.	Max.	Units	Test Condition
1.1	Nominal Frequency	50.000			MHz	
1.2	Frequency stability	-25		+25	ppm	
	Frequency stability vs. operating temperature	-25		+25	ppm	
	Aging	-3		+3	ppm	Frequency drift in first year
1.3	Operating Temperature Range	-40		+85	°C	The operating temperature range over which the frequency stability is measured
1.4	Storage Temperature Range	-55		+125	°C	
1.5	Supply voltage	2.97	3.3	3.63	V	
1.6	Current			10	mA	At maximum supply voltage
1.7	Output waveform	HCMOS				
1.8	Duty Cycle	45	50	55	%	
1.9	Start Time			5	mSec	
1.10	Transition Time :Rise/Fall Time			10	nSec	
1.11	Output Level CMOS	Out High(Logic"1")	2.97		V	
		Out Low(Logic"0")			0.33	V
1.12	Output Load			15	pF	
1.13	Tri-State	Output Active	2.31		V	Pin 1 Tri-state
		Output in High-Impedance state			0.99	V
1.14	Standby current			15	μA	

**REMARK:** SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. PLEASE CONFIRM WITH OUR SALES ENGINEER.

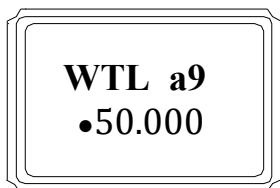
## 2、DIMENSIONS (Unit: mm)



### SUGGEST LAND PATTERN



## 3、MARKING

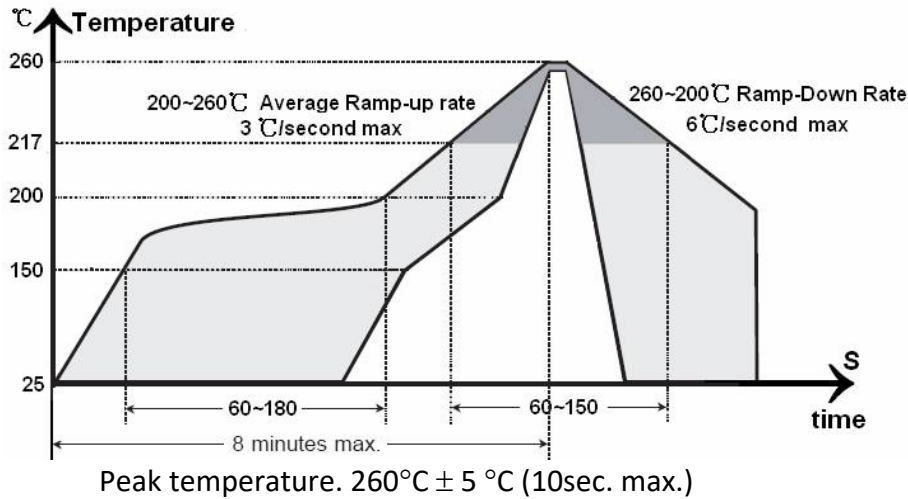


- WTL → Brand Logo
- 50.000 → Frequency ( MHz )
- a → Week ( a、b、c...z、A、B、C...Y、Z ,from 1 to 52week )
- 9 → YEAR (8=2018year, 9=2019year, 0=2020year....)

### Marking Instruction :

The date code was marked on the crystal body, which will be easily traced back in case of quality issue.

#### 4、 SUGGESTED REFLOW PROFILE



#### 5、 RELIABILITY SPECIFICATIONS

Item	Conditions	Result
Low Temp. Storage (MIL-STD-883)	Put the crystal into the -40°C±2°C constant temperature box for 500±2 H, Measurement taken after 2 hour.	ΔF ≅ ±5 PPM
High Temp. Storage (MIL-STD-883)	Put the crystal into the +100°C±2°C constant temperature box for 500±2 H, Measurement taken after 2 hour.	ΔF ≅ ±5 PPM
High Temp & Humidity (JIS C5023)	Put the crystal into the constant temperature & humid with the temperatures 85°C±3°C and the humidity 98% for 500±2 H. Measurement taken after 2 hour.	ΔF ≅ ±5 PPM
Thermal Shock (MIL-STD-883)	Put the crystal into the constant temperature-55°C±2°C for 30±1M, then change the temperature to +85°C±2°C for 30±1M, the total is 100times. Measurement taken after 2 hour.	ΔF ≅ ±5 PPM
Resistance To Soldering Heat (MIL-STD-202)	Passed through the re-flow oven under the following condition. Preheat to 150°C±5°C for 60 to 120sec, and peak 265°C±5°C for 10s±3sec. Measurement taken after DUT being left at room temperature for at 24±2 hours	ΔF ≅ ±5 PPM
Drop Test (JIS C6701)	The crystal fall off the cement floor with the height 100cm±5cm for 3 times . Measurement taken after 2 hour.	ΔF ≅ ±5 PPM
Vibration Test (MIL-STD-883)	Apply 0.75mm vibration at sweep frequency 10~500 Hz, for 2h. 10 cycles in each direction of 3 axis. Measurement taken after 2 hour.	ΔF ≅ ±5 PPM
Shock MIL-STD-202F	Peak 1000m/s <sup>2</sup> , normal width 6ms half sine wave form, 3.7m/s, 3 perpendicular axis of samples, 3 cycles / direction, total 18 cycles. Measurement taken after 2 hour.	ΔF ≅ ±5 PPM
Fine Leak (MIL-STD-883)	Helium Bombing 4.5kgf/cm <sup>2</sup> for 2 hr	Less than 1*10 <sup>-8</sup> atm.c.c./sec, Helium
Solderability	In 245 ± 5°C solder bath for 2 ± 0.5 seconds. 8-12X magnifier.	Terminals shall be covered more then 95% with solder.

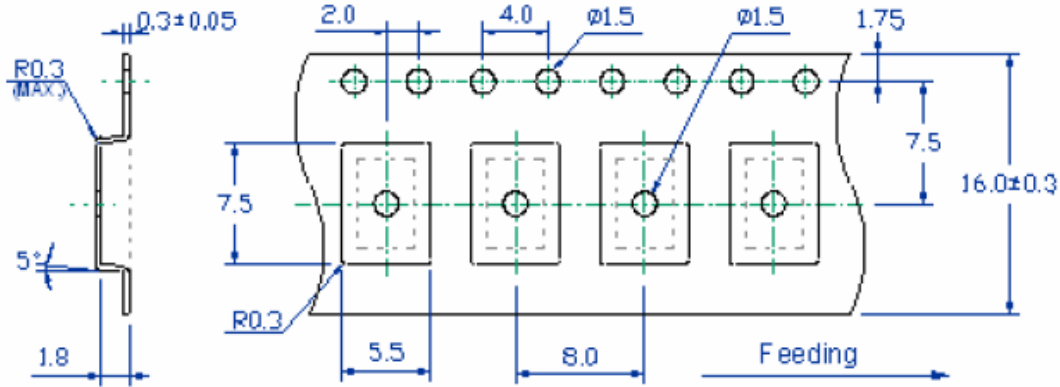
## 6、SUBSTANCES IN PRODUCT

Drawing number	Homogeneous Material Name.	Disassembly Unit/component description	Substance Name	CAS No.	Substance Mass. (mg)	Content Rate(%)per
3225 OSC	Crystal blank	Quartz	SiO <sub>2</sub>	14808-60-7	0.9735	100.00%
	Electrode	Electrode	Ag	7440-22-4	2.6550	100.00%
	Package	Ceramic	Al <sub>2</sub> O <sub>3</sub>	1344-28-1	12.1677	66.11%
			Mn <sub>2</sub> O <sub>3</sub>	1317-34-6	0.4050	2.20%
			SiO <sub>2</sub>	7631-86-9	0.0736	0.40%
			MgO	1309-48-4	0.8082	4.39%
			MoO <sub>3</sub>	1313-27-5	0.0736	0.40%
			Electric conductor	Tungsten-W	7440-33-7	1.1045
		Mo		7439-98-7	0.0368	0.20%
		Brazing material	Silver-Ag	7440-22-4	0.3313	1.80%
			Copper-Cu	7440-50-8	0.1289	0.70%
		Kovar ring	Iron-Fe	7439-89-6	1.6015	8.70%
			Nichel-Ni	7440-02-0	0.8652	4.70%
			Cobalt-Co	7440-48-4	0.5154	2.80%
		Ni plating	Nickel-Ni	7440-02-0	0.1841	1.00%
			Cobalt-Co	7440-48-4	0.0736	0.40%
		Au plating	Gold-Au	7440-57-5	0.0368	0.20%
	Alloy	Lid	Iron	7439-89-6	2.0728	53.23%
			Nickel	7440-02-0	1.1483	29.49%
			Cobalt	7440-48-4	0.6526	16.76%
			Mn	7439-96-5	0.0152	0.39%
			Silicone Si	7440-21-3	0.0031	0.08%
			Copper Cu	7440-50-8	0.0019	0.05%
	Conduct Adhesive	Conduct Adhesive	Ag	7440-22-4	0.6195	70.00%
			Pd	7440/5/3	0.0443	5.00%
			C <sub>11</sub> H <sub>24</sub>	1120-21-4	0.0885	10.00%
			C <sub>12</sub> H <sub>26</sub>	112-40-3	0.0443	5.00%
			SiO <sub>2</sub>	7631-86-9	0.0885	10.00%
	Connect	Gold Wire	Gold-Au	7440-57-5	1.0195	100.00%
	IC	IC	Silicon Si	7440-21-3	0.0423	99.65%
Al			7429-90-5	0.0001	0.34%	

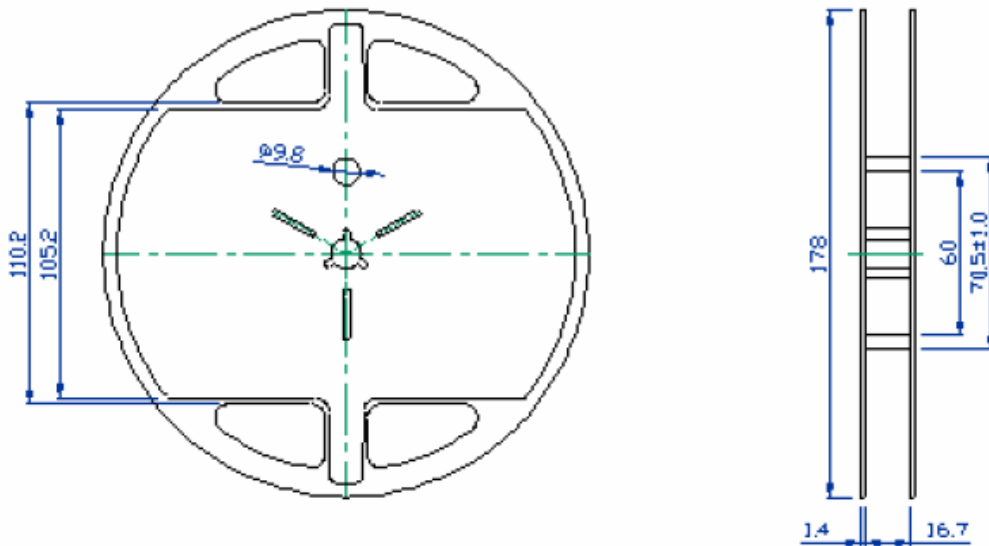
All the products we provide meet the requirements of RoHS and Reach regulations, and we send SGS for ICP test every year.

### 7、PACKING SPECIFICATIONS (Unit: mm)

TAPE SPECIFICATION:



OUTLINE DIMENSION:



Q'ty: 3000pcs/Reel

## **8、WTL PART NUMBER SYSTEM :**

For example: WTL3K26106CH

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

WTL - 3K - 26106 - CH

**WTL**: Brand

**3K** : Package Code

**26106**: Serial number , flow code , without any rules

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