深圳市维拓精电科技有限公司
WTL International Limited

APPROVAL SHEET

DESCRIPTION :	7.0*5.0mm 4 Pads SMD Crystal Oscillator
NOMINAL FREQ.:	8.000MHz
WTL P/N:	WTL7K85435FO
VERSION:	1
DATE:	2022.10.13
Customer	Customer P/N
Promelectronica	
Customer Signature	**WTL**
	Approved by: Kavin Liu
	Checked by: Shu Ping
	Issued by: colin zhan

REVISION HISTORY

Revised Page	Revision Content	Date	Ref. No.	Reviser

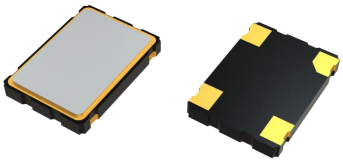
CONTENT CATALOG

Attachment(s):

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

FEATURE

- Typical 7.0×5.0×1.3mm ceramic SMD package
- Operation voltage : 1.8V , 2.5V , 3.3V
- Tri-state enable / disable
- Output frequency up to 166MHZ
- RoHS compliant / Pb free

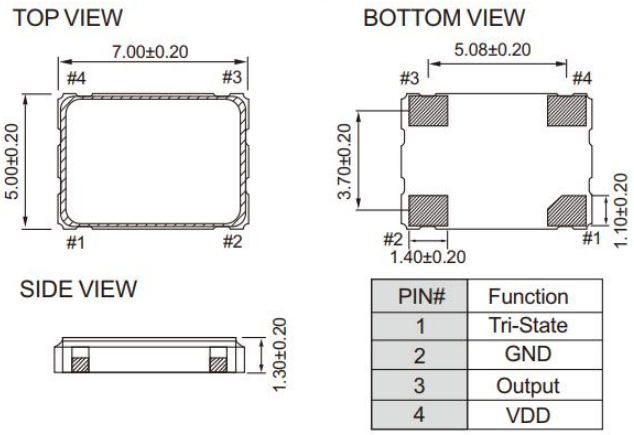


1、ELECTRICAL SPECIFICATIONS

	Parameter		Min.	Typ.	Max.	Units	Test Condition
1.1	Nominal Frequency			8.000		MHz	Mode of Oscillation /3 Overtone
1.2	Frequency stability		-100		+100	ppm	Inclusive of operating temperature range supply voltage and load
	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				35	mA	At maximum supply voltage
1.7	Output waveform			CMOS			
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	RMS Phase Jitter				1	pSec	Integrated 12KHz to 20MHz

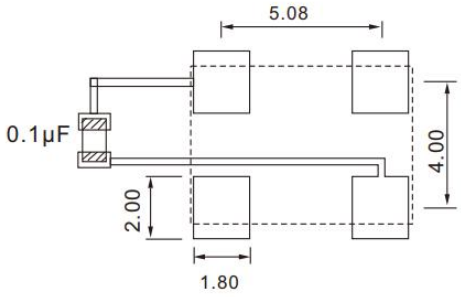
REMARK: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. PLEASE CONFIRM WITH OUR SALES ENGINEER.

2、DIMENSIONS (Unit: mm)



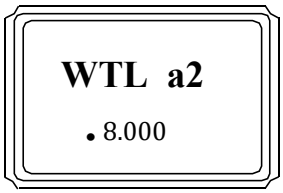
PIN#	Function
1	Tri-State
2	GND
3	Output
4	VDD

Solder Pad Layout (mm)



To ensure optimal oscillator performance, place a by-pass capacitor of 0.1 μF as close to the part as possible between Vdd and GND pads.

3、MARKING

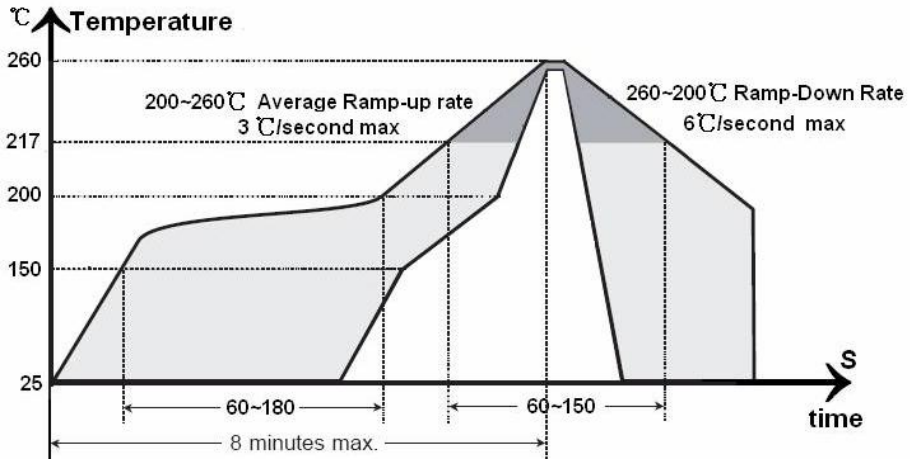


WTL ⟶ Brand Logo
8.000 ⟶ Frequency (MHz)
a ⟶ Week (a、b、c...z、A、B、C...Y、Z ,from 1 to 52week)
2 ⟶ YEAR (1=2021year, 2=2022year, 9=2029year....)

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



Peak temperature. 260°C ± 5 °C (10sec. max.)

5、RELIABILITY SPECIFICATIONS

Item	Conditions	Result
Low Temp. Storage (MIL-STD-883)	Put the crystal into the -40℃±2℃ constant temperature box for 500±2 H , Measurement taken after 2 hour.	△F≦±5 PPM
High Temp. Storage (MIL-STD-883)	Put the crystal into the +100 ℃ ±2 ℃ constant temperature box for 500±2 H, Measurement taken after 2 hour.	△F≦±5 PPM
High Temp & Humidity (JIS C5023)	Put the crystal into the constant temperature & humid with the temperatures 85 ℃ ±3 ℃ and the humidity 98% for 500±2 H. Measurement taken after 2 hour.	△F≦±5 PPM
Thermal Shock (MIL-STD-883)	Put the crystal into the constant temperature-55 ℃ ±2 ℃ for 30±1M, then change the temperature to +85 ℃ ±2 ℃ for 30±1M, the total is 100times. Measurement taken after 2 hour.	△F≦±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	△F≦±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.	△F≦±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.	△F≦±5 PPM
Shock MIL-STD-202F	Peak 1000m/s2, 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.	△F≦±5 PPM
Fine Leak (MIL-STD-883)	Helium Bombing 4.5kgf/cm2 for 2 hr	Less than 1*10^-8atm.c.c./sec, Helium
Solderability	In 245 ± 5℃ solder bath for 2 ± 0.5 seconds. 8-12X magnifier.	Terminals shall be covered more then

		95% with solder.

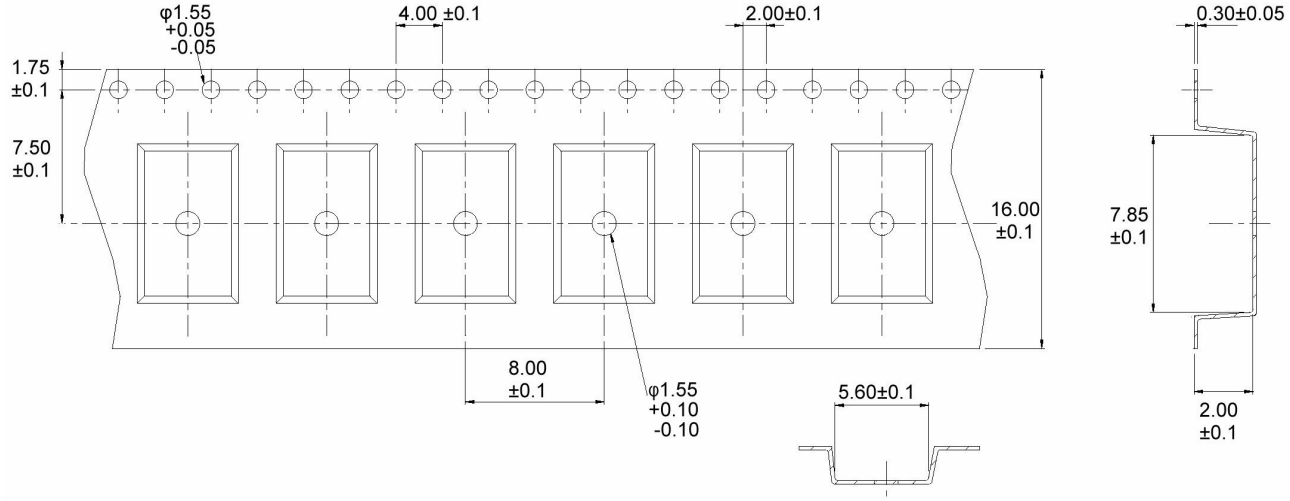
6、SUBSTANCES IN PRODUCT (weigh:157.5mg)

Drawing number	Homogeneous Material Name.	Disassembly Unit/component description	Substance Name	CAS No.	Substance Mass. (mg)	Content Rate(%)per
7050 OSC	Crystal blank	Quartz	SiO_2	14808-60-7	5.5000	100.00%
	Electrode	Electrode	Ag	7440-22-4	15.0000	100.00%
	Package	Ceramic	Al_2O_3	1344-28-1	68.7440	66.10%
			Mn_20_3	1317-34-6	2.2880	2.20%
			SiO_2	7631-86-9	0.4160	0.40%
			MgO	1309-48-4	4.5660	4.39%
			MoO_3	1313-27-5	0.4160	0.40%
		Electric conductor	Tungsten-W	7440-33-7	6.2400	6.00%
			Mo	7439-98-7	0.2080	0.20%
		Brazing material	Silver-Ag	7440-22-4	1.8720	1.80%
			Copper-Cu	7440-50-8	0.7280	0.70%
		Kovar ring	Iron-Fe	7439-89-6	9.0480	8.70%
			Nichel-Ni	7440-02-0	4.8880	4.70%
			Cobalt-Co	7440-48-4	2.9120	2.80%
		Ni plating	Nickel-Ni	7440-02-0	1.0400	1.00%
			Cobalt-Co	7440-48-4	0.4160	0.40%
		Au plating	Gold-Au	7440-57-5	0.2080	0.20%
	Alloy	Lid	Iron	7439-89-6	11.7106	53.23%
			Nickel	7440-02-0	6.4878	29.49%
			Cobalt	7440-48-4	3.6872	16.76%
			Mn	7439-96-5	0.0858	0.39%
			Silicone Si	7440-21-3	0.0176	0.08%
			Copper Cu	7440-50-8	0.0110	0.05%
	Conduct Adhesive	Conduct Adhesive	Ag	7440-22-4	3.5000	70.00%
			Pd	7440/5/3	0.2500	5.00%
			$C_{11}H_{24}$	1120-21-4	0.5000	10.00%
			$C_{12}H_{26}$	112-40-3	0.2500	5.00%
			SiO_2	7631-86-9	0.5000	10.00%
	Connect	Gold Wire	Gold-Au	7440-57-5	5.7600	100.00%
	IC	IC	Silicon Si	7440-21-3	0.2392	99.65%
			Al	7429-90-5	0.0008	0.34%

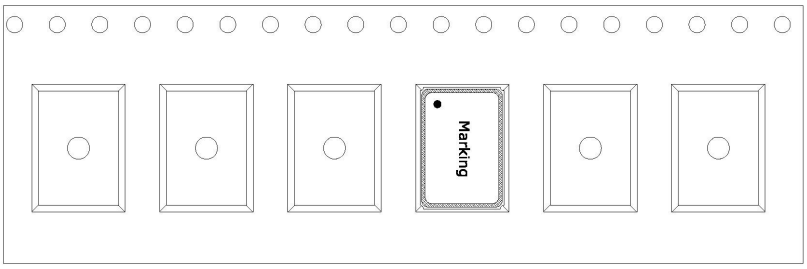
All the products we provide meet the requirements of RoHS and Reach regulations, and we send SGS for ICP test every year.

7、PACKING SPECIFICATIONS (Unit: mm)

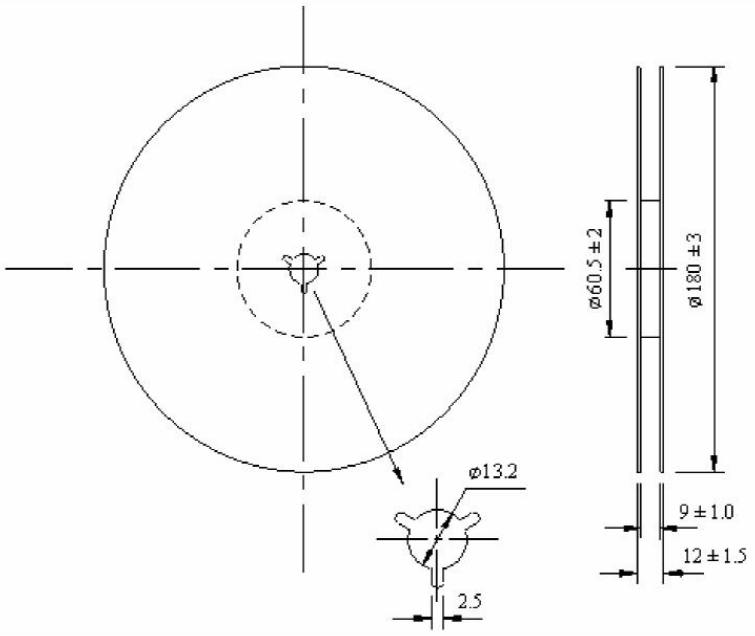
TAPE SPECIFICATION:



THE DIRECTION OF PACKING:



OUTLINE DIMENSION:



Q'ty: 1000pcs/Reel

8、WTL PART NUMBER SYSTEM ：

For example: WTL7K85435FO

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

WTL - 7K - 85435 - FO

WTL： Brand

8M ： Package Code

85435: Serial number , flow code , without any rules

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