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

APPROVAL SHEET

DESCRIPTION :	5.0*3.2mm 4 Pads SMD Quartz Crystal
NOMINAL FREQ.:	8.000 Mhz
WTL P/N:	WTL5M85611FO
VERSION:	1
DATE:	2023.04.18
Customer	Customer P/N
	/
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

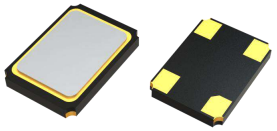
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Attachment(s):

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

FEATURE

- Size 5.0×3.2 ， thickness 0.9mm
- High precision and high frequency stability
- Excellent heat resistance and environmental characteristics
- Designed for automatic mounting and reflow soldering
- RoHS Compliant / Pb Free

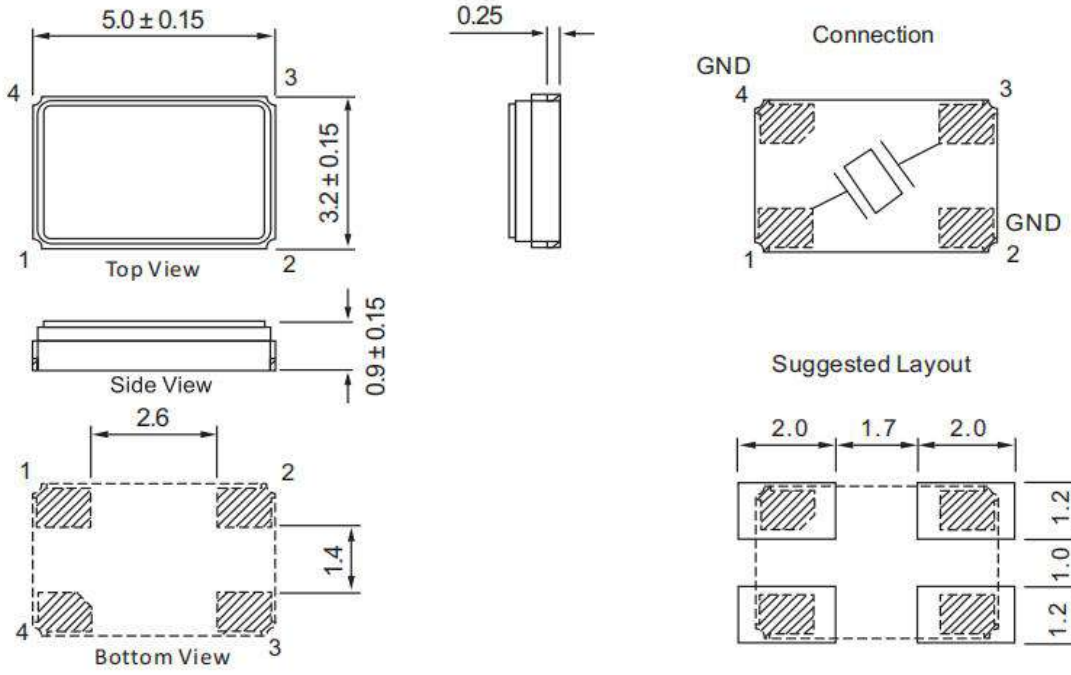


1、ELECTRICAL SPECIFICATIONS

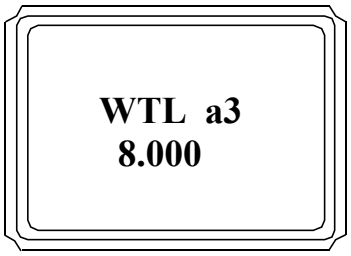
Hold Style	5032 Seam
Nominal Frequency	8.000 Mhz
Mode	Fundamental / AT
Frequency Tolerance (at 25°C)	±20ppm
Frequency Stability Over Operating Temperature Characteristics	±50ppm
Operating Temperature Range	-20℃ ~ +70℃
Storage Temperature Range	-55℃ ~ +125℃
Shunt Capacitance (C_0)	5.0pF Max
Driver Level (Typical)	100μW
Load Capacitance(C_L)	18pF
ESR	60Ω Max
Insulation Resistance	More than 500Mohms at DC100V
Aging @25°C 1st year (Max)	±3ppm/year

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

2、DIMENSIONS (Unit: mm)



3、MARKING

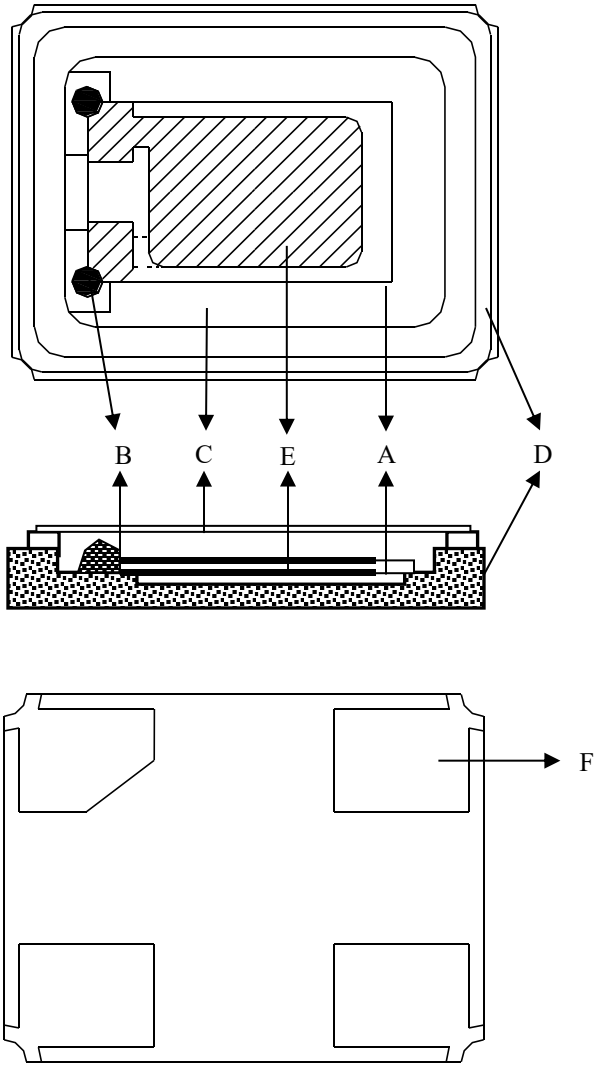


WTL ⟶ Brand Logo
8.000 ⟶ Frequency (MHz)
a ⟶ Week (a、b、c...z、A、B、C...Y、Z ,from 1 to 52week)
3 ⟶ YEAR (1=2021year, 2=2022year, 9=2029year....)

Marking Instruction:

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

4、STRUCTURE ILLUSTRATION

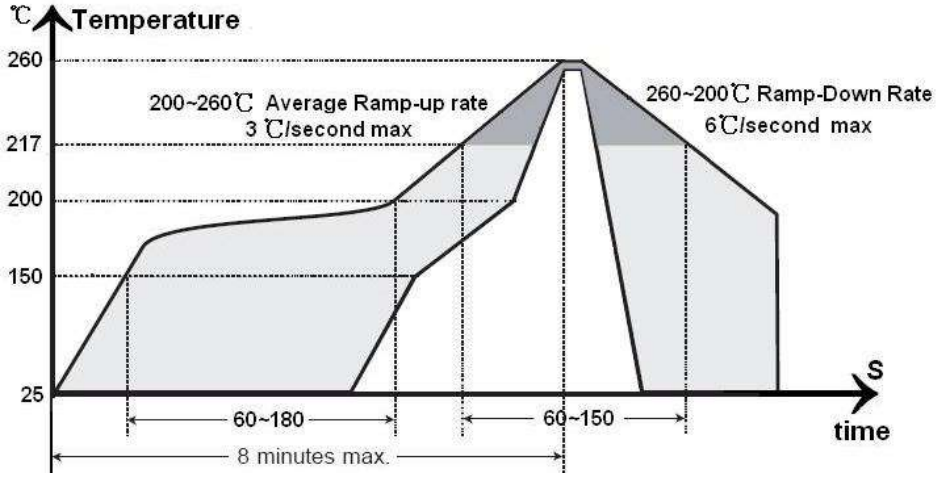


Parts		Material	QTY	COLOR
A	Blank	Mostly SiO2	1	White
B	Conductive paste	Ag:80%, silicone resin 10%	2	Greyish
C	Lid	Fe:52~56%,Ni:16~18%,Co:28~30%	1	Silvery
D	Package	Ceramic	1	Brown
E	Plating(blank)	Ag:99.99%	2	Silvery
F	Pad	Cu:6.6%,Au:0.2%,Fe:56%,Ni:18%	4	Golden

5、RELIABILITY SPECIFICATIONS

Item	Conditions	Result
Low Temp. Storage	Put the crystal into the -40℃±2℃ constant temperature box for 500±2 H , Measurement taken after 2 hour.	△F≦±5 PPM △RR≦±5 ohms
High Temp. Storage	Put the crystal into the +100℃±2℃ constant temperature box for 500±2 H, Measurement taken after 2 hour.	△F≦±5 PPM △RR≦±5 ohms
High Temp & Humidity	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 △RR≦±5 ohms
Thermal Shock	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 △RR≦±5 ohms
Resistance To Soldering Heat	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 △RR≦±5 ohms
Drop Test	The crystal fall off the cement floor with the height 100cm±5cm for 3 times. Measurement taken after 2 hour.	△F≦±5 PPM △RR≦±5 ohms
Vibration Test	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 △RR≦±5 ohms
Shock	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 △RR≦±5 ohms
Fine Leak	Helium Bombing 4.5kgf/cm2 for 2 hr	Less than 1*10^-8atm.c.c./sec, Helium
Solder ability	In 245 ± 5℃ solder bath for 2 ± 0.5 seconds. 8-12X magnifier.	Terminals shall be covered more then 95% with solder.

6、SUGGESTED REFLOW PROFILE



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

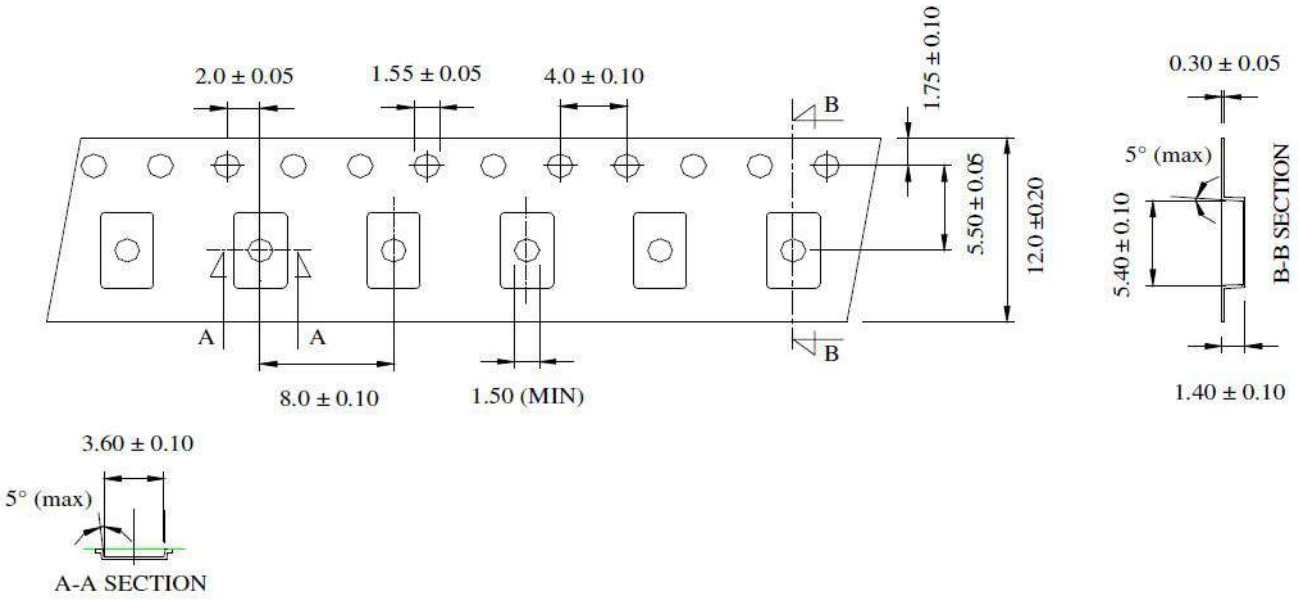
7、SUBSTANCES IN PRODUCT

Drawing number	Disassembly Unit/component description	Homogeneous Material Name.	Substance Name	CAS No.	Substance Mass. (mg)	Content Rate(%)per
SMD5032	Crystal blank	Quartz	SiO_2	14808-60-7	1.0131	100.00%
	Electrode	Electrode-Ag	Ag	7440-22-4	0.2332	100.00%
	Package	Ceramics	Al_2O_3	1344-28-1	32.6582	90.00%
			Mn_20_3	1317-34-6	1.4515	4.00%
			SiO_2	7631-86-9	1.4515	4.00%
			MoO_3	1313-27-5	0.3629	1.00%
			MgO	1309-48-4	0.3629	1.00%
		Kovar ring	Fe	7439-89-6	0.4227	53.00%
			Ni	7440-02-0	0.2313	29.00%
			Co	7440-48-4	0.1436	18.00%
		Plate	Au	7440-57-5	0.2273	19.00%
			Ni	7440-02-0	0.9690	81.00%
		Metallizing	Mo	7439-98-7	0.3988	100.00%
		Solder	Ag	7440-22-4	0.8494	71.00%
			Cu	7440-50-8	0.3469	29.00%
	Lid	Kovar	Fe	7439-89-6	13.5809	48.50%
			Ni	7440-02-0	9.8006	35.00%
			Co	7440-48-4	4.4803	16.00%
			Mn	7439-96-5	0.1400	0.50%
	Conduct Adhesive	siliver adhesive	Ag	7440-22-4	0.6134	70.00%
			Pd	7440-05-3	0.0438	5.00%
			$C_{11}H_{24}$	1120-21-4	0.0876	10.00%
			$C_{12}H_{26}$	112-40-3	0.0438	5.00%
			SiO_2	7631-86-9	0.0876	10.00%

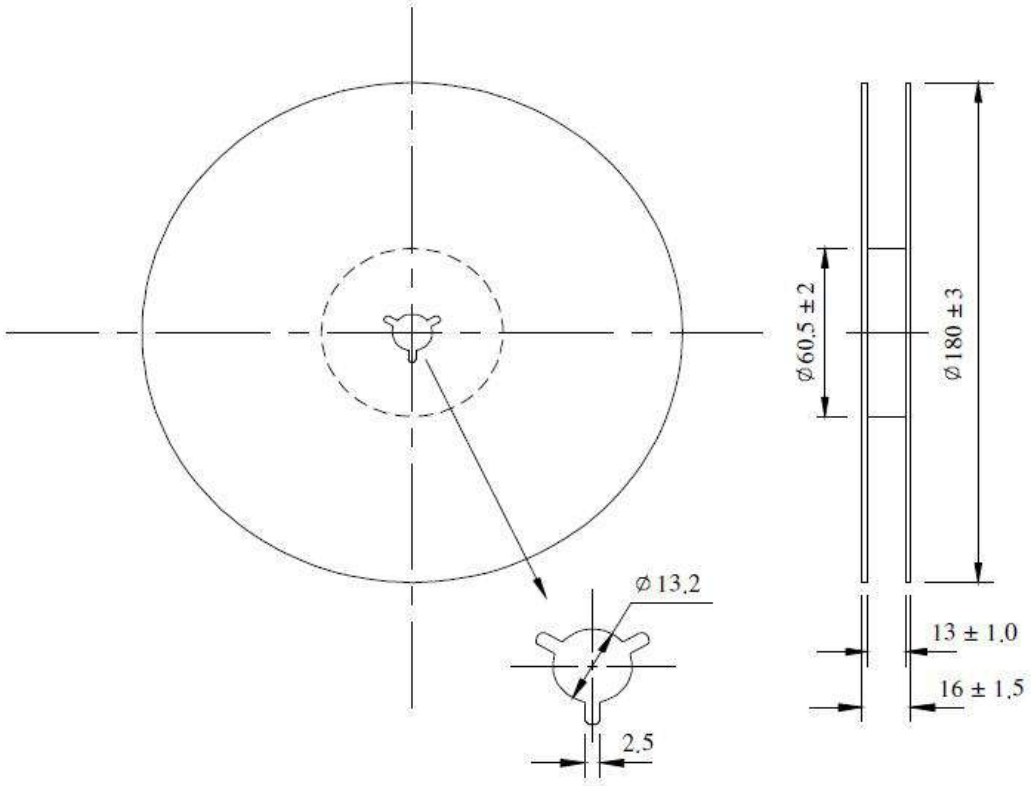
All the products we provide meet the requirements of RoHS and Reach regulations, and we send SGS for ICP test every year.

8、PACKING SPECIFICATIONS (Unit: mm)

TAPE SPECIFICATION：



OUTLINE DIMENSION



Q'ty: 1000pcs/Reel

9、WTL PART NUMBER SYSTEM ：

For example: WTL5M85611FO

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

WTL - 5M - 85611 - FO

WTL： Brand

5M ： Package Code

85611: Serial number , flow code , without any rules

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