

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

APPROVAL SHEET

DESCRIPTION :	5.0*3.2mm 2 Pads SMD Quartz Crystal			
NOMINAL FREQ.:	8.000000MHz			
WTL P/N:	WTL5G85595FO			
VERSION:	2			
DATE:	2023.04.18			
Customer	Customer P/N			
	/			
Customer Signature	WTL			
	Approved by: <i>Kavin Liu</i>			
	Checked by: <i>Shu Ping</i>			
	Issued by: <i>colin zhan</i>			
REVISION HISTORY				
Revised Page	Revision Content	Date	Ref. No.	Reviser



CONTENT CATALOG

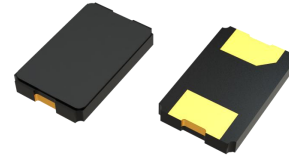
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Attachment(s):

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

FEATURE

- 2 pads SMD glass sealed crystal units
- High reliable environmental performance
- Tight tolerance and stability parts are available
- Designed for automatic mounting and reflow soldering
- Contains Pb in sealing glass exempted by RoHS directive

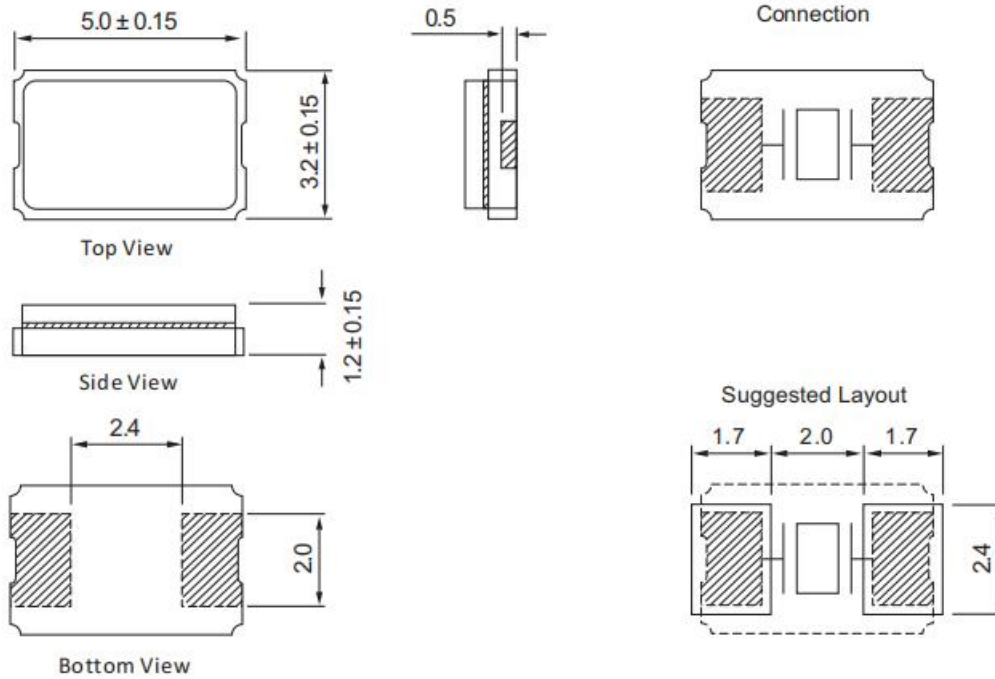


1、 ELECTRICAL SPECIFICATIONS

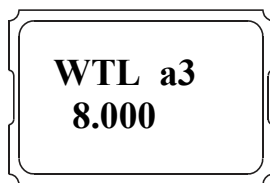
Hold Style	5032 Glass
Nominal Frequency	8.000000MHz
Mode	Fundamental / AT
Frequency Tolerance (at 25°C)	±20ppm
Frequency Stability Over Operating Temperature Characteristics	±30ppm
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-55°C ~ +125°C
Shunt Capacitance (C ₀)	5.0pF Max
Driver Level (Typical)	100μW
Load Capacitance(C _L)	18pF
ESR	60Ω Max
Insulation Resistance	More than 500Mohms at DC100V
Aging @25°C 1 st year (Max)	±3ppm/year

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

2、DIMENSIONS (Unit: mm)



3、MARKING

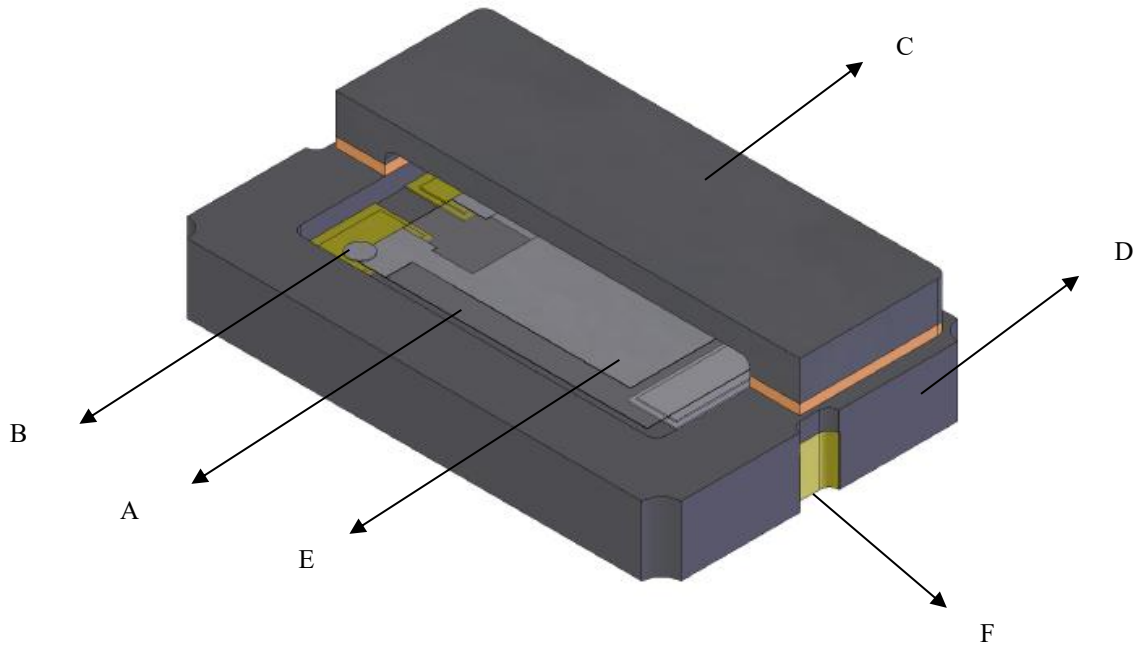


- WTL → Brand Logo
- 8.000 → Frequency (MHz)
- a → Week (a, b, c...z, A, B, C...Y, Z, from 1 to 52week)
- 3 → YEAR (1=2021year, 2=2022year, 9=2029year....)

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

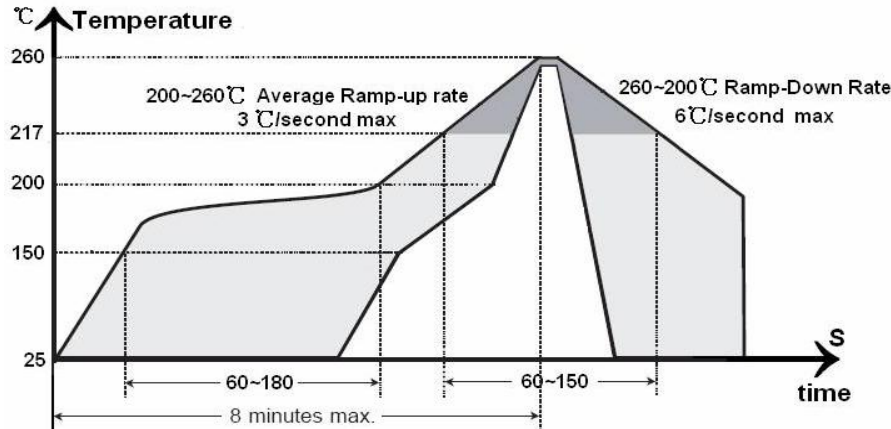


Parts		Material	QTY	COLOR
A	Blank	Mostly SiO ₂	1	White
B	Conductive paste	Ag, silicone resin	2	Greyish
C	Lid	Ceramic	1	Brown
D	Package	Ceramic	1	Brown
E	Plating(blank)	Ag	2	Silvery
F	Pad	AuNi	2	Golden

5、RELIABILITY SPECIFICATIONS

Item	Conditions	Result
Low Temp. Storage	Put the crystal into the $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ constant temperature box for 96 ± 2 H , Measurement taken after 2 hour.	$\Delta F \cong \pm 5$ PPM $\Delta RR \cong \pm 15\%$
High Temp. Storage	Put the crystal into the $+100^{\circ}\text{C} \pm 2^{\circ}\text{C}$ constant temperature box for 96 ± 2 H, Measurement taken after 2 hour.	$\Delta F \cong \pm 5$ PPM $\Delta RR \cong \pm 15\%$
High Temp & Humidity	Put the crystal into the constant temperature & humid with the temperatures $85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and the humidity 85% for 96 ± 2 H. Measurement taken after 2 hour.	$\Delta F \cong \pm 5$ PPM $\Delta RR \cong \pm 15\%$
Thermal Shock	Put the crystal into the constant temperature $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 30 ± 1 M, then change the temperature to $+85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 30 ± 1 M, the total is 10times. Measurement taken after 2 hour.	$\Delta F \cong \pm 5$ PPM $\Delta RR \cong \pm 15\%$
Resistance To Soldering Heat	Passed through the re-flow oven under the following condition. Preheat to $150^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 60 to 120sec, and peak $265^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 10 ± 3 sec. Measurement taken after DUT being left at room temperature for at 24 ± 2 hours	$\Delta F \cong \pm 5$ PPM $\Delta RR \cong \pm 15\%$
Drop Test	The crystal fall off the cement floor with the height $75\text{cm} \pm 5\text{cm}$ for 3 times. Measurement taken after 2 hour.	$\Delta F \cong \pm 5$ PPM $\Delta RR \cong \pm 15\%$
Vibration Test	Apply 0.75mm vibration at sweep frequency $10 \sim 500$ Hz, for 2h. 10 cycles in each direction of 3 axis. Measurement taken after 2 hour.	$\Delta F \cong \pm 5$ PPM $\Delta RR \cong \pm 15\%$
Shock	Peak 1000m/s^2 , 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.	$\Delta F \cong \pm 5$ PPM $\Delta RR \cong \pm 15\%$
Fine Leak	Take measurements with a helium Leakage detector.	Less than 1×10^{-3} Pa cm ³ /s Helium
Solder ability	In $245 \pm 5^{\circ}\text{C}$ solder bath for 2 ± 0.5 seconds. 8-12X magnifier.	Terminals shall be covered more than 95% with solder.

6、 SUGGESTED REFLOW PROFILE



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

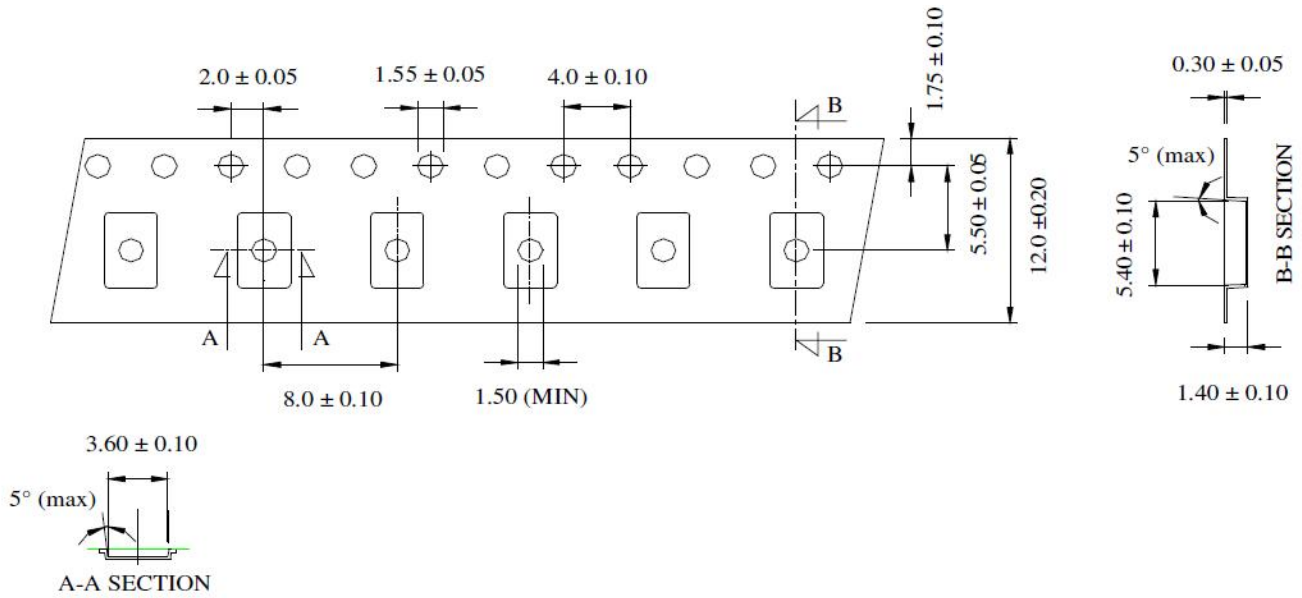
7、 SUBSTANCES IN PRODUCT

Drawing number	Disassembly Unit	Homogeneous Material Name.	Substance Name	CAS No.	Substance Mass. (mg)	Content Rate(%)per	RoHS Compliance
SMD 5032	CAP	Ceramics	Al2O3	1344-28-1	10.53	78%	Pb used in sealing glass material is exempt from EU directive
			TiO2	13463-67-1	0.81	6%	
			Cr2O3	1308-38-9	0.405	3%	
			MnO2	1313-13-9	0.54	4%	
			Co3O4	1308-06-1	0.0972	0.72%	
			SiO2	14808-60-7	0.54	4%	
			MgO	1309-48-4	0.0972	0.72%	
			Fe2O3	1309-37-1	0.405	3%	
		CaO	1305-78-8	0.0972	0.72%		
		Glass	PbO	1317-36-8	3.185	49%	
			PbF2	7783-46-2	1.43	22%	
			Bi2O3	1304-76-3	0.52	8%	
			Nb2O5	1313-96-8	0.39	6%	
			ZnO	1314-13-2	0.39	6%	
	CuO		1317-38-0	0.195	3%		
	PKG	Ceramics	Al2O3	1344-28-1	18	90%	
			Cr2O3	1308-38-9	0.8	4%	
			SiO2	14808-60-7	0.8	4%	
			TiO2	13463-67-1	0.4	2%	
		Plate	Au	7440-57-5	0.24	20%	
Ni			7440-02-0	0.96	80%		
Metallizing		W	7440-33-7	5	100%		
Quartz		Quartz	SiO2	14808-60-7	1.15	100%	
Electrode		Ag	Ag	7440-22-4	0.05	100%	
			Ag	7440-22-4	0.32	80%	
	Conduct Adhesive	silver adhesive	SiO2	14808-60-7	0.06	15%	
		silver adhesive	C11H24	1120-21-4	0.02	5%	

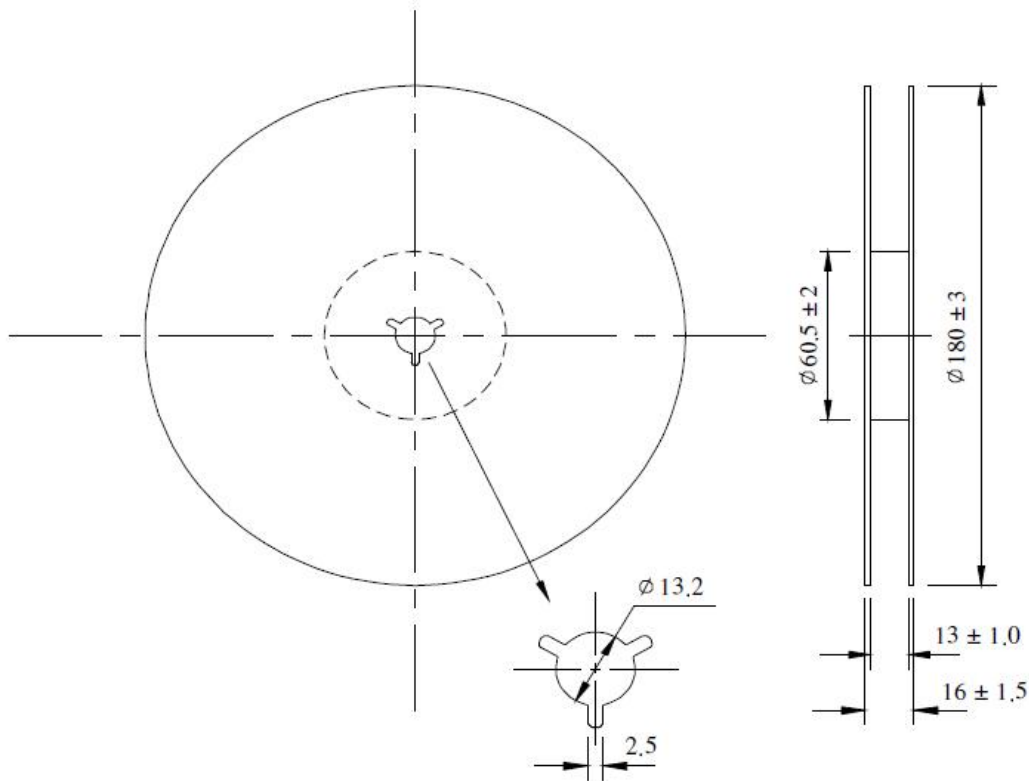
All the products we provide meet the requirements of RoHS and Reach regulations, and we send SGS for ICP test every year.

8、PACKING SPECIFICATIONS (Unit: mm)

TAPE SPECIFICATION:



OUTLINE DIMENSION



Q'ty: 1000pcs/Reel

9、WTL PART NUMBER SYSTEM :

For example: WTL5G85595FO

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

WTL - 5G - 85595- FO

WTL: Brand

5G : Package Code

85595: Serial number , flow code , without any rules

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