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

APPROVAL SHEET

DESCRIPTION :	TX3 SMD3225 4Pin SMT
NOMINAL FREQ.:	16.000000MHz
WTL P/N:	WTL3M01600000009BCF11
VERSION:	1.0
DATE:	2021-03-03
Customer	Customer P/N
Customer Signature	**WTL**
	Approved by:
	Checked by:
	Issued by:

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

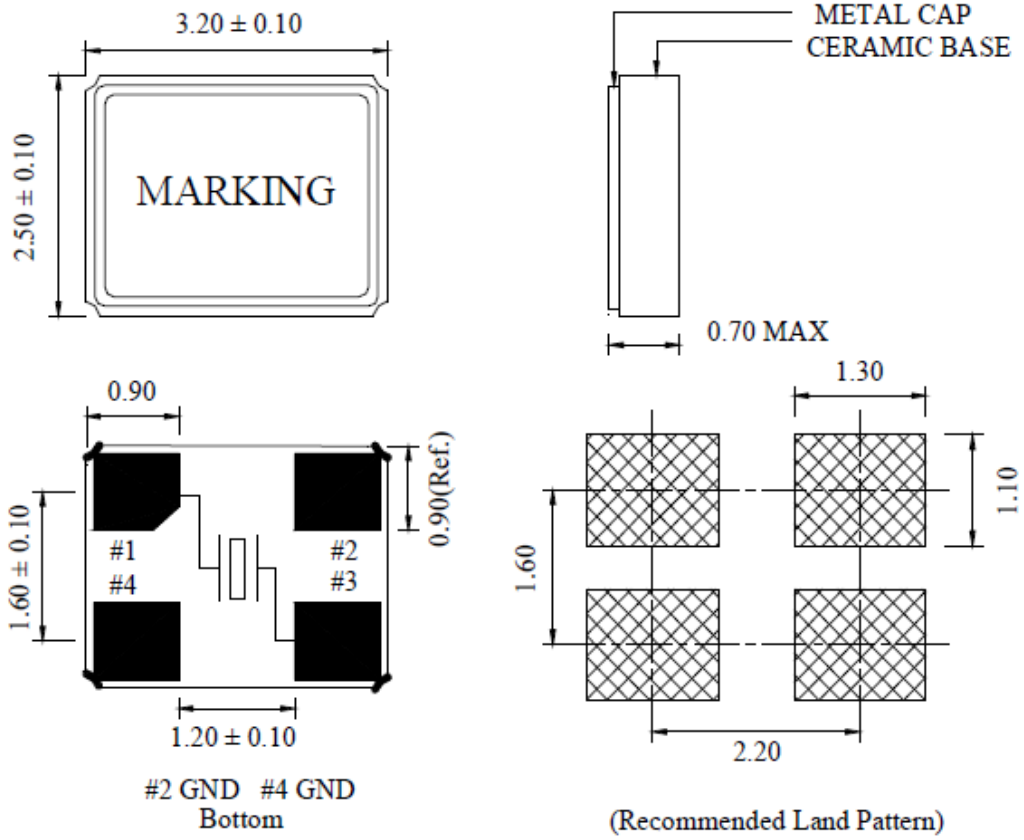
- Ultra thin, thickness 0.7mm
- Leadless type
- High precision characteristic covering up to high frequency range
- Designed for automatic mounting and reflow soldering
- Emboss taping specification
- The best choice of Bluetooth wireless communication sets.DSN,PDA and mobile phone.

1、ELECTRICAL SPECIFICATIONS

Hold Style	SMD3225 Seam Sealing
Nominal Frequency	16.000000MHz
Mode	Fundamental/ AT Cut
Frequency Tolerance (at 25°C)	-10ppm/+10ppm
Frequency Stability Over Operating Temperature Characteristics	-30ppm/+30ppm
Operating Temperature Range	-20℃~+70℃
Storage Temperature Range	-55~+125℃℃
Shunt Capacitance (C_0)	3.0pF
Driver Level (Typical)	50μW
Load Capacitance(C_L)	9.0pF
ESR	80Ω Max
Insulation Resistance	More than 500Mohms at DC100V
Aging @25°C 1st year (Max)	±3.0ppb/year

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

2、DIMENSIONS (Unit: mm)



3、MARKING

WTL	Brand Logo	
16.000000MHz	Frequency (MHz)	
a	Week	(a、b、c...z、A、B、C...Y、Z ,from 1 to 52week)
8	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、STRUCTURE ILLUSTRATION

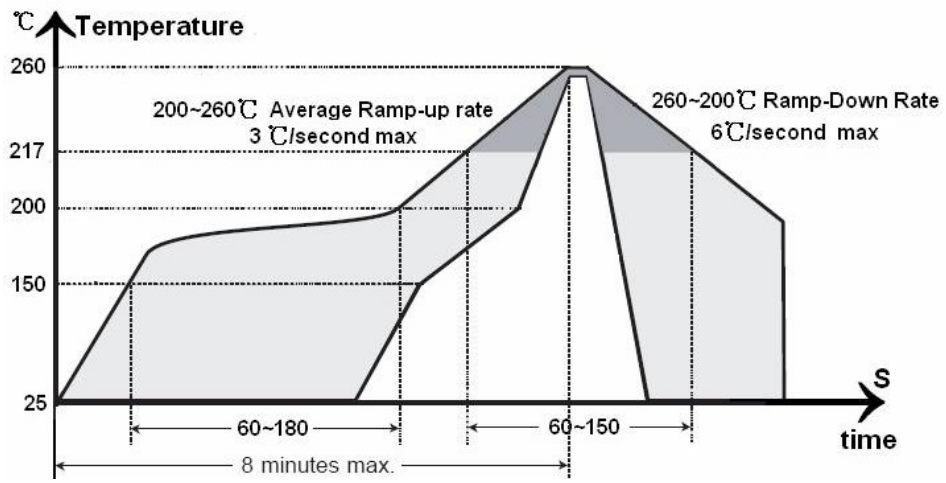
Parts		Material	QTY	COLOR	SUPPRIER
A	Blank	Mostly SiO2	1	White	Russia Ural
B	Conductive paste	Ag:80%, silicone resin 10%	2	Greyish	Japan Three Bond
C	Lid	Fe:52~56%,Ni:16~18%,Co:28~30%	1	Silvery	Japan Yoshikawa
D	Package	Ceramic	1	Brown	Japan NTK/SMI
E	Plating(blank)	Ag:99.99%	2	Silvery	Shanghai Yisheng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

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 △RR≦±15%
High Temp. Storage (MIL-STD-883)	Put the crystal into the +100℃ ±2℃ constant temperature box for 500±2 H, Measurement	△F≦±5 PPM △RR≦±15%

	taken after 2 hour.	
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 △RR≦±15%
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 △RR≦±15%
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 △RR≦±15%
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 △RR≦±15%
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 △RR≦±15%
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 △RR≦±15%
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、SUGGESTED REFLOW PROFILE



Peak temperature. 260□C □ 5 □C (10sec. max.)

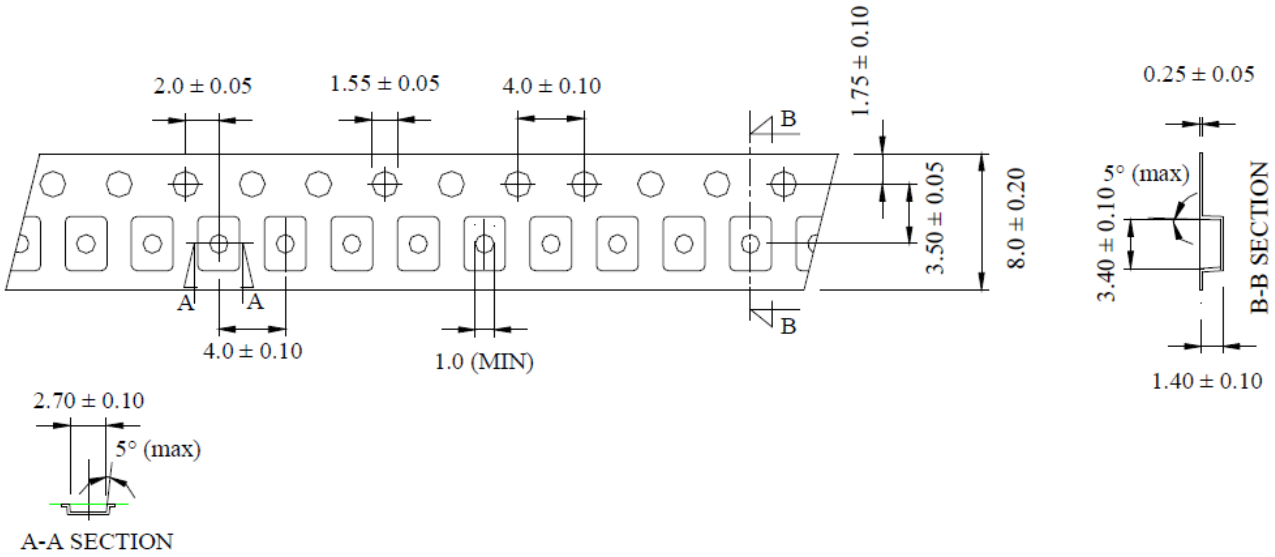
7、 SUBSTANCES IN PRODUCT

Drawing number	Disassembly Unit/component description	Homogeneous Material Name.	Substance Name	CAS No.	Substance Mass. (mg)	Content Rate(%)per
SMD3225	Crystal blank	Quartz	SiO_2	14808-60-7	0.2543	100.00%
	Electrode	Electrode-Ag	Ag	7440-22-4	0.0585	100.00%
	Package	Ceramics	Al_2O_3	1344-28-1	8.1990	90.00%
			Mn_20_3	1317-34-6	0.3644	4.00%
			SiO_2	7631-86-9	0.3644	4.00%
			MoO_3	1313-27-5	0.0911	1.00%
			MgO	1309-48-4	0.0911	1.00%
		Kovar ring	Fe	7439-89-6	0.1061	53.00%
			Ni	7440-02-0	0.0581	29.00%
			Co	7440-48-4	0.0360	18.00%
		Plate	Au	7440-57-5	0.0571	19.00%
			Ni	7440-02-0	0.2433	81.00%
		Metallizing	Mo	7439-98-7	0.1001	100.00%
		Solder	Ag	7440-22-4	0.2132	71.00%
			Cu	7440-50-8	0.0871	29.00%
	Lid	Kovar	Fe	7439-89-6	3.4096	48.50%
			Ni	7440-02-0	2.4605	35.00%
			Co	7440-48-4	1.1248	16.00%
			Mn	7439-96-5	0.0352	0.50%
	Conduct Adhesive	siliver adhesive	Ag	7440-22-4	0.1540	70.00%
			Pd	7440-05-3	0.0110	5.00%
			$C_{11}H_{24}$	1120-21-4	0.0220	10.00%
			$C_{12}H_{26}$	112-40-3	0.0110	5.00%
			SiO_2	7631-86-9	0.0220	10.00%

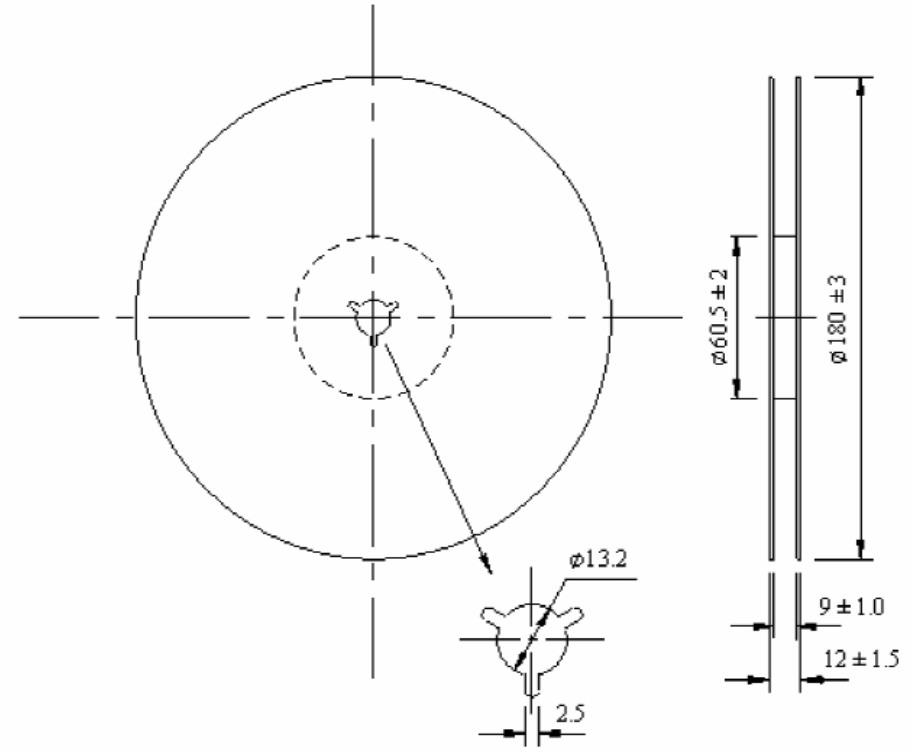
All the products we provide meet the requirements of RoHS and Reach regulations, and we send SGS for ICP test every year.

8、PACKING SPECIFICATIONS (Unit: mm)

TAPE SPECIFICATION



OUTLINE DIMENSION



Q'ty: 3000pcs/Reel

9、WTL PART NUMBER SYSTEM ：

For example: WTL3M25625CH

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

WTL - 3M - 25625 - CH

WTL： Brand

3M ： Package Code

25625: Serial number , flow code , without any rules

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