

# SPECIFICATION FOR APPROVAL

CN: 1612042823

CUSTOMER : \_\_\_\_\_

PRODUCT TYPE : SMD SEAM SEALING X'TAL 3.2×2.5

NOMINAL FREQ. : 20.000000MHz

TXC P/N : AM20000301

REVISION : A1

CUSTOMER P/N : \_\_\_\_\_

PM / SALES : \_\_\_\_\_

DATE : \_\_\_\_\_

CUSTOMER CONFIRMATION : \_\_\_\_\_

(Singnature)

(Date)

**MSL:Level 1**  
**RoHS Compliant**

(for glass crystal only : Pb used in sealing glass material is exempt from EU directive)

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PE/RD	QA	MFG
<i>Wen yuan Chang</i>	<i>ZhongLin Wu</i>	<i>Zhi Jun Wu</i>
Wen yuan Chang	ZhongLin Wu	Zhi jun Wu
2-Nov-16	2-Nov-16	2-Nov-16

**NOTE:**

(1)The green product standard set by TXC is based upon the international standards. Related information is publicly described on the TXC's Website, and updated regularly. The document is compliant with the latest green product quality system directives at the time.

(2)Revision "Sx" is for engineering samples only. PE/RD's approval required.

(3)Revision "Ax" is production ready. PE, QA and MFG's approval required

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## ■ ELECTRICAL SPECIFICATIONS

### Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement and tests are as follow:

Ambient temperature :  $25 \pm 5^{\circ}\text{C}$   
 Relative humidity : 40%~70%

If there is any doubt about the results, measurement shall be made within the following limits:

Ambient temperature :  $25 \pm 3^{\circ}\text{C}$   
 Relative humidity : 40%~70%

### Measure equipment

Electrical characteristics measured by S&A 250B or equivalent.

### Crystal cutting type

The crystal is using AT CUT (thickness shear mode).

### Unit Weight:

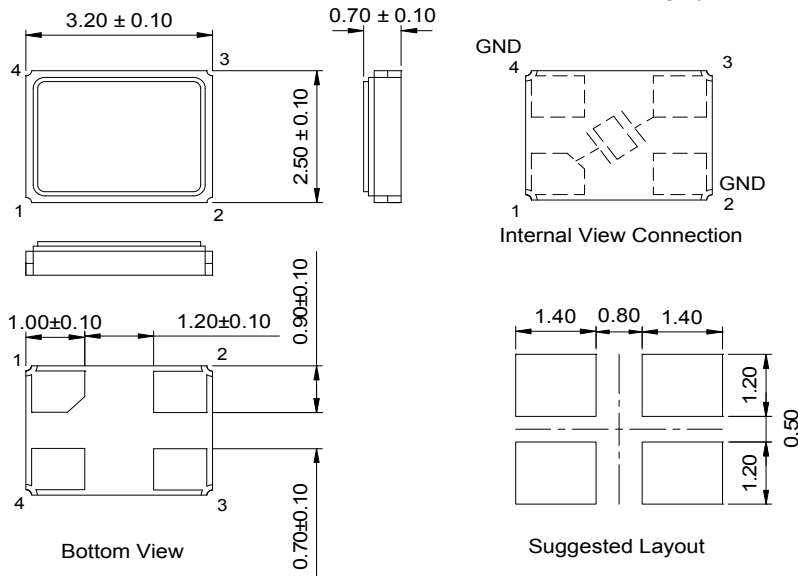
0.017±0.002 g/pcs

	Parameters	SYM.	Electrical Spec.				Notes
			MIN	TYPE	MAX	UNITS	
1	Nominal Frequency	FL	20.000000			MHz	-
2	Oscillation Mode	-	Fundamental			-	-
3	Load Capacitance	CL	12			pF	-
4	Frequency Tolerance	-	±15			ppm	at $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$
5	Frequency Stability	-	±50			ppm	Over Operating Temp. Range (Reference $25^{\circ}\text{C}$ )
6	Operating Temperature	-	-40	~	125	$^{\circ}\text{C}$	-
7	Aging	-	±3			ppm	1st Year
8	Drive Level	DL	-	100	-	$\mu\text{W}$	-
9	Effective Resistance Rr	Rr	-	-	50	$\Omega$	-
10	Shunt Capacitance C0	C0	-	-	3	pF	-
11	Insulation Resistance	-	500	-	-	M $\Omega$	at DC 100V
12	Storage Temperature Range	-	-40	~	125	$^{\circ}\text{C}$	-

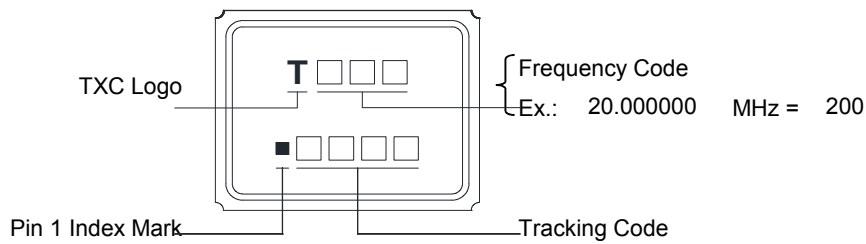
**■ DIMENSIONS**

(Unit:mm)

Unit:mm



**■ MARKING**

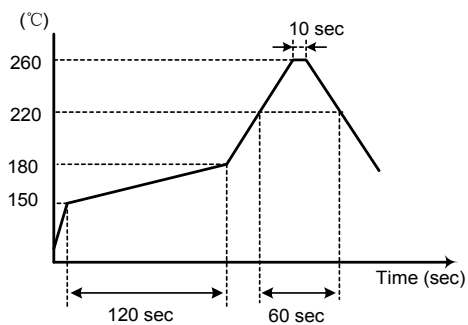


Production Location:China(Ningbo)

**■ SUGGESTED REFLOW PROFILE**

Solder melting point : $220 \pm 10$  °C, 60 sec. Min.

Peak Temperature:  $260 \pm 5$  °C, 10 sec. Max.



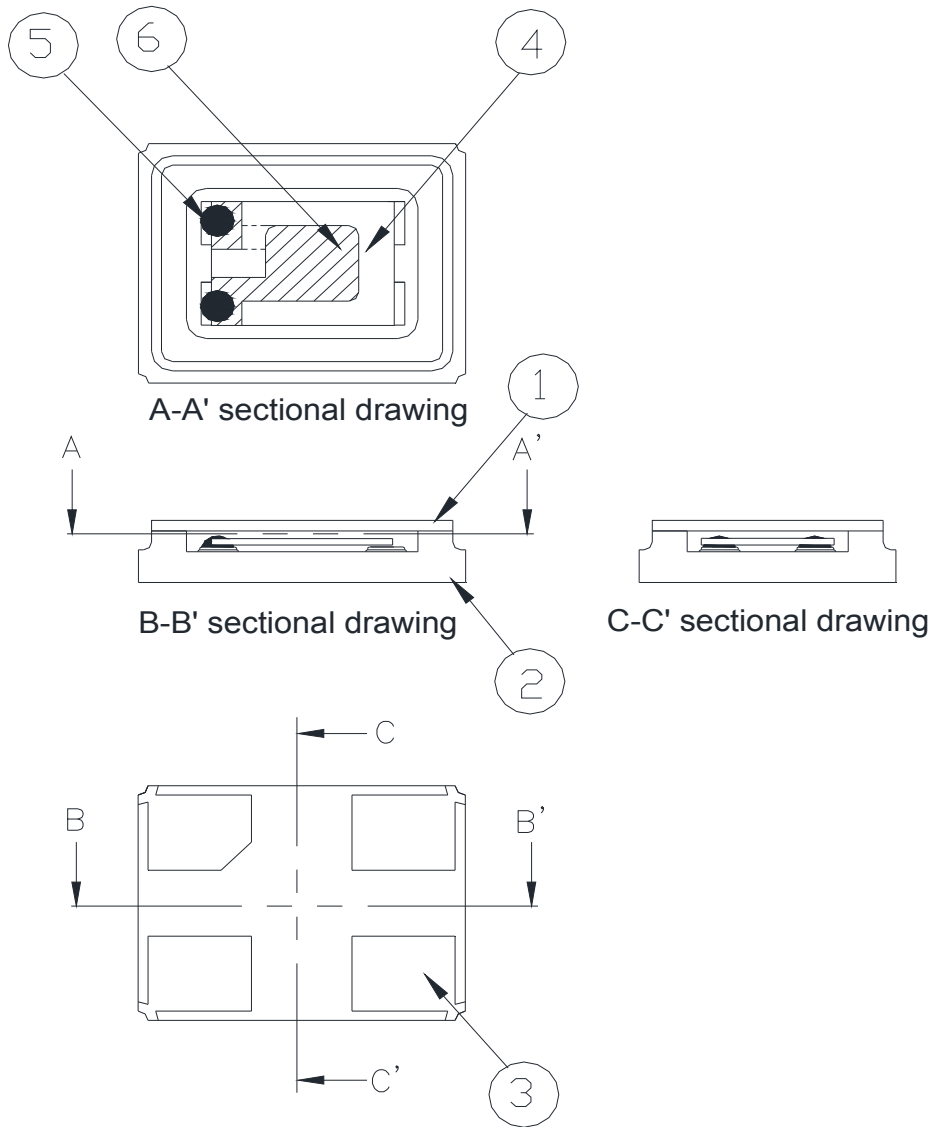
**■ SUGGESTED MANUAL SOLDER CONDITION**

Temperature:  $350 \pm 10$  °C

Time: 3 sec.

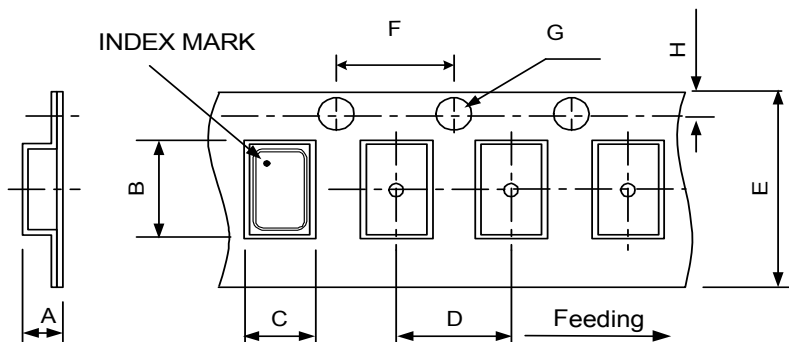
Re-solder times: twice

**■ STRUCTURE ILLUSTRATION**

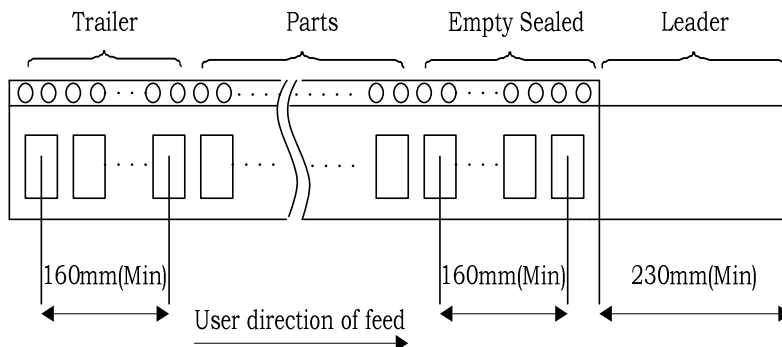


NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar (Fe/Co/Ni)	-
2	Package	Ceramic (Al <sub>2</sub> O <sub>3</sub> ) + Kovar (Fe/Co/Ni)+ Ag/Cu	-
3	PAD	Au	Tungsten metalize + Ni plating + Au plating
4	Crystal blank	SiO <sub>2</sub>	-
5	Conductive adhesive	Resin+Ag	Silicon resin
6	Electrode	Noble Metal	-

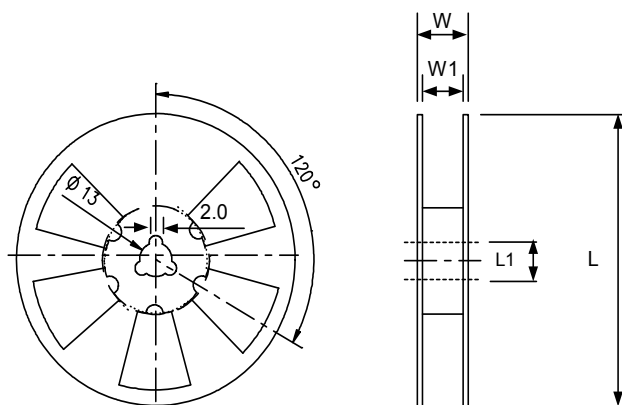
■ **PACKING**



DIMENSIONS	A	B	C	D	E	F	G	H	(UNIT : mm)
	1.65±0.01	3.40±0.01	2.70±0.01	4.00±0.01	8.00±0.02	4.00±0.01	1.50±0.01	1.75±0.01	



REMARK :



DIMENSIONS	L	L1	W	W1	pcs / Reel (UNIT : mm)
	178±1.0	13±0.5	11.5±0.2	8±0.1	Standard Reel Quantity is 3,000 pcs per reel



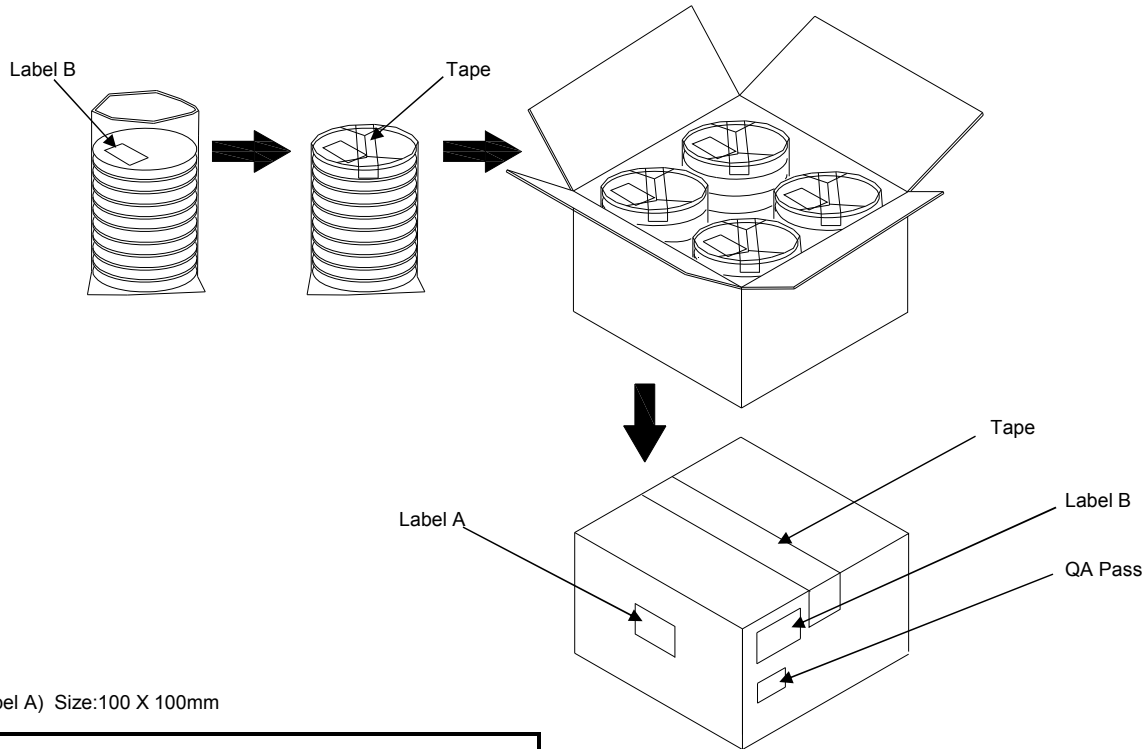
**PACKING**

Reel Quantity :

- 1. Reel X 6 (6 Reels)
- 2. Reel X 12 (12 Reels)
- 3. Reel X 25 (12 Reels + 13 Reels)
- 4. Reel X 50 ( 12 Reelsx2 + 13 Reelsx2 )

Box Size:

- 1. L200 X W200 X H140mm
- 2. L200 X W200 X H250mm
- 3. L400 X W200 X H250mm
- 4. L400 X W400 X H280mm



(Label A) Size:100 X 100mm

<h1 style="margin: 0;">TXC</h1>	
Inv No:	00096815
Po No:	21106326- 24- 1
Part No:	□□□□□□□□
Q'ty:	40000 PCS
C/No:	157- 44

(Label B) Size:80 X 40mm

TXC CORPORATION		QA PASS
DATE CODE:		QTY:
LOT NO:		
PART NO:		
FREQ:		

**[STORAGE]**

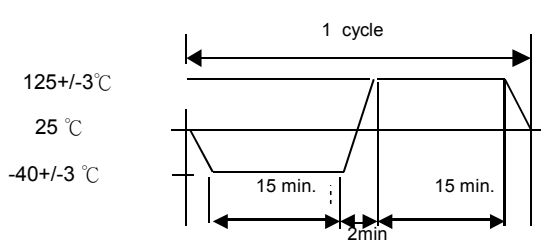
- 1. Don't be caught in the rain.
- 2. The storage environment shall be 5°C ~40°C temperature and 30% ~ 75%RH humidity and free from the sun shine.
- 3. If customers have special requirements, we can paste labels according to it.

■ RELIABILITY SPECIFICATIONS (AEC-Q200 Compliant)

1.Mechanical Endurance

No.	Test Item	Test Methods	Test Criteria
1	Mechanical Shock	2000 G , 0.3 m Sec. ,3 times for all 3 directions.	B C
1	Vibration	Frequency range                    10 ~ 2000 Hz Acceleration                            20G Amplitude                                1.52mm Sweep time                                20 minute Pendicular axes each test time      4 hours (Total test time 12 hours)	B C
1	Terminal Strength	17.7N force for 60sec +/-1sec.	F
1	Board Flex	Duration time:60 Sec Minimum,Deviation:3mm	B C
2	Solderability	Temperature                            245 °C +/- 5°C Immersing depth                        0.5 mm minimum Immersion time                         5 +/- 0.5 seconds Flux                                         Rosin resin methyl alcohol solvent ( 1 : 4 )	E

2.Environmental Endurance

No.	Test Item	Test Methods	SPEC
2	Resistance To Soldering Heat	Test temperature                        260 +/- 5 °C Test time                                    10 +/- 1 sec.	BCD
2	High Temp. Storage	+ 125°C ± 3 °C for 1000 ± 12 Hrs	BCD
2	Low Temp. Storage	- 40 °C ± 3 °C for 1000 ± 12 Hrs	BCD
2	Temperature cycle	-40°C~125°C,for 1000 cycles. 	BCD
3	Operational Life	1000 hrs @ 125± 3°C. Rated VDD applied with 1 MΩ.	BCD
3	High Temp & Humidity	85°C ± 3°C , RH 85% , 1000 Hrs	BCD

**RELIABILITY SPECIFICATIONS**

Specifications	
A	Frequency change: Within $\pm 5$ ppm or in customer's specification.
B	Frequency change: Within $\pm 10$ ppm or in customer's specification.
C	Equivalent series resistance(E.S.R) change: Within $\pm 15\%$ or $10\Omega$ (larger value).
D	After conditioning , quartz crystal units shall be subjected to standard atmospheric conditions for 24 hour, and measured.
E	Minimum 95% of immersed terminal shall be covered with new uniform solder.
F	No damage on specimen

**Measurement condition**

Electrical characteristics measured by S&A250B or equivalent.

单击下面可查看定价，库存，交付和生命周期等信息

[>>TXC\(台湾晶技\)](#)