

## Specification for Approval

CN: 2104005148

Customer	:	
Product Type	:	SMD GLASS SEALING X'TAL 3.2*2.5
Nominal Freq.	:	8.000000MHz
TXC P/N	:	AV08000009
Revision	:	S1
Customer P/N	:	
PM / Sales	:	
Date	:	
Customer Confirmation:		

- (1) TXC requires one copy returned with signature and title of authorized individual that signifies acceptance of the attached specifications.
- (2) Orders received and accepted by TXC after return of signed copy of specification will be produced per these specifications.
- (3) Any changes to these specifications must be agreed upon by both parties and new revision of the Product Specification Sheet will be issued.
- (4) Any issuance of purchase order prior to consigning back the approval page of "Specification Sheets" from customers will be regarded as the agreement on the contents of these specifications.

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

**Pb used in sealing glass material is exempt from EU directive**

## Product Specication Sheet

CN: 2104005148

Product Type : SMD GLASS SEALING X'TAL 3.2\*2.5

Nominal Freq. : 8.000000MHz

TXC P/N : AV08000009

Revision : S1

PE/RD	QA	MFG
Wen yuan Chang		
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27-Apr-21		

**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

**MSL:Level 1**  
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[illegible]

## **Spec Sheet Contents**

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## Electrical Specifications

	Parameters	SYM.	Electrical Spec.				Notes
			Min.	Type	Max.	Unit	
1	Nominal Frequency	FL	8.000000			MHz	-
2	Oscillation Mode	-	Fundamental			-	-
3	Load Capacitance	CL	8			pF	-
4	Frequency Tolerance	-	±10			ppm	at 25 °C ± 3 °C
5	Frequency Stability	-	±50			ppm	Over Operating Temp. Range (Reference 25°C)
6	Operating Temperature	-	-40	~	125	°C	-
7	Aging	-	±3			ppm	1st Year at 25 °C ± 3 °C
8	Drive Level	DL	-	10	100	μW	-
9	Equivalent Series Resistance	Rr	-	-	300	Ω	-
10	Shunt Capacitance	C0	-	-	2	pF	-
11	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
12	Storage Temperature Range	-	-40	~	125	°C	-

### Measurement Equipment

Electrical characteristics measured by S&A250B or equivalent.

### Unit Weight:

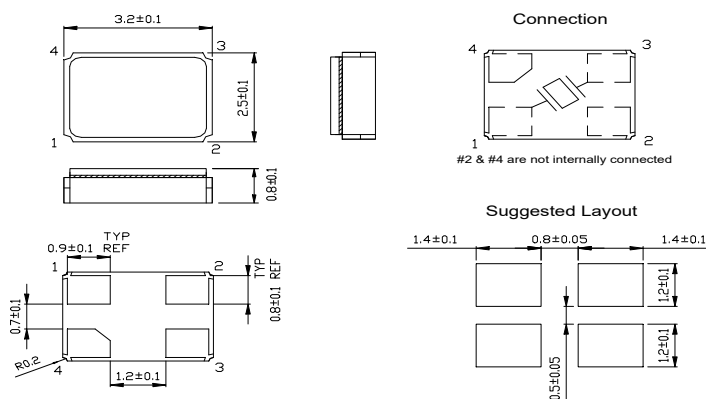
0.020±0.002 g/pcs Reference

## Attention (注意事項):

- If you intend to use product on controls relating to medical equipment, aeronautical equipment, aerospace, military science, space equipment, etc.) please do not fail to advise us of your intention beforehand.  
請勿將本產品使用在醫療,航空,宇航,軍事或與生命安全性相關的設備中, 若需使用在上述應用請事前與TXC聯繫。
- Crystal units will be damaged by ultrasonic welding process due to resonance of crystal wafer itself.  
If ultrasonic welding used, TXC strongly recommend verifying damage by ultrasonic weld.  
本產品在超音波封合的過程中晶片可能會因共振受損, 若有超音波封合需求,TXC強烈建議應給予適當的驗證。
- Crystal units will be damaged by plastic molding process due to pressure. If plastic molding used, TXC strongly recommend use seam welding products instead.  
本產品在熱塑封合的過程中結構可能會受到熱壓力而損壞, 若有熱塑封合需求,請給以適當的驗證。
- Due to the deformation during PCB assembly or separation , it may cause damage to the crystal product structure .  
We suggested that the distance over 15mm between crystal position and PCB edge or screw hole. When the PCB area less than 5cm<sup>2</sup> or out-off-shape PCB, we recommended to choose the seam sealing type crystal .  
PCB因組裝或分切過程中的形變, 可能對本產品結構造成損壞, 建議本產品在PCB上的位置距離板邊或螺絲孔需大於15mm。當PCB最小面積小於5 cm<sup>2</sup>或PCB外型不規則時, 建議選用金屬焊封的晶振產品。

## ■ Dimensions

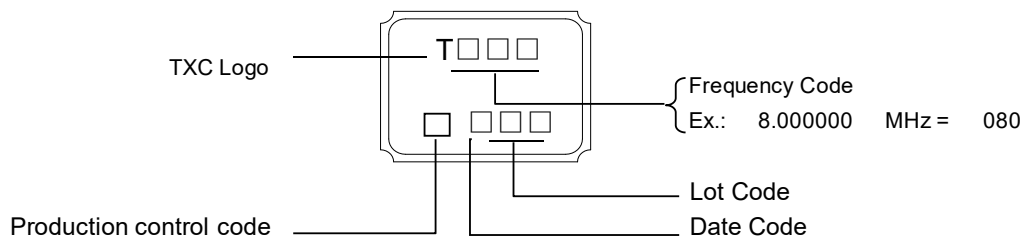
(Unit:mm)



\*The drawing just for reference only.

\*Coplanarity of solderable areas camber 0.10 mm Max.

## ■ Marking



### Date Code:

Year					Month											
					Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2005	2009	2013	2017	2021	A	B	C	D	E	F	G	H	J	K	L	M
2006	2010	2014	2018	2022	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	2011	2015	2019	2023	a	b	c	d	e	f	g	h	j	k	l	m
2008	2012	2016	2020	2024	n	p	q	r	s	t	u	v	w	x	y	z

\*This date code will be cycled every four years

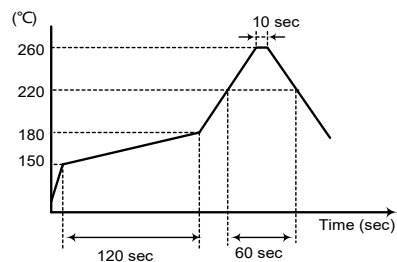
## ■ Production Location: Taiwan & China

## ■ Suggested Reflow Profile

Solder Melting Point :220±10 °C, 60 sec. Min.

Peak Temperature: 260 ± 5 °C, 10 sec. Max.

Reflow Passage Time : twice



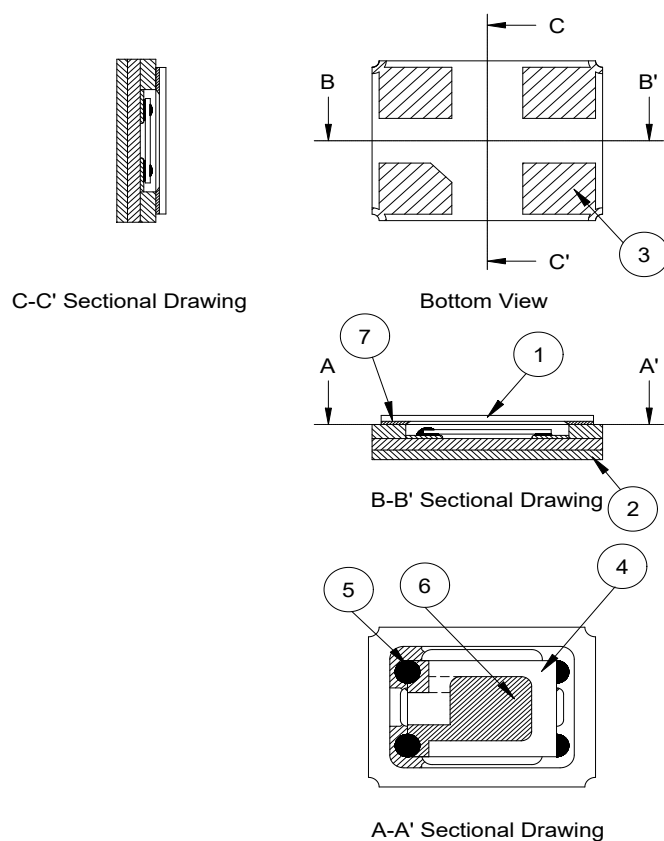
## ■ Suggested Manual Solder Conditon

Pressing a soliding iron of 350 °C on the terminal electrode for 4 seconds (twice).

When using a soldering iron, press its tip on the part below the sealed part, avoiding glass-sealed part (otherwise, the glass will melt and air-tightness may be lost).

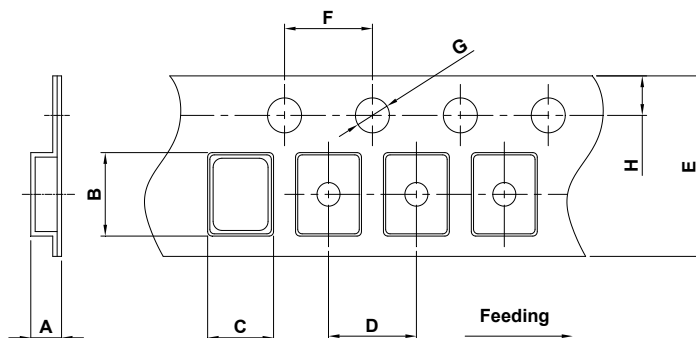
Note: After manual welding, the product should be placed at least 2 hours

## ■ Structure Illustration



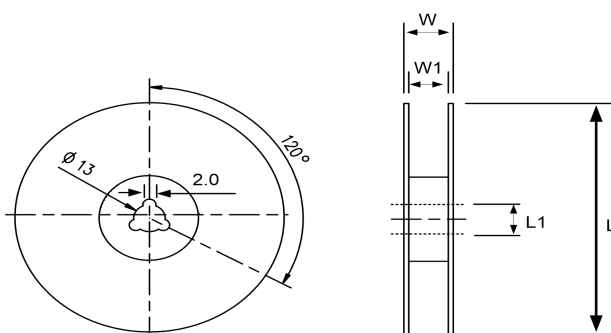
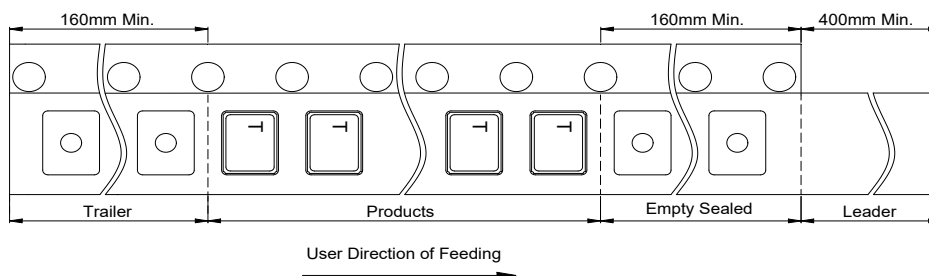
No.	Components	Materials	Finish/Specifications
1	Cap	Ceramic ( $\text{Al}_2\text{O}_3$ )	-
2	Package	Ceramic ( $\text{Al}_2\text{O}_3$ )	-
3	PAD	Au	Tungsten Metalize + Ni plating + Au plating
4	Crystal Blank	$\text{SiO}_2$	-
5	Conductive Adhesive	Resin+Ag	-
6	Electrode	Noble Metal	-
7	Sealing Glass	Glass(PbO)	-

■ Emboss Carrier Tape & Reel



Dimensions	A	B	C	D	E	F	G	H	
	1.65 ±0.20	3.40 ±0.20	2.70 ±0.20	4.00 ±0.20	8.00 ±0.40	4.00 ±0.20	1.55 ±0.20	1.75 ±0.20	(Unit: mm)

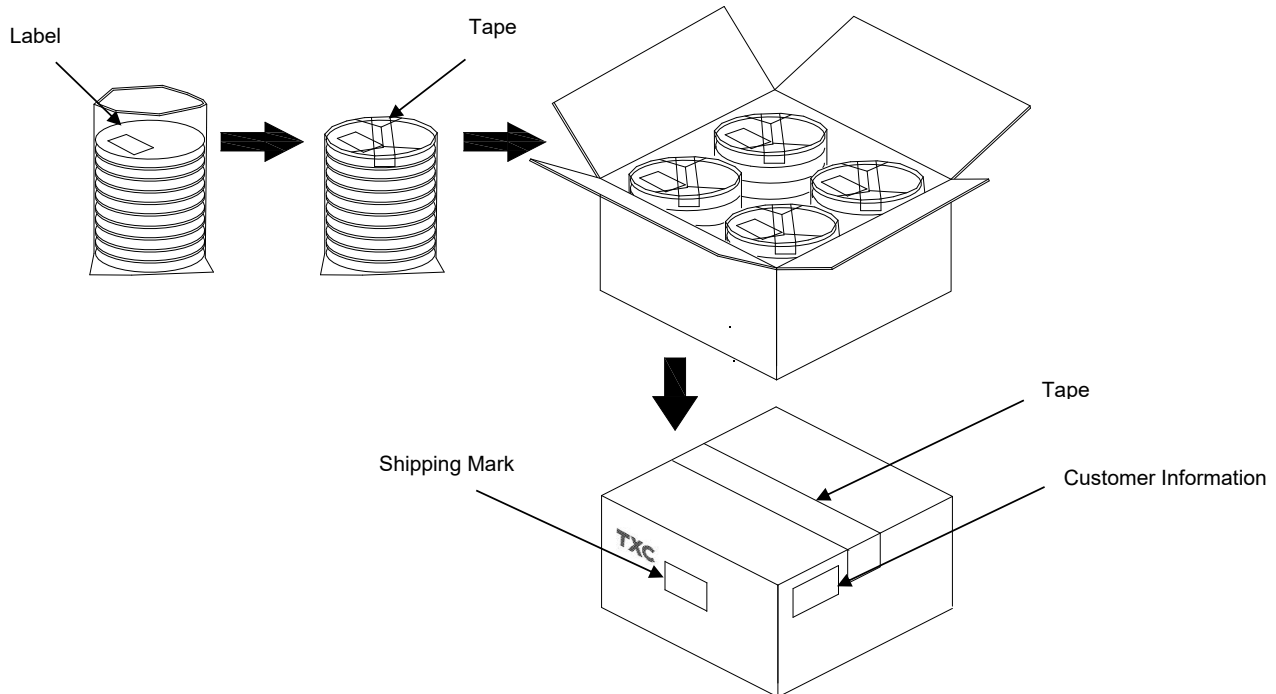
Remark :



Dimensions	L	L1	W	W1	3,000 PCS/Reel
	178.0±2.0	13.0±1.0	11.5±0.2	8.0±0.2	Unit : mm



■ Packing



Label :

TXC CORPORATION		QA PASS
DATE CODE:	[Barcode]	Q' TY: [Barcode]
LOT NO:	[Barcode]	
PART NO:	[Barcode]	
FREQ:	[Barcode]	
<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">RoHS</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">HF</div> <div style="border: 1px solid black; padding: 2px;">[QR Code]</div> </div>		

[Storage]

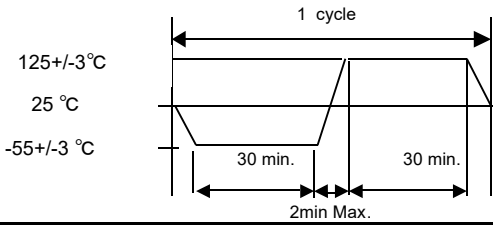
1. Do not get wet by the rain.
2. The storage environment shall be 5°C ~40°C and 30% ~ 75%RH humidity and avoid exposure to sunlight.
3. If customers have special requirements, we can coordinate.

## ■ Reliability Specifications (AEC-Q200 Compliant)

### 1. Mechanical Endurance

No.	Test Item	Test Condition	Criteria
1.1	Mechanical Shock	2000 G , 0.3 m Sec. ,3 times for all 3 directions.	B C
1.2	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
1.3	Terminal Strength	17.7N force for 60sec +/-1sec.	F
1.4	Board Flex	Duration time:60 Sec Minimum,Deviation:3mm	B C
1.5	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 Condition	Criteria
2.1	Resistance to Soldering Heat	Test temperature 260 +/- 5 °C Test time 10 +/- 1 sec.	BCD
2.2	High Temp. Storage	+ 125°C ± 3 °C for 1000 ± 12 Hrs	BCD
2.3	Low Temp. Storage	- 55 °C ± 3 °C for 1000 ± 12 Hrs	BCD
2.4	Temperature Cycle	-55°C~125°C,for 1000 cycles. 	BCD
2.5	Operational Life	1000 hrs @ 125± 3°C. Rated VDD applied with 1 MΩ.	BCD
2.6	Biased Humidity	85°C ± 3°C , RH 85% , 1000 Hrs	BCD

■ Reliability Specifications

Criteria	
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 Equipment**

Electrical characteristics measured by S&A250B or equivalent.