TXC CORPORATION

4F, NO. 16, Sec. 2 Chung Yang S Rd., Peitou, Taipei, Taiwan.

TEL : 886-2-2894-1202 , 886-2-2895-2201 FAX : 886-2-2894-1206 , 886-2-2895-6207 www.txccorp.com

SPECIFICATION FOR APPROVAL

CN: 1408001237

CUSTOMER	:	
PRODUCT TYPE	:	SMD GLASS SEALING X'TAL 3.2*2.5
NOMINAL FREQ.	:	24.000000MHz
TXC P/N	:	AV24070003
REVISION	:	S1
CUSTOMER P/N	:	
PM / SALES	:	
DATE	:	13-Aug-14

CUSTOMER SIGNATURE & Date

(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

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PRODUCT SPECIFICATION SHEET

CN: 1408001237

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NOMINAL FREQ.	:	24.000000MHz
TXC P/N	:	AV24070003
REVISION	:	S1

PE/RD	QA	MFG
ZhongLin Wu		
13-Aug-14		

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

RoHS Compliant

Pb used in sealing glass material is exempt from EU directive

Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
S1	N/A	Initial released	13-Aug-14	N/A	Xiaoyan Jiang

Spec Sheet Contents

No.	Content	Page
1	ELECTRICAL SPECIFICATIONS	P.3
2	FACTORY LOCATION	P.3
3	DIMENSIONS	P.4
4	MARKING	P.4
5	SUGGESTED REFLOW PROFILE& MANUAL SOLDER CONDITION	P.4
6	STRUCTURE ILLUSTRATION	P.5
7	EMBOSS CARRIER TAPE & REEL	P.6
8	PACKING	P.7
9	RELIABILITY SPECIFICATIONS	P.8～9

■ 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±5℃

Relative humidity : 40%~70%

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

Ambient temperature : 25±3℃

Relative humidity : 40%~70%

Measure equipment

Electrical characteristics measured by S&A250B or equivalent.

Crystal cutting type

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

Unit Weight:

0.018±0.005 g/pcs

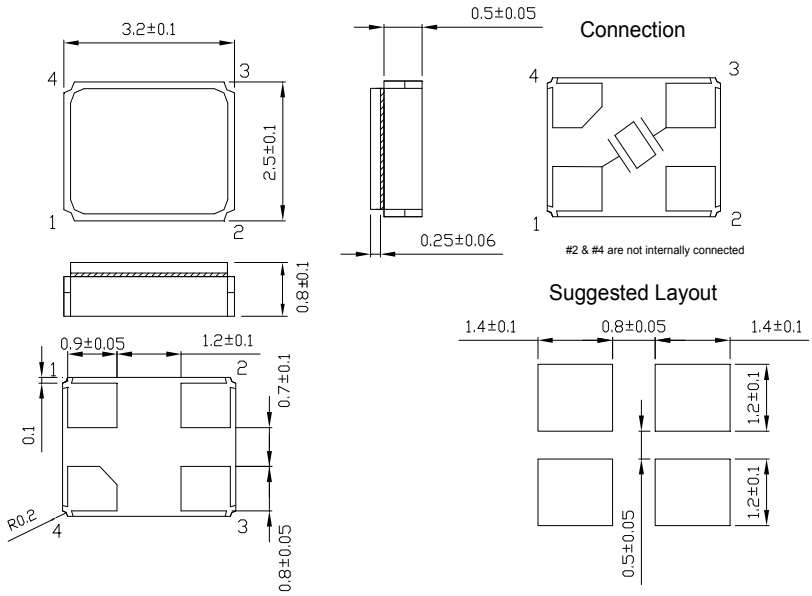
	Parameters	SYM.	Electrical Spec.				Notes
			MIN	TYP	MAX	UNITS	
1	Nominal Frequency	FL		24.000000		MHz	-
2	Oscillation Mode	-		Fundamental		-	-
3	Load Capacitance	CL		18		pF	-
4	Frequency Tolerance	-		±30		ppm	at 25 ℃ ± 3 ℃
5	Frequency Stability	-		±50		ppm	Over Operating Temp. Range(Reference 25℃)
6	Operating Temperature	-	-40	~	105	℃	-
7	Aging	-		±5		ppm	1st Year
8	Drive Level	DL	-	100	-	uW	-
9	Series Resonant Resistance	Rr	-	-	60	Ω	-
10	Shunt Capacitance	C0	-	-	3	pF	-
11	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
12	Storage Temperature Range	-	-40	~	105	℃	-

■ FACTORY LOCATION

TXC (NINGBO) CORPORATION
NO.189 Huang Shan West Road, Beilun District,
Ningbo Zhejiang China

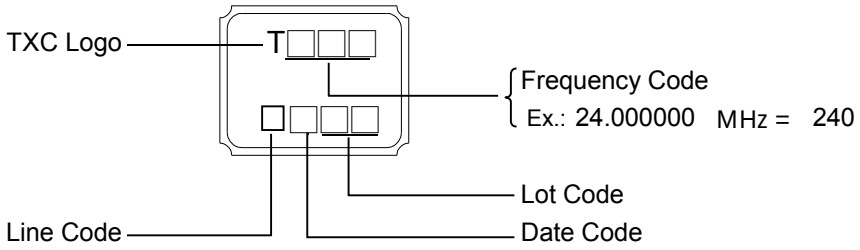
■ DIMENSIONS

(Unit:mm)



*Coplanarity of solderable areas Camber 0.10 mm Max

■ MARKING



Date Code:

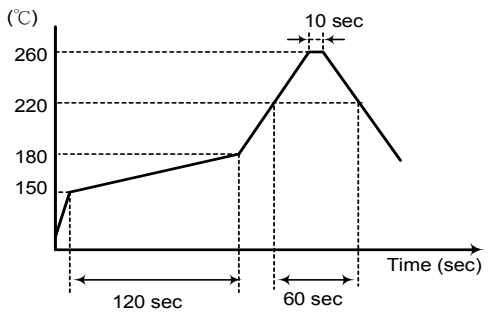
YEAR \ MONTH				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2005	2009	2013	2017	A	B	C	D	E	F	G	H	J	K	L	M
2006	2010	2014	2018	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	2011	2015	2019	a	b	c	d	e	f	g	h	j	k	l	m
2008	2012	2016	2020	n	p	q	r	s	t	u	v	w	x	y	z

*This date code will be cycled every four years

■ SUGGESTED REFLOW PROFILE

Solder melting point :220±10 ℃, 60 sec. Min.

Peak Temperature: 260 ± 5 ℃, 10 sec. Max.



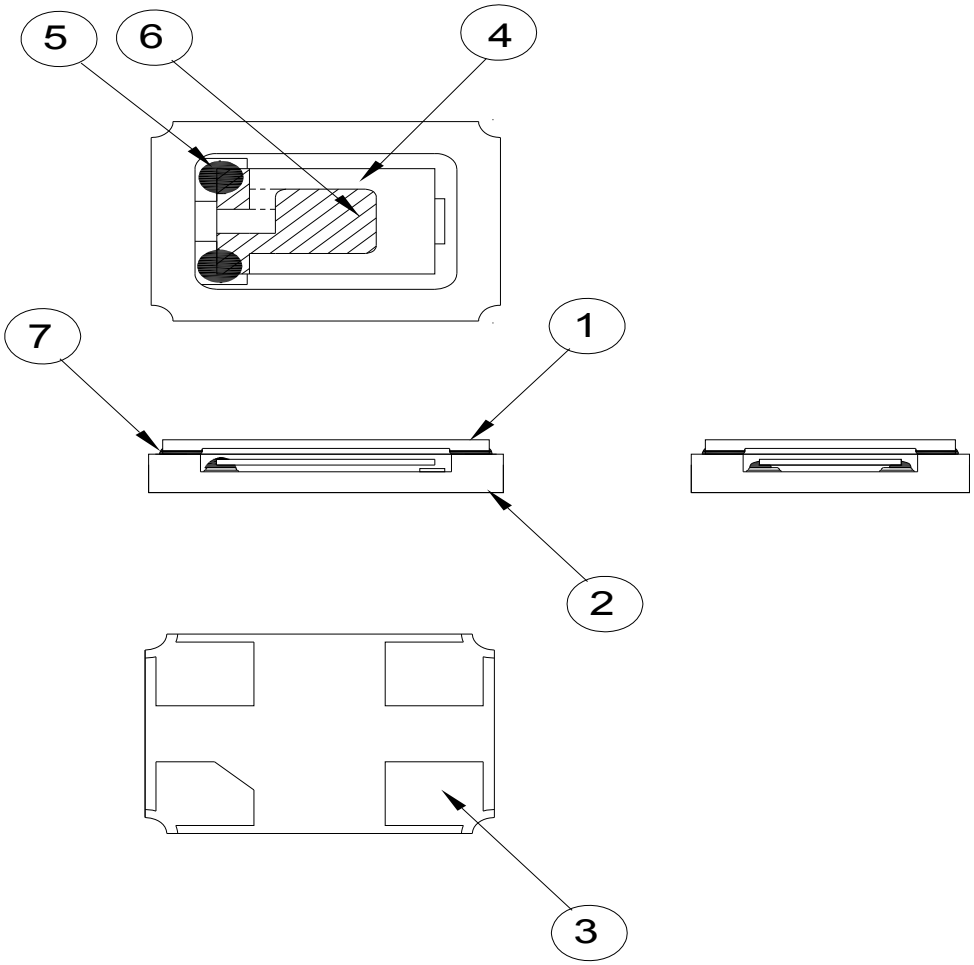
■ SUGGESTED MANUAL SOLDER CONDITION

Temperature: 350 ± 10 ℃

Time: 3 sec.

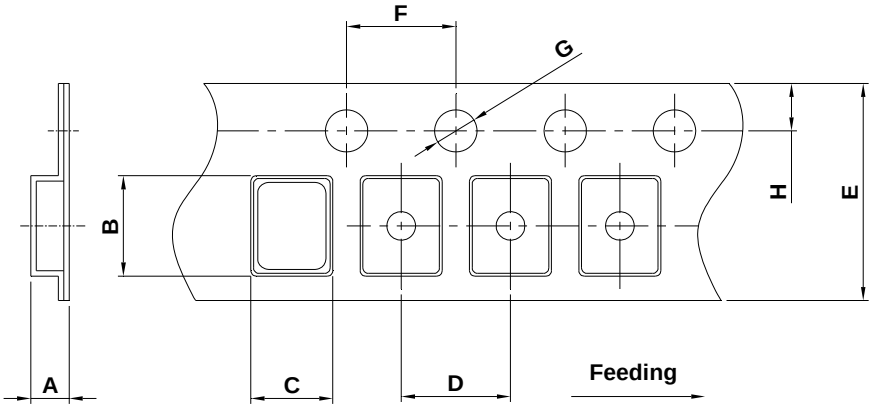
Re-solder times: twice

STRUCTURE ILLUSTRATION



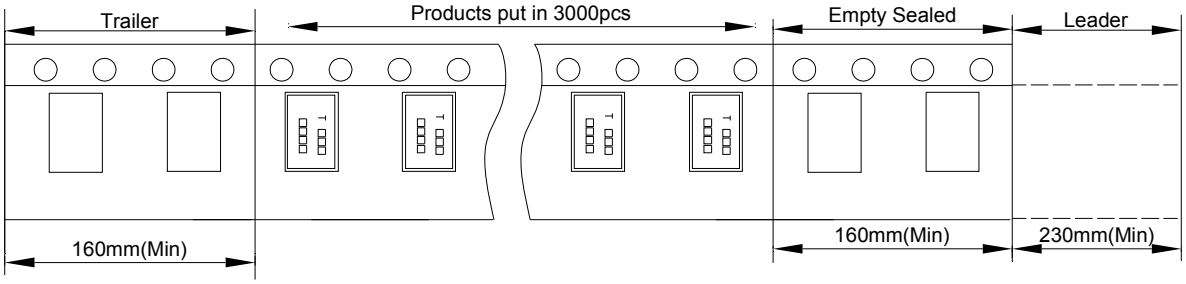
NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Cap	Ceramic (Al_2O_3)	-
2	Package	Ceramic (Al_2O_3)	-
3	PAD	Au	Tungsten metalize + Ni plating + Au plating
4	Crystal blank	SiO_2	-
5	Conductive adhesive	Resin+Ag	-
6	Electrode	Noble Metal	-
7	Sealing Glass	Glass(PbO)	-

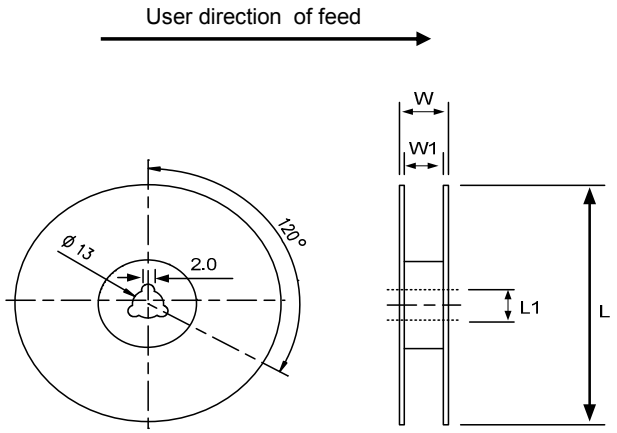
■ EMBOSS CARRIER TAPE & REEL



DIMENSIONS	A	B	C	D	E	F	G	H	
	1.65±0.10	3.40±0.10	2.70±0.10	4.00±0.10	8.00±0.20	4.00±0.10	1.55±0.10	1.75±0.10	(UNIT：mm)

REMARK :



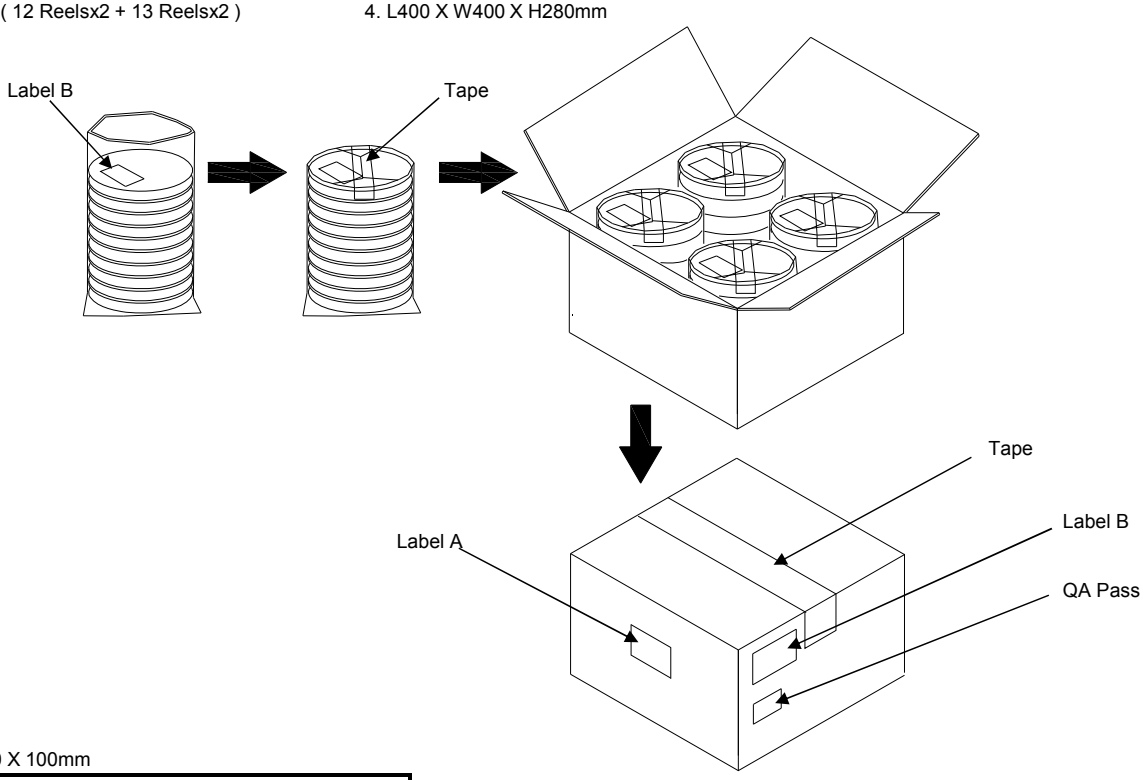


DIMENSIONS	L	L1	W	W1	
	178±1.00	13±0.50	11.5±0.20	8±0.10	(UNIT：mm)

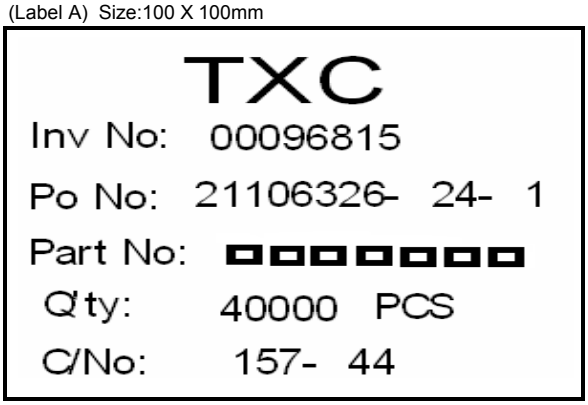
■ PACKING

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)

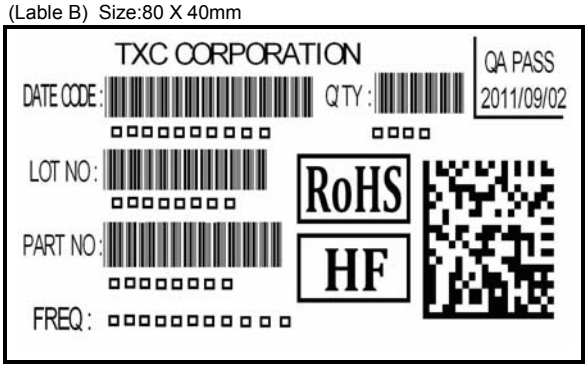
Box Size:
1. L200 X W200 X H140mm
2. L200 X W200 X H250mm
3. L400 X W200 X H250mm
4. L400 X W400 X H280mm



(Label A) Size:100 X 100mm



(Lable B) Size:80 X 40mm



[STORAGE]

1.The storage time to be 1 year maximum.

2.Don't be caught in the rain.

3.The storage environment shall be 5℃ ~40℃ temperature and 30% ~ 75%RH humidity and free from the sun shine.

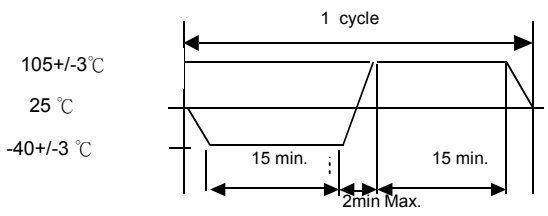
4.If customers have special requirements, we can paste labels according to it.

■ RELIABILITY SPECIFICATIONS (Conforms to AEC-Q200)

1.Mechanical Endurance

No.	Test Item	Test Methods		Test Criteria
1.1	Mechanical Shock	2000 G , 0.3 m Sec. ,3 times for all 3 directions.		B C
1.2	Vibration	Frequency range Acceleration Amplitude Sweep time Pendicular axes each test time	10 ~ 2000 Hz 20G 1.52mm 20 minute 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
128	Solderability	Temperature Immersing depth Immersion time Flux	245 °C +/- 5°C 0.5 mm minimum 5 +/- 0.5 seconds Rosin resin methyl alcohol solvent (1 : 4)	E

2.Environmental Endurance

No.	Test Item	Test Methods		SPEC
2.1	Resistance To Soldering Heat	Test temperature Test time	260 +/- 5 °C 10 +/- 1 sec.	BCD
2.2	High Temp. Storage	+ 105℃ ± 3 ℃ for 1000 ± 12 Hrs		BCD
2.3	Low Temp. Storage	- 40 ℃ ± 3 ℃ for 1000 ± 12 Hrs		BCD
2.4	Temperature cycle	-40℃~105℃,for 1000 cycles. 		BCD
2.5	Operational Life	1000 hrs @ 105± 3°C. Rated VDD applied with 1 MΩ.		BCD
2.6	High Temp&Humidity	85℃ ± 3℃ , RH 85% , 1000 Hrs		BCD

RELIABILITY SPECIFICATIONS

	Specifications
A	Frequency change: Within ±5ppm or in customer's specification.
B	Frequency change: Within ±10ppm or in customer's specification.
C	Equivalent series resistance(E.S.R) change: Within ±15% or 10Ω(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.