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

CUSTOMER	:	
PRODUCT TYPE	:	SMD SEAM SEALING X'TAL 2.5 × 2.0
NOMINAL FREQ.	:	38.400000MHz
TXC P/N	:	8Z38470009
REVISION	:	A2
CUSTOMER P/N	:	
PM / SALES	:	
DATE	:	

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.

Attachment: Product Specification Sheet

1
2
3
4
5

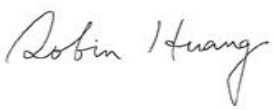
RoHS Compliant

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PRODUCT SPECIFICATION SHEET

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NOMINAL FREQ.	:	38.400000MHz
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REVISION	:	A2

PE/RD	QA	MFG
 Robin Huang	 Samson Xiong	 Jake Liu
4-Aug-14	*4-Aug-14*	*4-Aug-14*

NOTE:

(1)Lead Free Products are "Directive 2002/95/EC of The European Parliament of 27 January 2003 on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment" Compliant (Attachment: SGS Test Report).

(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

RoHS Compliant

Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
S1	N/A	Initial released	19-Feb-14	N/A	Xiaoyan Jiang
A1	N/A	S Turn A	27-Jun-14	N/A	Xiaoyan Jiang
A2	4	Dimensions Change	4-Aug-14	ECR-14N080101	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&HANDING CAUTIONS	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±10℃

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:

0.009±0.001 g/pcs

	Parameters	Symbol	Electrical Spec.				Notes
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	FL		38.400000		MHz	-
2	Oscillation Mode	-		Fundamental		-	-
3	Load Capacitance	CL		8		pF	-
4	Frequency Tolerance	-		±10		ppm	at 25 ℃ ± 3 ℃
5	Frequency Stability	-		±10		ppm	Over Operating Temp. Range (Reference 25℃)
6	Operating Temperature	-	-30	~	85	℃	-
7	Aging	-		±1		ppm	1st Year
8	Drive Level	DL	-	100	-	uW	-
9	Equivalent Series Resistance	Rr	-	10	30	Ω	-
10	Shunt Capacitance C0	C0	-	-	3	pF	-
11	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
12	Storage Temperature Range	-	-40	~	85	℃	-

■ FACTORY LOCATION

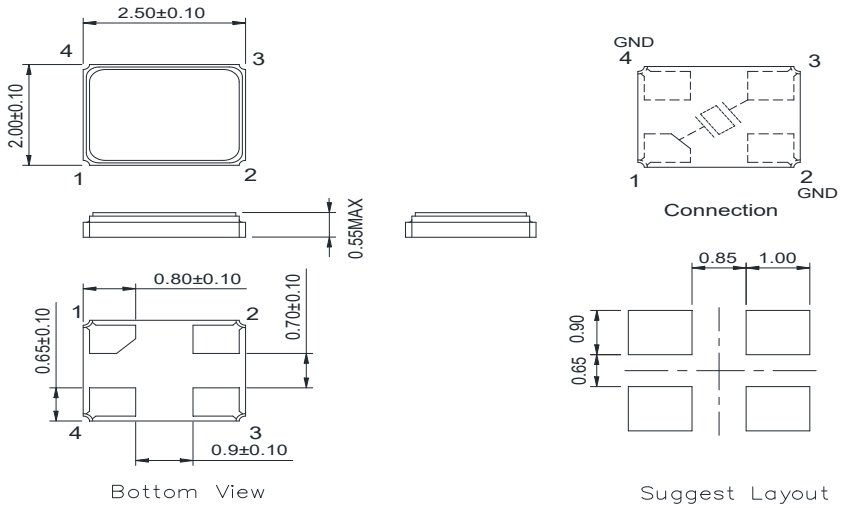
TXC (NINGBO) CORPORATION

NO.189 Huang Shan West Road, Beilun District,

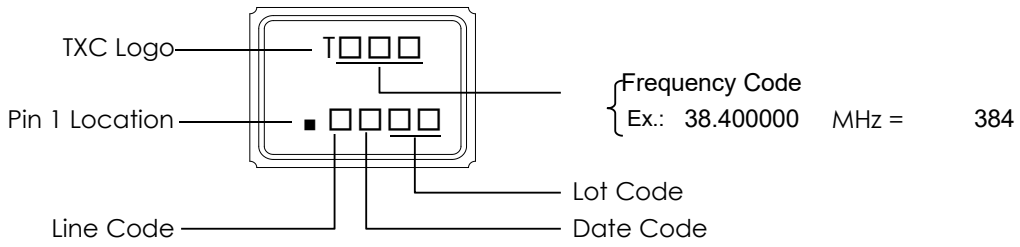
Ningbo Zhejiang China

■ DIMENSIONS

(Unit:mm)



■ 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

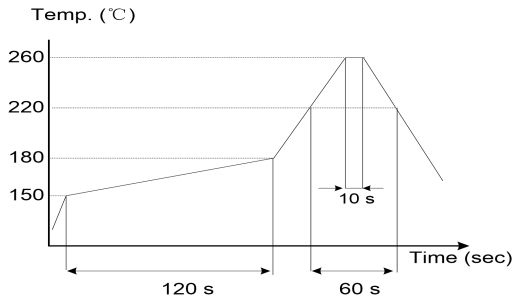
*This date code will be cycled every four years

Production location:Taiwan&Ningbo

■ SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.

Solder melting point :220 ℃



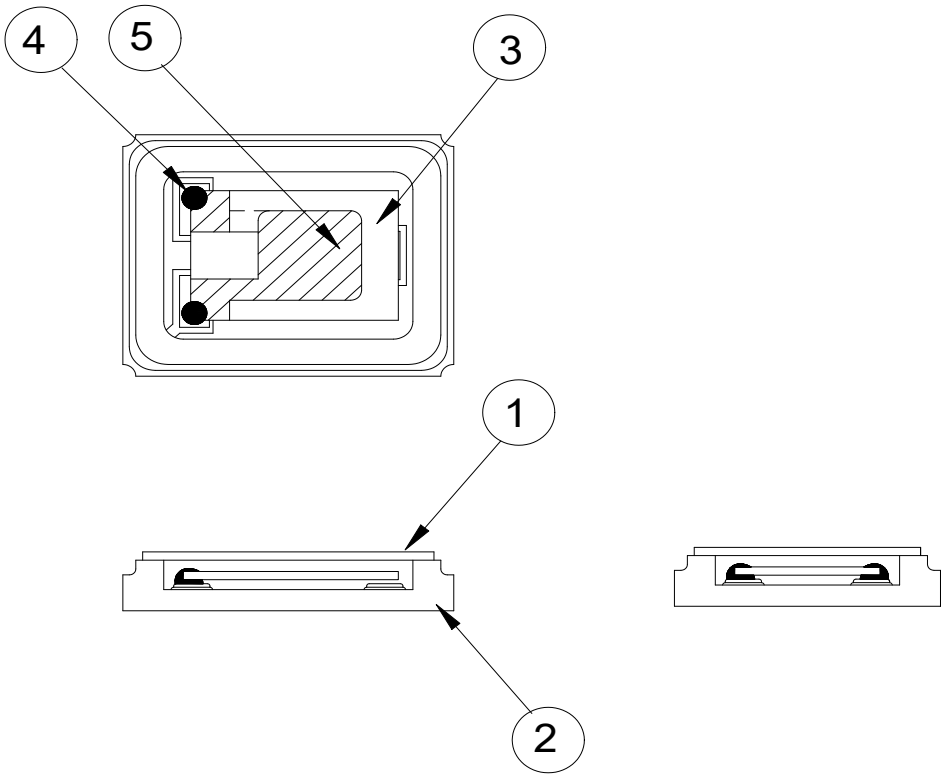
■ SUGGESTED MANUAL SOLDER CONDITION

Temperature: 350 ± 10 ℃

Time: 3 sec.

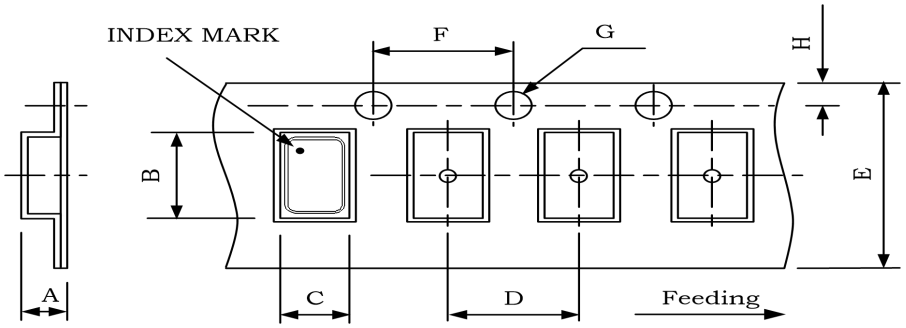
Re-solder times: twice

■ STRUCTURE ILLUSTRATION



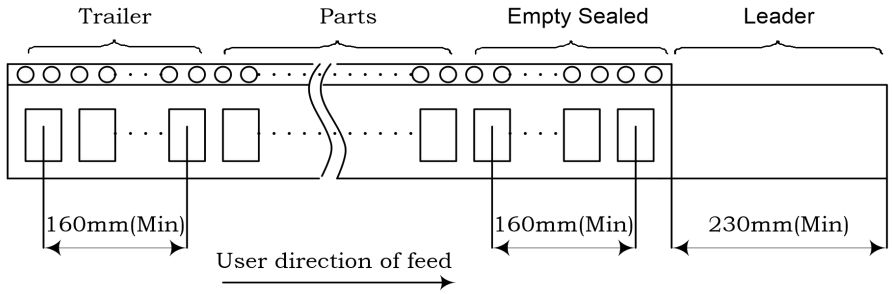
NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar (Fe/Co/Ni)	-
2	Base(Package)	Ceramic (Al_2O_3) + Kovar (Fe/Co/Ni)+Pad(Au)	Tungsten metalize + Ni plating + Au plating
3	Crystal blank	SiO_2	-
4	Conductive adhesive	Resin+Ag	-
5	Electrode	Noble Metal	-

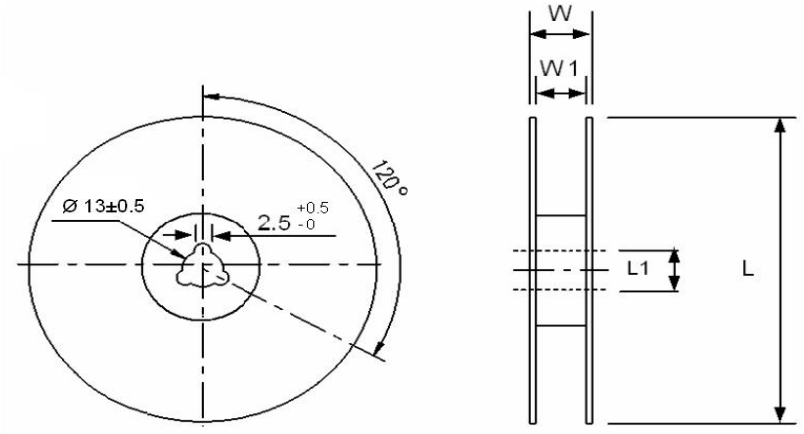
■ PACKING



DIMENSIONS	A	B	C	D	E	F	G	H	
	1.05	2.70	2.25	4.00	8.00	4.00	1.55	1.75	(UNIT : mm)

REMARK :



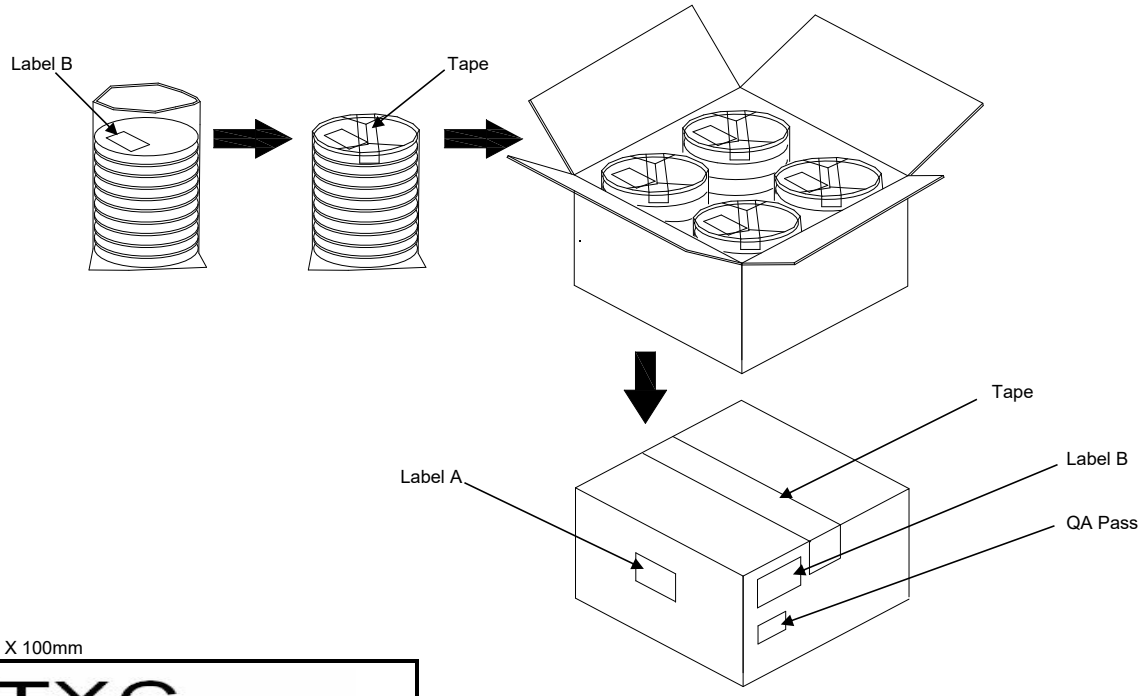


DIMENSIONS	L	L1	W	W1	pcs / Reel (UNIT : mm)
	178	13	11.5	8	Standard Reel Quantity is 3,000 pcs per reel

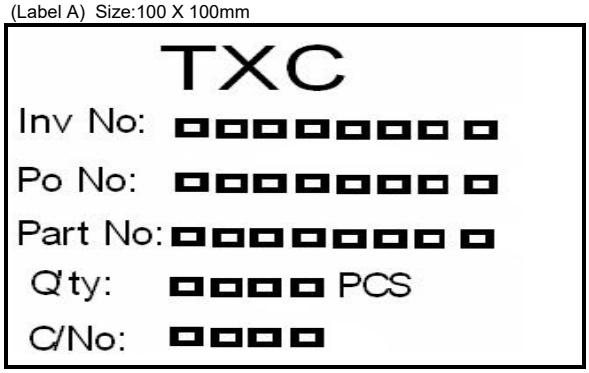
■ PACKING

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)

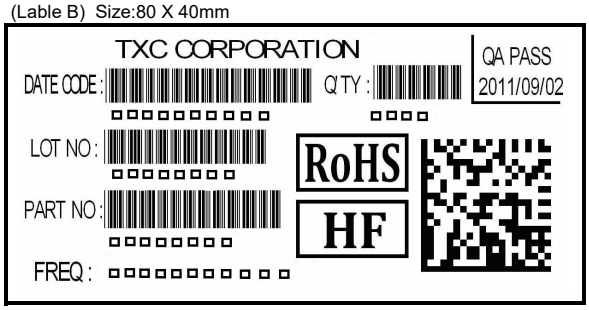
Box Size:
1. L200 X W200 X H140mm
2. L200 X W200 X H250mm
3. L400 X W200 X H250mm
4. L400 X W400 X H280mm



(Label A) Size:100 X 100mm



(Lable B) Size:80 X 40mm



[STORAGE]

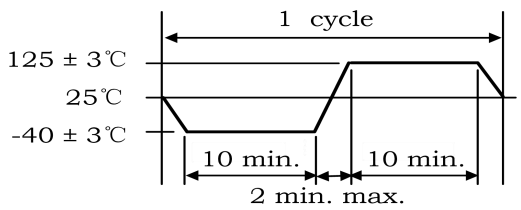
1.The storage time to be 1 year maximum.
2.Don't be caught in the rain.
3.The storage environment shall be 5℃ ~40℃ temperature and 30% ~ 75%RH humidity and free from the sun shine.
4.If customers have special requirements, we can paste labels according to it.

■ RELIABILITY SPECIFICATIONS

1.Mechanical Endurance

No.	Test Item	Test Methods		Test Criteria
1.1	Drop Test	150 cm height, 3 times on concrete floor.		A . C
1.2	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times. 0.5m sec. duration time		A . C
1.3	Vibration	Frequency range Amplitude Sweep time perpendicular axes each test time	10 ~ 2000 Hz 1.52 mm/20G 20 minutes 4 Hrs (Total test time 12 Hrs)	A . C
1.4	Solder ability	Temperature Immersing depth Immersion time Flux	240 ℃ ± 5℃ 0.5 mm minimum 5 ± 1 seconds Rosin resin methyl alcohol solvent (1 : 4)	E

2.Environmental Endurance

No.	Test Item	Test Methods		Test Criteria
2.1	Resistance To Soldering Heat	Pre-heat temperature Pre-heat time Test temperature Test time	125 ℃ 60 ~ 120 sec. 260 ± 5 ℃ 10 ± 1 sec.	B . C . D
2.2	High Temp. Storage	+ 125 ℃ ± 3 ℃ for 500 ± 12 Hrs		B . C . D
2.3	Low Temp. Storage	- 40 ℃ ± 3 ℃ for 500 ± 12 Hrs		
2.4	Temperature cycle	Total 100 cycles of the following temperature cycle 		B . C . D
2.5	High Temp＆Humidity	85℃ ± 3℃, RH 85% , 500Hrs		B . C . D

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 2 hour, and measured.
E	Minimum 95% of immersed terminal shall be covered with new uniform solder.

Measurement condition

Electrical characteristics measured by S&A250B or equivalent.