



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 3.2×2.5

NOMINAL FREQ. : 12.000000MHz

TXC P/N : 7M12010001

REVISION : A5

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

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

NOMINAL FREQ. : 12.000000MHz

TXC P/N : 7M12010001

REVISION : A5

PE/RD	QA	MFG
<i>Shih-Yung Pao</i> Shih-YungPao	<i>Samson Xiong</i> Samson Xiong	<i>Min-Chiang Chao</i> Min-ChiangChao
<i>11-Jan-13</i>	<i>11-Jan-13</i>	<i>11-Jan-13</i>

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



<u>Rev</u>	<u>Revise page</u>	<u>Revise contents</u>	<u>Date</u>	<u>Ref.No.</u>	<u>Reviser</u>
A1	N/A	Initial released	13-Nov-07	N/A	Yachuan Miao
A2	N/A	Add Apple's special requirements Operating Temperature Change	29-Mar-12	N/A	Xiaoyan Jiang
A3	N/A	Add Apple's special requirements Operating Temperature Change	14-May-12	ECR-12N060501	Xiaoyan Jiang
A4	6	RELIABILITY SPECIFICATIONS Change	13-Jul-12	ECR-12N060501	Xiaoyan Jiang
A5	3	Equivalent Series Resistance, Drive Level Change	11-Jan-13	ECR-13N020500	Xiaoyan Jiang

■ 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 HP E5100A or equivalent.

Crystal cutting type

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

Unit Weight:

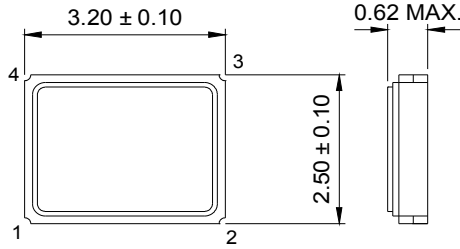
0.018±0.001 g/pcs

	Parameters	Symbol	Electrical Spec.				Notes
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	FL	12.000000			MHz	-
2	Oscillation Mode	-	Fundamental			-	-
3	Load Capacitance	CL	10			pF	-
4	Frequency Tolerance	-	±10			ppm	at 25 °C ± 3 °C
5	Frequency Tolerance	-	±20			ppm	Over Operating Temp. Range (Reference 25°C)
6	Operating Temperature	-	-10	~	90	°C	-
7	Aging	-	±3			ppm	1st Year
8	Drive Level	DL	-	100	200	uW	-
9	Equivalent Series Resistance	ESR	-	-	60	Ω	-
10	Shunt Capacitance C0	C0	-	-	3	pF	-
11	Spurious Response	-	-	-	-6	dB	±1000 ppm of nominal Freq.
12	DLD2	-	-	-	20	Ohms	test drive level: 0.2uW to 200uW /5Point
13	SPRR	-	2	-	-	-	-
14	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
15	Storage Temperature Range	-	-40	~	85	°C	-

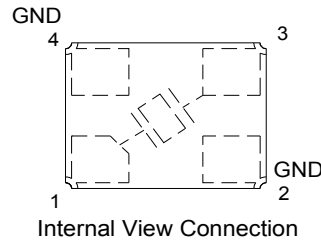
■ FACTORY LOCATION

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

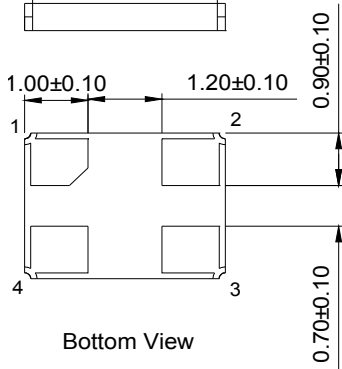
DIMENSIONS



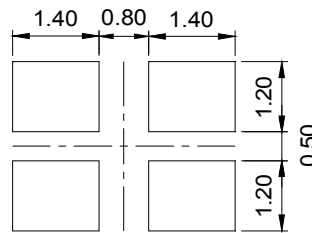
Unit:mm



Internal View Connection

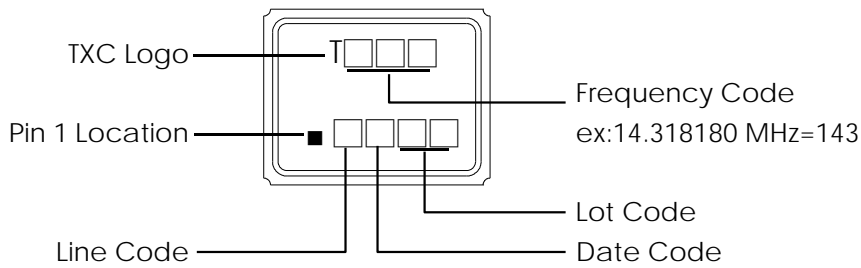


Bottom View



Suggested Layout

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 °C, 70 sec. Min.

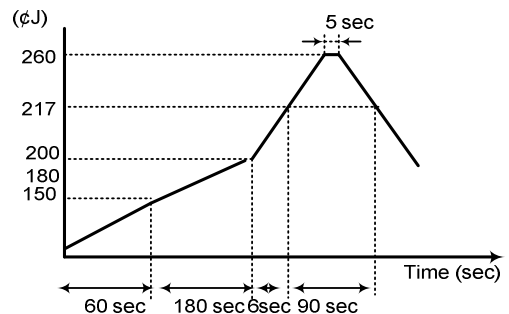
Peak Temperature: 260 ± 3 °C, 10 sec. Max.

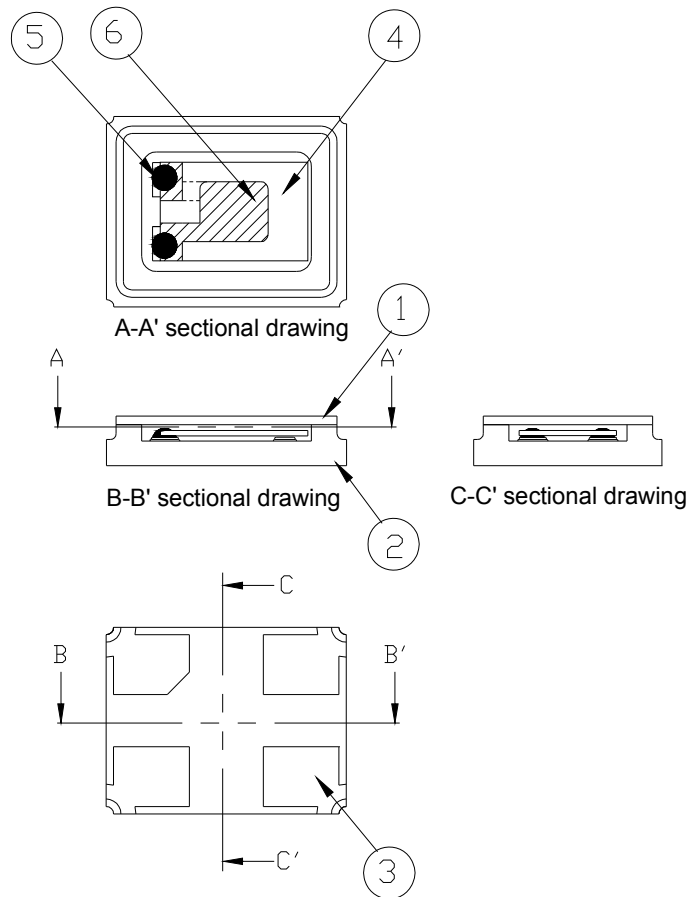
SUGGESTED MANUAL SOLDER CONDITION

Temperature: 350 ± 10 °C

Time: 3 sec.

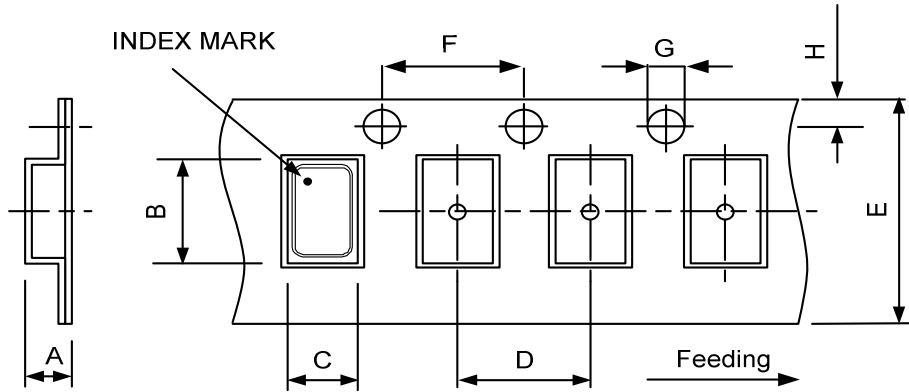
Re-solder times: twice



■ STRUCTURE ILLUSTRATION


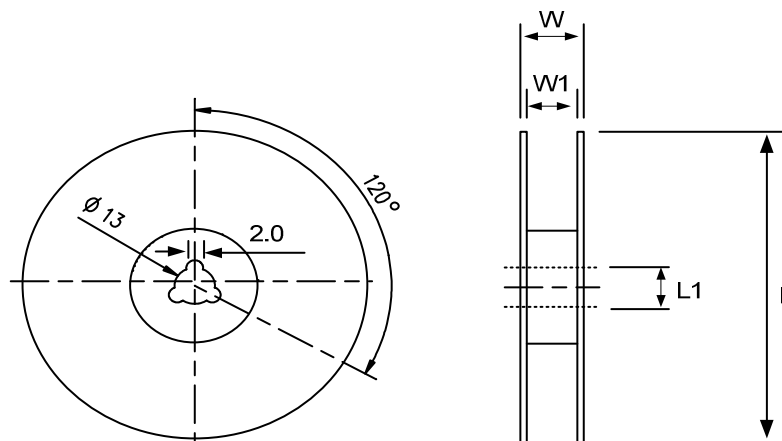
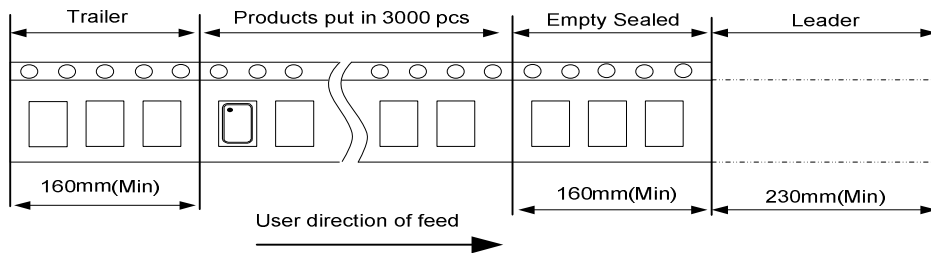
NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar (Fe/Co/Ni)	-
2	Base(Package)	Ceramic (Al ₂ O ₃) + Kovar (Fe/Co/Ni)+ Ag/Cu	Color black
3	PAD	Au	Tungsten metalize + Ni plating + Au plating
4	Crystal blank	SiO ₂	-
5	Conductive adhesive	Ag	Silicon resin
6	Electrode	Noble Metal	-

PACKING



DIMENSIONS	A	B	C	D	E	F	G	H	(UNIT : mm)
	1.65	3.4	2.7	4	8	4	1.55	1.75	

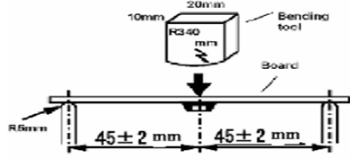
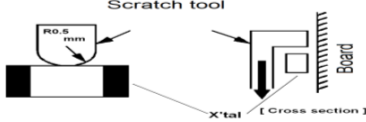
REMARK :



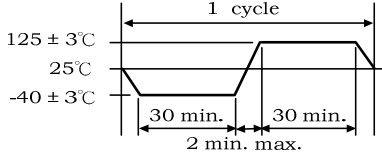
DIMENSIONS	L	L1	W	W1	pcs / Reel (UNIT : mm)
	178	13	11.5	8	Standard Reel Quantity is 3,000 pcs per reel

RELIABILITY SPECIFICATIONS

1. Mechanical Endurance

No.	Test Item	Test Methods	Test Criteria
1.1	Drop Test	Part is mounted to 100g fixture and dropped from a height of 150cm to a cement floor. The drop must be conducted on all 6 sides	A.D.E
1.2	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times. 0.5 ms duration time	A.D.E
1.3	Vibration	Frequency range 10 ~ 2000 Hz Amplitude 1.52 mm/20G Sweep time 20 minutes Perpendicular axes each test time 4 Hrs (Total test time 12 Hrs)	A.D.E
1.4	Bending Test	Apply pressure in the direction of the arrow at a rate of about 0.5 mm/s until bent width reaches 3 mm, then hold for 30 seconds. 	A.D.E
1.5	Shear test	A static load of 20N(2.04kgf) using a R0.5 scratch tool, shall be applied on the core of the component and in the direction of the arrow and held for 5 seconds. 	A.D.E
1.6	Solderability	Temperature 245 °C ± 5°C Immersing depth 0.5 mm minimum Immersion time 5 ± 1 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)	C.D.E

2. Environmental Endurance

No.	Test Item	Test Methods	Test Criteria
2.1	Resistance To Soldering Heat	Pre-heat temperature 125 °C Pre-heat time 60 ~ 120 sec. Test temperature 260 ± 5 °C Test time 10 ± 1 sec.	A.B.D.E
2.2	High Temp. Storage	+ 125 °C ± 3 °C for 500 ± 12 Hrs	A.B.D.E
2.3	Low Temp. Storage	- 40 °C ± 3 °C for 500 ± 12 Hrs	A.B.D.E
2.4	Thermal Shock	Total 100 cycles of the following temperature cycle 	A.B.D.E
2.5	High Temp & Humidity	40°C ± 2°C , RH 90%~ 95%, 240 Hrs	A.B.D.E
2.6	Operational Life	1,000 hours @ 85 ± 2°C. using an inverter with 1MΩ resistor in parallel and load capacitors	A.B.D.E

**RELIABILITY SPECIFICATIONS**

Specifications	
A	All specifications can meet customer's requests listed on the Page 3
B	After conditioning , quartz crystal units shall be subjected to standard atmospheric conditions for 2 hour, and measured.
C	Minimum 95% of immersed terminal shall be covered with new uniform solder.
D	Fine leak test: Parts shall have a mass spectrometer leak rate of less,than 1×10^{-8} atmosphere cc/sec of helium.
E	Gross Leak test: Standard Sample For Automatic Gross Leak Detector, Test Pressure: 2kg / cm ²

Measurement condition

Electrical characteristics measured by S&A250B or equivalent.

X-ON Electronics

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Click to view products by [TXC Corporation manufacturer](#):

Other Similar products are found below :

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[FL2000085](#) [9B-15.360MBBK-B](#) [9C-7.680MBBK-T](#) [ASH7K-32.768KHZ](#) [AT-41.600MAGQ-T](#) [BTD1062E05A-513](#) [LFX TAL066198Cutt](#)
[9C-14.31818MBBK-T](#) [FA-238 50.0000MB30X-K3](#) [FC-12M 32.7680KA-AC3](#) [SSPT7F-9PF20-R](#) [FX325BS-38.88EEM1201](#)
[LFX TAL065253Cutt](#) [LFX TAL066431Cutt](#) [XT9S20ANA14M7456](#) [XT9SNLANA16M](#) [646G-24-2](#) [7A-24.576MBBK-T](#) [7B-30.000MBBK-T](#)
[WX26-32.768K-6PF](#) [9B-14.31818MBBK-B](#) [CD1AM](#) [7B-25.000MAAE-T](#) [7A-14.31818MBBK-T](#) [6504-202-1501](#) [6526-202-1501](#) [FA-118T](#)
[27.1200MB50P-K0](#) [FC-135R 32.7680KA-A3](#) [ABM12-104-37.400MHZT](#) [ABLS-10.000MHZ-D3W-T](#) [BTJ112E01E-513](#) [BTJ722K01C-7067](#)
[BTL-20-513](#) [TSX-3225 24.0000MF15X-AC](#) [TSX-3225 16.0000MF18X-AC](#) [BTJ120E02C](#) [BTL-12-513](#) [7A-10.000MBBK-T](#) [7A-](#)
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