

SPECIFICATION FOR APPROVAL

CUSTOMER : _____

PRODUCT TYPE : SMD GLASS SEALING XTAL 5.0*3.2

NOMINAL FREQ. : 12.000000MHz

TXC P/N : 7A12000026

REVISION : A4

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

Pb used in sealing glass material is exempt from EU directive



PRODUCT SPECIFICATION SHEET

PRODUCT TYPE : SMD GLASS SEALING XTAL 5.0*3.2

NOMINAL FREQ. : 12.000000MHz

TXC P/N : 7A12000026

REVISION : A4

PE/RD	QA	MFG
<i>Min-Chiang Chao</i>	<i>Lawson</i>	<i>Min-Chiang Chao</i>
<i>16-Feb-09</i>	<i>16-Feb-09</i>	<i>16-Feb-09</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

Pb used in sealing glass material is exempt from EU directive



<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	6-Sep-04	N/A	Yachuan Miao
A2	3	Suggested Reflow Profile Change	2-Jun-05	ECN-05P050501	Yachuan Miao
A3	2	Rr Change (80Ω TO 40 Ω)	20-Apr-06	ECN-06P042002	Yachuan Miao
A4	N/A	Version Change "E"	16-Feb-09	ECN-08P112702	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±5°C
 Relative humidity : 40%~70%

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

Ambient temperature : 25±3°C
 Relative humidity : 40%~70%

Measure equipment

Electrical characteristics measured by S&A250B or equivalent.

Crystal cutting type

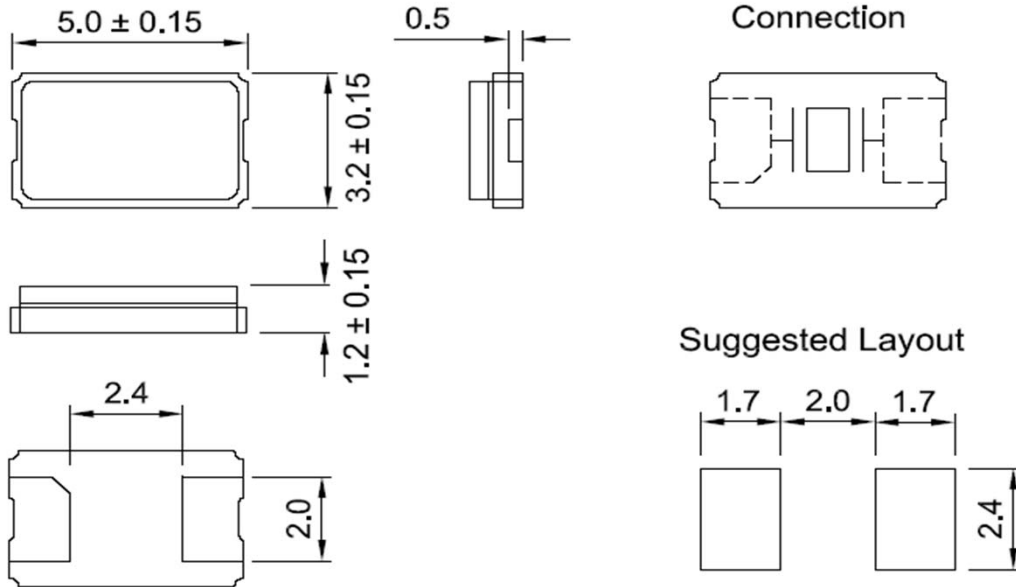
The crystal is using AT CUT (thickness shear mode).

Unit Weight:

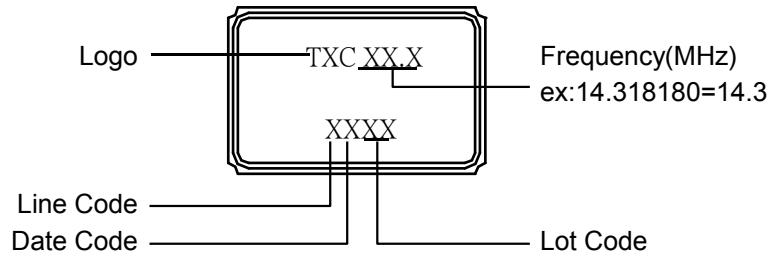
0.062±0.001 g/pcs

	Parameters	SYM.	Electrical Spec.				Notes
			MIN	TYP	MAX	UNITS	
1	Nominal Frequency	FL	12.000000			MHz	-
2	Oscillation Mode	-	Fundamental			-	-
3	Load Capacitance	CL	16			pF	-
4	Frequency Tolerance	-	±30			ppm	at 25 °C ± 3 °C
5	Frequency Stability	-	±30			ppm	Over Operating Temp. Range (Reference 25°C)
6	Operating Temperature	-	-10	~	70	°C	-
7	Aging	-	±5			ppm	1st Year
8	Drive Level	DL	-	50	-	uW	-
9	Effective Resistance Rr	Rr	-	-	40	Ω	-
10	Shunt Capacitance C0	C0	-	-	5	pF	-
11	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
12	Storage Temperature Range	-	-40	~	85	°C	-

■ DIMENSIONS



■ MARKING



Production location: China

Date Code

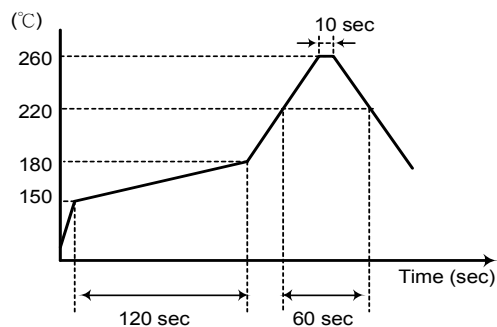
YEAR \ MONTH					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
					A	B	C	D	E	F	G	H	J	K	L	M
2001	2005	2009	2013	2017	N	P	Q	R	S	T	U	V	W	X	Y	Z
2002	2006	2010	2014	2018	a	b	c	d	e	f	g	h	j	k	l	m
2003	2007	2011	2015	2019	n	p	q	r	s	t	u	v	w	x	y	z
2004	2008	2012	2016	2020												

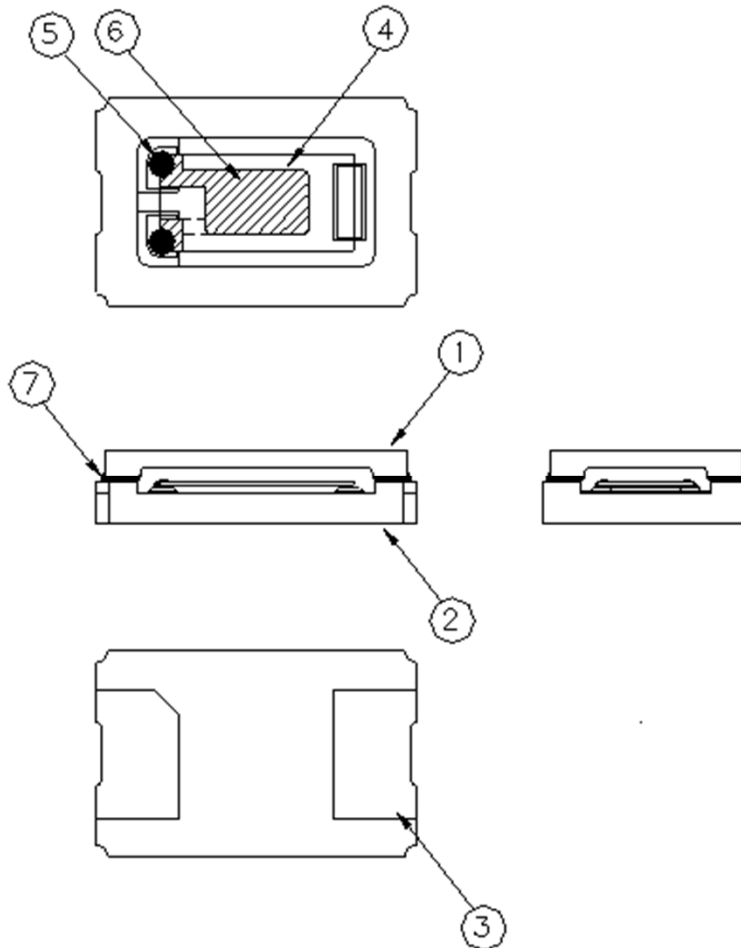
This date code will be cycled every four years

■ SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.

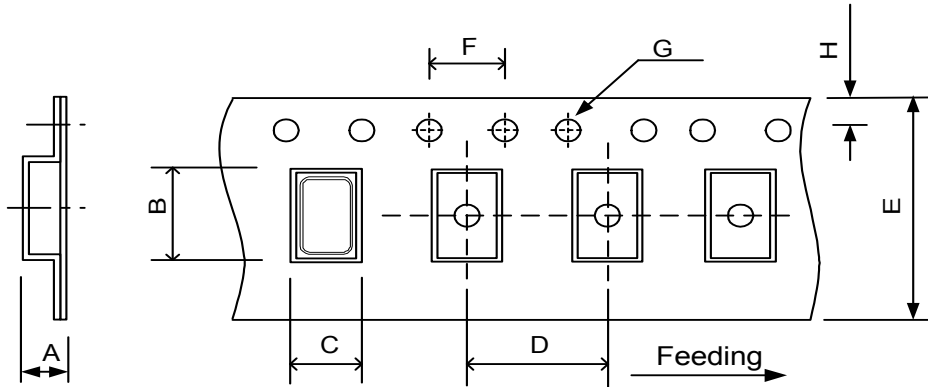
Solder melting point :220 °C



■ STRUCTURE ILLUSTRATION


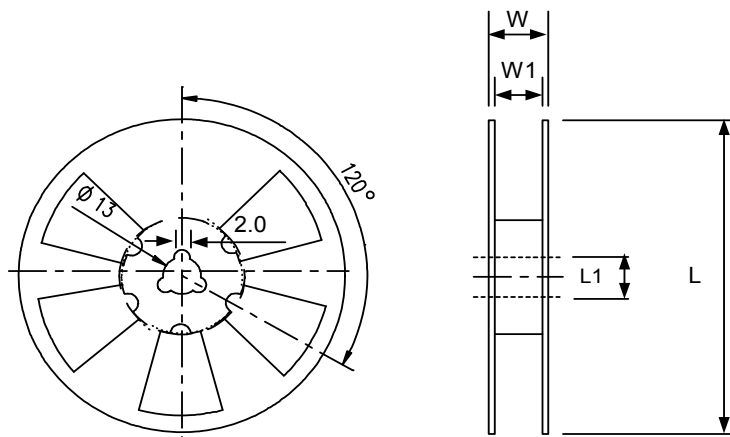
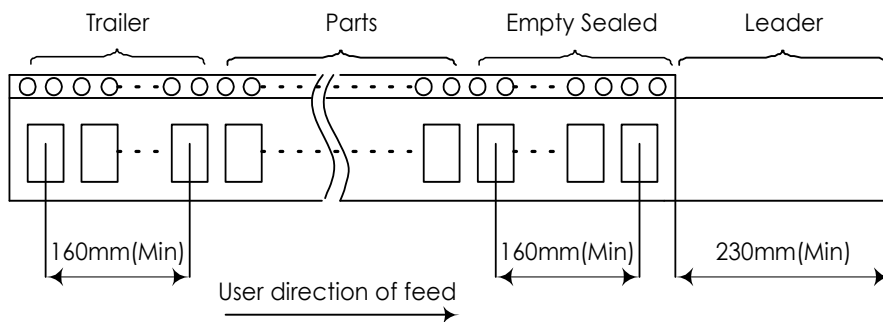
NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Cap	Ceramic	-
2	Base(Package)	Ceramic (Al ₂ O ₃)	Color black
3	PAD	Au	Tungsten metalize + Ni plating + Au plating
4	Crystal blank	SiO ₂	-
5	Conductive adhesive	Ag	Silicon resin
6	Electrode	Noble metal	-
7	Glass	-	-

■ **PACKING : (EIA-481-2)**



DIMENSIONS	A	B	C	D	E	F	G	H	(UNIT : mm)
	1.40	5.40	3.60	8.00	12.00	4.00	1.55	1.75	

REMARK :



DIMENSIONS	L	L1	W	W1	pcs / Reel (UNIT : mm)
	180	13	16.5	12	Standard Reel Quantity is 1,000 pcs per reel

RELIABILITY SPECIFICATIONS
1. Mechanical Endurance

No.	Test Item	Test Methods	REF.DOC
1	Drop Test	75 cm height, fall freely onto concrete floor 3 times.	JIS C6701
1	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times. 0.5m sec. duration time	MIL-STD-202F
1	Vibration	Frequency range 10 ~ 2000 Hz Amplitude 1.52 mm/20G Sweep time 20 minute Perpendicular axes each test time 4 hours (Total test time 12 hours)	MIL-STD-883E
1	Gross Leak	Standard Sample For Automatic Gross Leak Detector, Test Pressure: 2Kg / cm ²	MIL-STD-883E
2	Fine Leak	Helium Bombing 4.5 Kg / cm ² for 2 hr	
2	Solderability	Temperature 240 °C ± 5°C Immersing depth 0.5 mm minimum Immersion time 5 ± 1 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)	MIL-STD-883E

2. Environmental Endurance

No.	Test Item	Test Methods	REF. DOC
2	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.	MIL-STD-202F
2	High Temp. Storage	+ 125 °C ± 3 °C for 1000 ± 12 hours	MIL-STD-883E
2	Low Temp. Storage	- 40 °C ± 3 °C for 1000 ± 12 hours	
2	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883E
3	High Temp & Humidity	85°C ± 3°C , RH 85% , 1000Hrs	JIS C5023
3	Pressure Cooker Storage	121 ± 3°C , RH100% , 2 bar , 240Hrs	JIS C6701