

SPECIFICATION FOR APPROVAL

CUSTOMER : _____

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

NOMINAL FREQ. : 16.000000MHz

TXC P/N : 7M16000099

REVISION : A6

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



TXC CORPORATION

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PRODUCT SPECIFICATION SHEET

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

NOMINAL FREQ. : 16.000000MHz

TXC P/N : 7M16000099

REVISION : A6

PE/RD	QA	MFG
<i>Suott.Chen</i>	<i>T.M. Yan</i>	<i>Jelly Teng</i>
<i>25-Dec-08</i>	<i>25-Dec-08</i>	<i>25-Dec-08</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

Issue Date: 12.15'08 VER.E

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 HP E5100A or equivalent.

Crystal cutting type

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

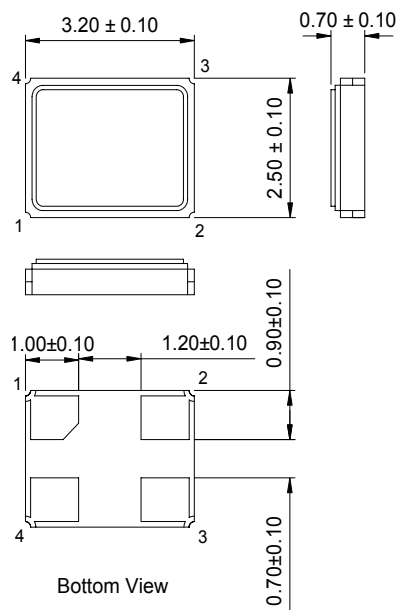
Unit Weight:

0.018±0.001 g/pcs

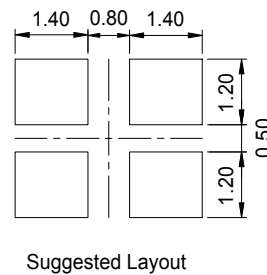
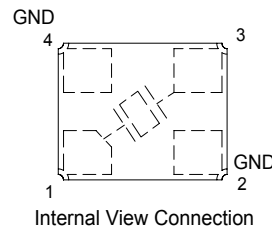
	Parameters	SYM.	Electrical Spec.				Notes
			MIN	TYPE	MAX	UNITS	
1	Nominal Frequency	FL	16.000000			MHz	-
2	Oscillation Mode	-	Fundamental			-	-
3	Load Capacitance	CL	9			pF	-
4	Frequency Tolerance	-	±10			ppm	at 25 ± 3
5	Frequency Stability	-	±15			ppm	Over Operating Temp. Range (Reference 25)
6	Operating Temperature	-	-20	~	85		-
7	Aging	-	±3			ppm	1st Year
8	Drive Level	DL	-	10	-	μW	-
9	Effective Resistance Rr	Rr	-	-	50	Ω	-
10	Shunt Capacitance C0	C0	-	-	5	pF	-
11	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
12	Storage Temperature Range	-	-40	~	85		-

DIMENSIONS

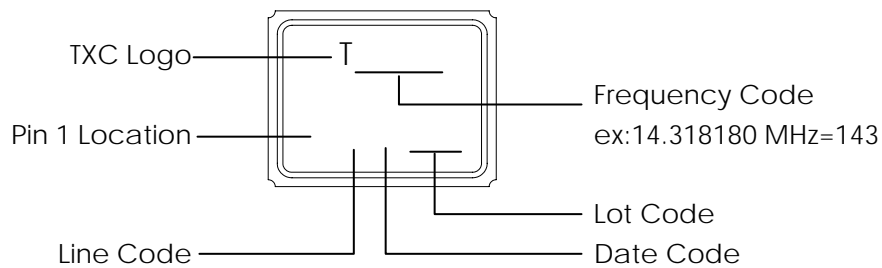
(Unit:mm)



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

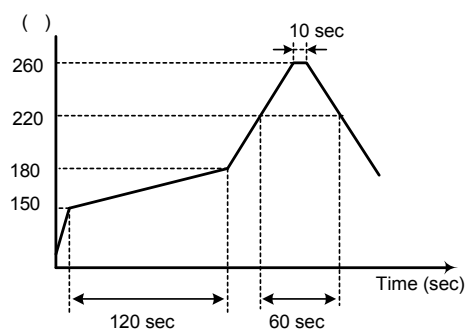
*This date code will be cycled every four years

Production location: Taiwan

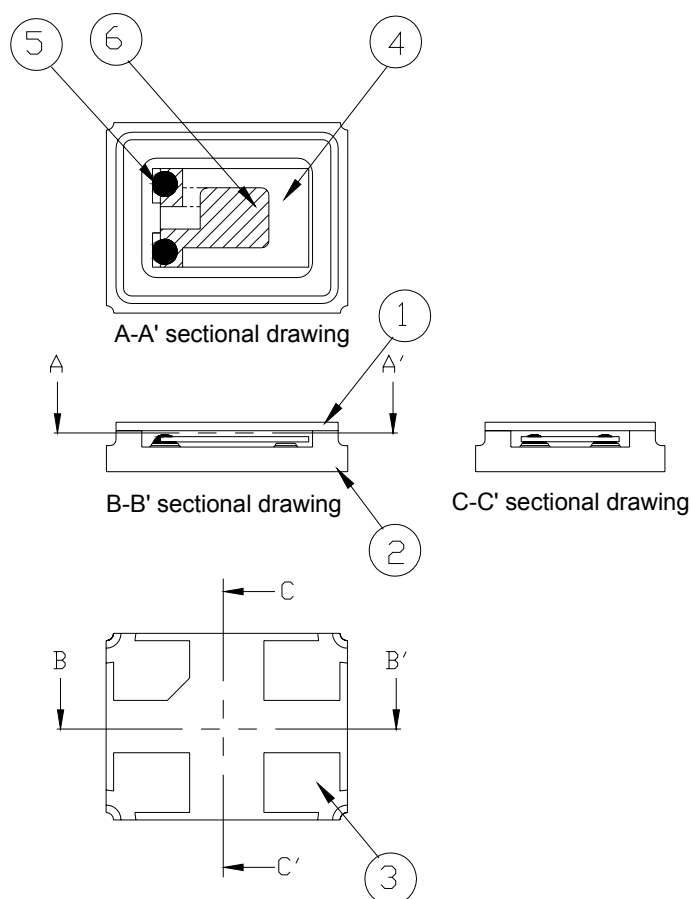
SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.

Solder melting point :220

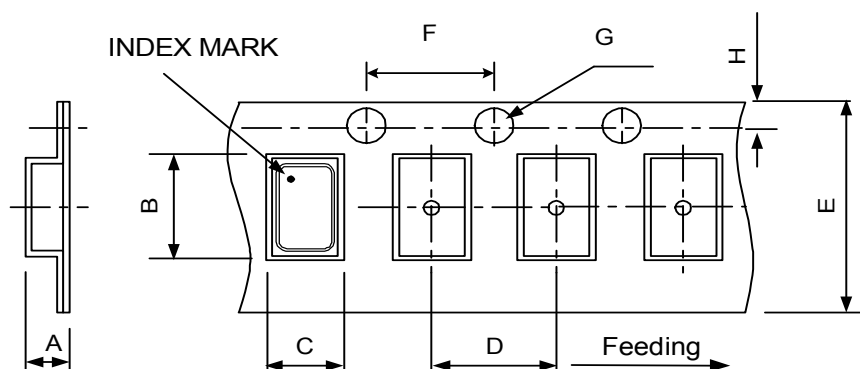


STRUCTURE ILLUSTRATION



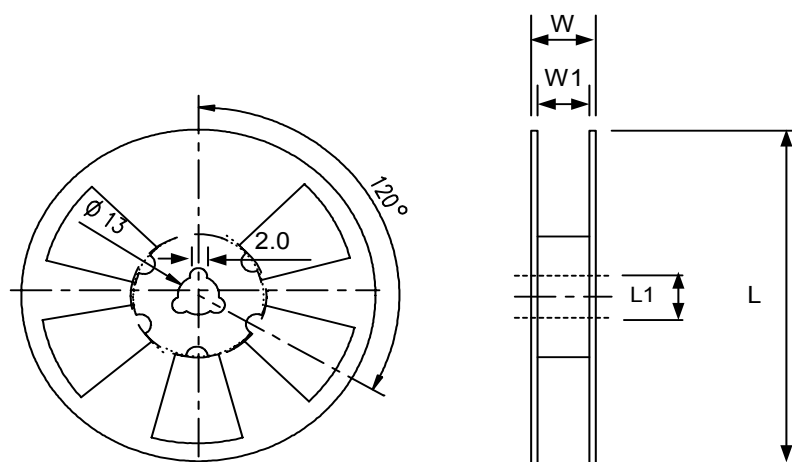
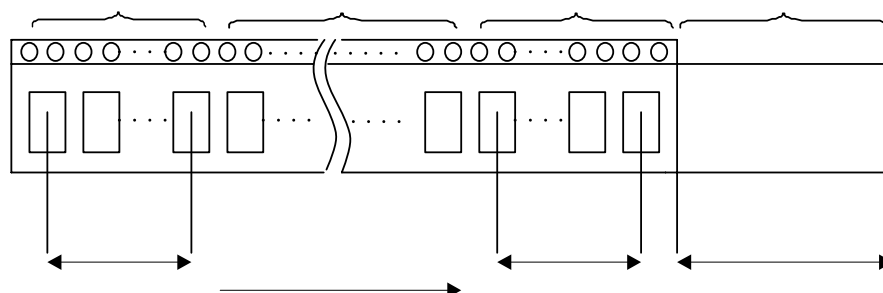
NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar (Fe/Co/Ni)	-
2	Base(Package)	Ceramic (Al ₂ O ₃) + Kovar (Fe/Co/Ni)+ Ag/Cu	Color black
3	PAD	Au	Tungsten metalize + Ni plating + Au plating
4	Crystal blank	SiO ₂	-
5	Conductive adhesive	Ag	Silicon resin
6	Electrode	Noble Metal	-

PACKING



DIMENSIONS	A	B	C	D	E	F	G	H	(UNIT : mm)
	1.65	3.4	2.7	4	8	4	1.5	1.75	

REMARK :



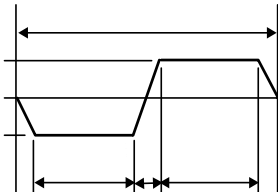
DIMENSIONS	L	L1	W	W1	pcs / Reel (UNIT : mm)
	178	13	11.5	8	Standard Reel Quantity is 3,000 pcs per reel

RELIABILITY SPECIFICATIONS

1.Mechanical Endurance

No.	Test Item	Test Methods	REF.DOC
1.1	Drop Test	150 cm height, 3 times on concrete floor.	JIS C6701
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	MIL-STD-202F
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)	MIL-STD-883E
1.4	Gross Leak	Standard Sample For Automatic Gross Leak Detector, Test Pressure: 2kg / cm ²	MIL-STD-883E
1.5	Fine Leak	Helium Bombing 4.5 kg/ cm ² for 2 Hrs	
1.6	Solder ability	Temperature 245 ± 5 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
2.1	Resistance To Soldering Heat	Pre-heat temperature 125 Pre-heat time 60 ~ 120 sec. Test temperature 260 ± 5 Test time 10 ± 1 sec.	MIL-STD-202F
2.2	High Temp. Storage	+ 125 ± 3 for 500 ± 12 Hrs	MIL-STD-883E
2.3	Low Temp. Storage	- 40 ± 3 for 500 ± 12 Hrs	
2.4	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883E
2.5	High Temp & Humidity	85 ± 3 , RH 85% , 500 Hrs	JIS C5023
2.6	Pressure Cooker Storage	121 ± 3 , RH100% , 2 bar , 240 Hrs	JIS C6701