

# SPECIFICATION FOR APPROVAL

CUSTOMER :

勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-34970699  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

PRODUCT TYPE :

SMD SEAM SEALING X'TAL 3.2x2.5

NOMINAL FREQ. :

12.000000MHz

TXC P/N :

7M12000057

REVISION :

A3

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**



# PRODUCT SPECIFICATION SHEET

PRODUCT TYPE : SMD SEAM SEALING X'TAL 3.2x2.5  
NOMINAL FREQ. : 12.000000MHz  
TXC P/N : 7M12000057  
REVISION : A3

PE/RD	QA	MFG
<i>Scott Chen</i> 25-May-09	<i>T.M. Yan</i> 25-May-09	<i>Chen H</i> 25-May-09

**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
A1	N/A	Initial released	7-Nov-07	N/A	Yachuan Miao
A2	-	Document version chang D to E	19-Dec-08	ECN-08P112702	Yachuan Miao
A3	3,4	Package Change	25-May-09	ECN-09P052503	Yachuan Miao

## 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).

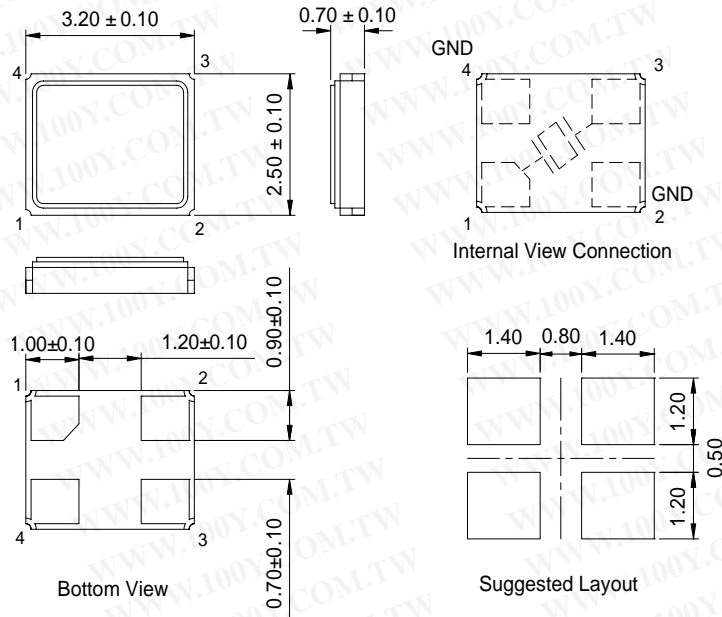
### Unit Weight:

0.018±0.001 g/pcs

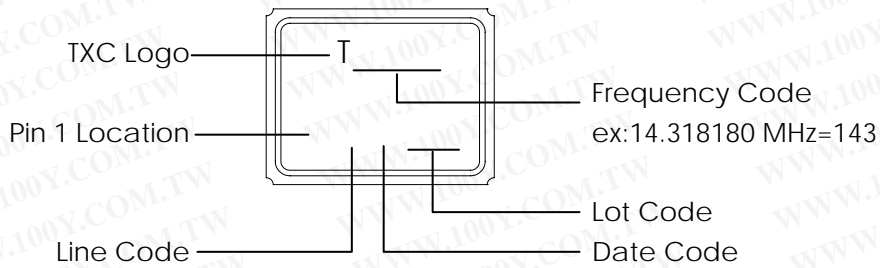
	Parameters	SYM.	Electrical Spec.				Notes
			MIN	TYP	MAX	UNITS	
1	Nominal Frequency	FL	12.000000			MHz	-
2	Oscillation Mode	-	Fundamental			-	-
3	Load Capacitance	CL	15			pF	-
4	Frequency Tolerance	-	±20			ppm	at 25 ± 3
5	Frequency Stability	-	±30			ppm	Over Operating Temp. Range (Reference 25 )
6	Operating Temperature	-	-10	~	60		-
7	Aging	-	±3			ppm	1st Year
8	Drive Level	DL	-	10	-	μ W	-
9	Effective Resistance Rr	Rr	-	-	80	Ω	-
10	Shunt Capacitance C0	C0	-	-	2	pF	-
11	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
12	Storage Temperature Range	-	-40	~	85		-

**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

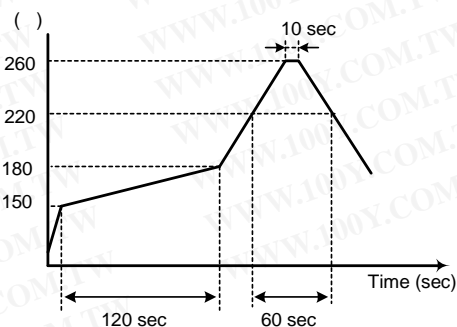
\*This date code will be cycled every four years

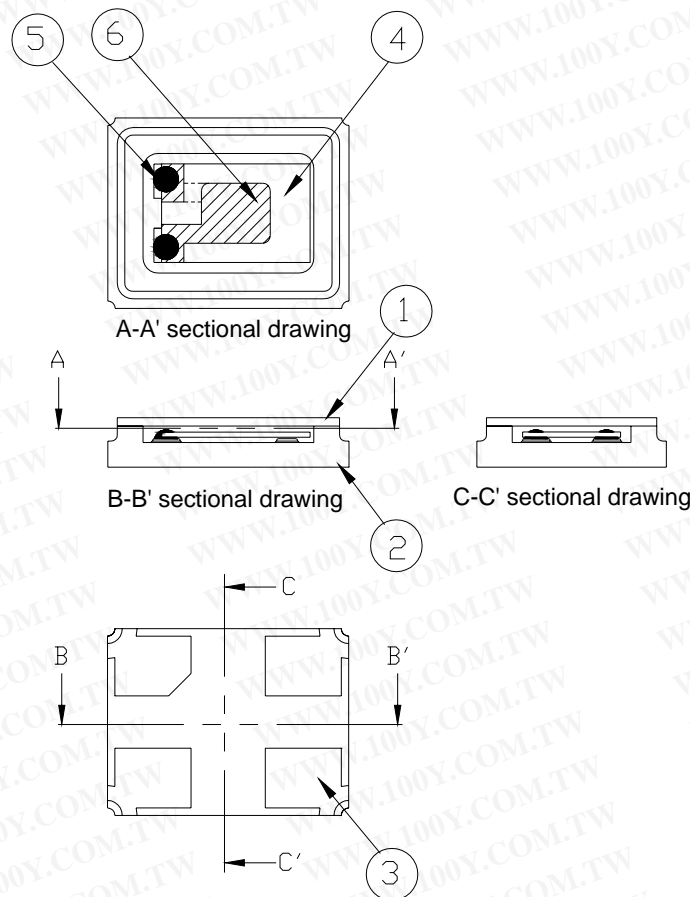
**Production location: Taiwan**

**SUGGESTED REFLOW PROFILE**

Total time : 200 sec. Max.

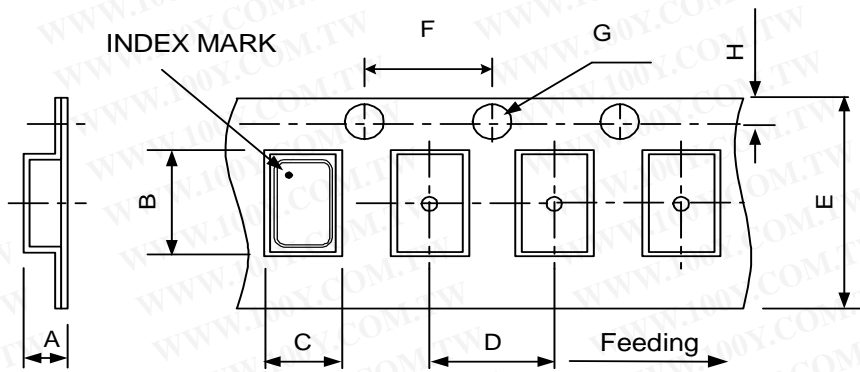
Solder melting point :220



**STRUCTURE ILLUSTRATION**


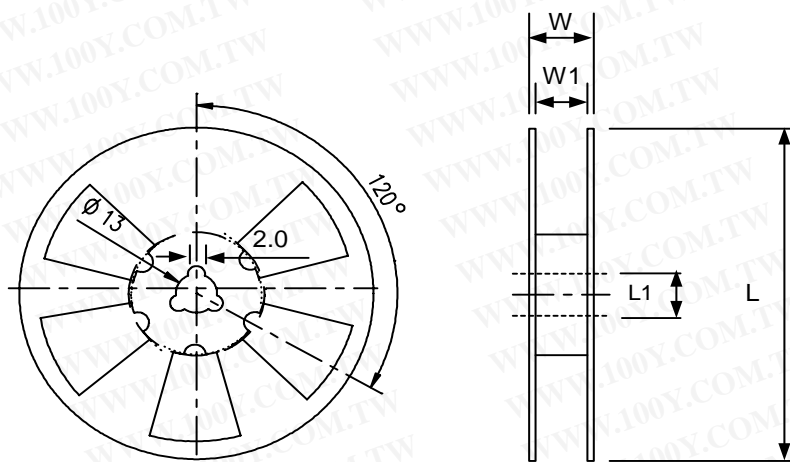
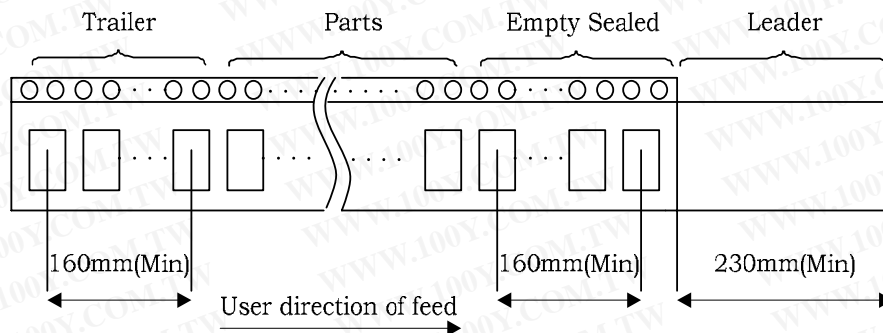
NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar (Fe/Co/Ni)	-
2	Base(Package)	Ceramic (Al <sub>2</sub> O <sub>3</sub> ) + Kovar (Fe/Co/Ni)+ Ag/Cu	Color black
3	PAD	Au	Tungsten metalize + Ni plating + Au plating
4	Crystal blank	SiO <sub>2</sub>	-
5	Conductive adhesive	Ag	Silicon resin
6	Electrode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

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**1.Mechanical Endurance**

No.	Test Item	Test Methods	REF.DOC
1.1	Drop Test	75 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 <sup>2</sup>	MIL-STD-883E
1.5	Fine Leak	Helium Bombing 4.5 kg/ cm <sup>2</sup> for 2 Hrs	
1.6	Solder ability	Temperature                                240 ± 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