

# SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_

PRODUCT TYPE : SMD TUNING FORK 1.6X1.0

NOMINAL FREQ. : 32.768KHz

TXC P/N : 9H03200030

REVISION : S1

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**  
**Halogen Free**

# PRODUCT SPECIFICATION SHEET

PRODUCT TYPE : SMD TUNING FORK 1.6X1.0

NOMINAL FREQ. : 32.768KHz

TXC P/N : 9H03200030

REVISION : S1

PE/RD	QA	MFG
Softwind Wang		
<i>23-Aug-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**  
**Halogen Free**



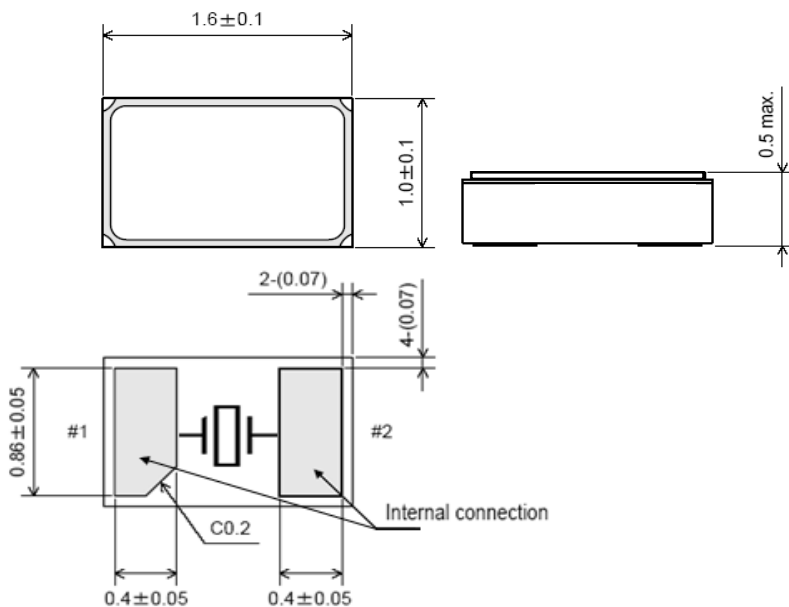
<u>Rev</u>	<u>Revise page</u>	<u>Revise contents</u>	<u>Date</u>	<u>Ref.No.</u>	<u>Reviser</u>
S1	NA	Initial release	23-Aug-13	-	Alan Cheng

### ELECTRICAL SPECIFICATIONS

	Parameters	Sym.	Electrical Spec.				Notes
			Min	Typical	Max	Unit	
1	Nominal Frequency	F0	32.768			KHz	-
2	Frequency Tolerance	$\Delta f/f_0$	$\pm 20$			ppm	at 25 °C $\pm 3^\circ\text{C}$
3	Load Capacitance	CL	12.5			pF	-
4	Driver Level	DL	-	0.1	0.5	$\mu\text{W}$	-
5	Equivalent Series Resistance	ESR	-	-	90	K $\Omega$	at 25 °C $\pm 3^\circ\text{C}$
6	Q Factor	Q	-	12	-	k	-
7	Turnover Temperature	Tp	20	25	30	$^\circ\text{C}$	at 25 °C $\pm 5^\circ\text{C}$
8	Parabolic Curvature Constant	K	-	-	-0.04	ppm/ $^\circ\text{C}^2$	-
9	Operating Temperature	-	-40	~	85	$^\circ\text{C}$	-
10	Storage Temperature	-	-55	~	125	$^\circ\text{C}$	-
11	Insulation Resistance	IR	500	-	-	M $\Omega$	at DC 100V $\pm 15\text{V}$
12	Shunt Capacitance	C0	-	1.3	-	pF	-
13	Motional Capacitance	C1	-	6.4	-	fF	-
14	Aging	$\Delta f/f$	$\pm 3$			ppm	1st Year

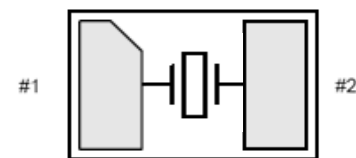
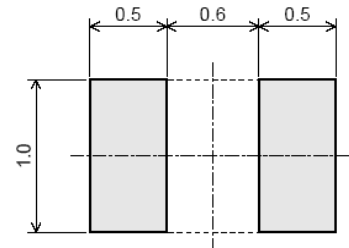
### DIMENSIONS

(UNIT:mm)



### RECOMMENDED SOLDER PAD

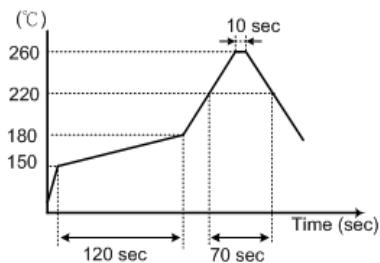
(UNIT:mm)



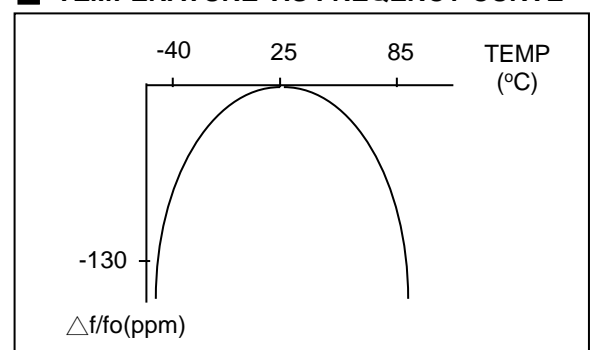
&lt; Top view &gt;

### REFLOW PROFILE

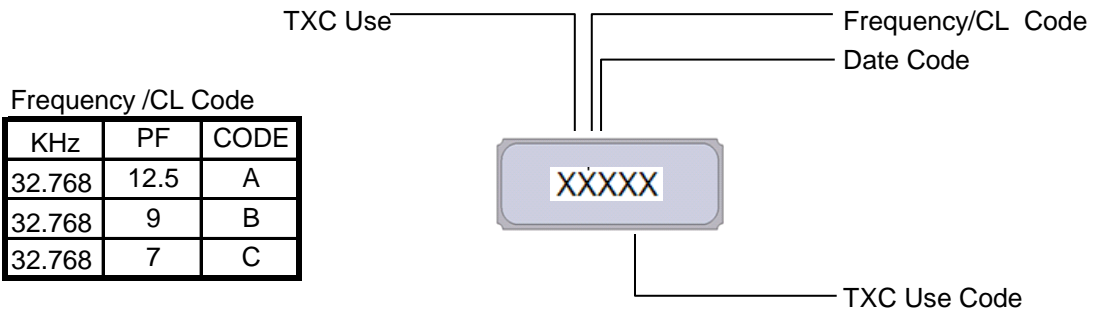
Total time : 200 sec. Max.

 Solder melting point :  $220^\circ\text{C}$ 


### TEMPERATURE V.S FREQUENCY CURVE



**MARKING**



Frequency /CL Code

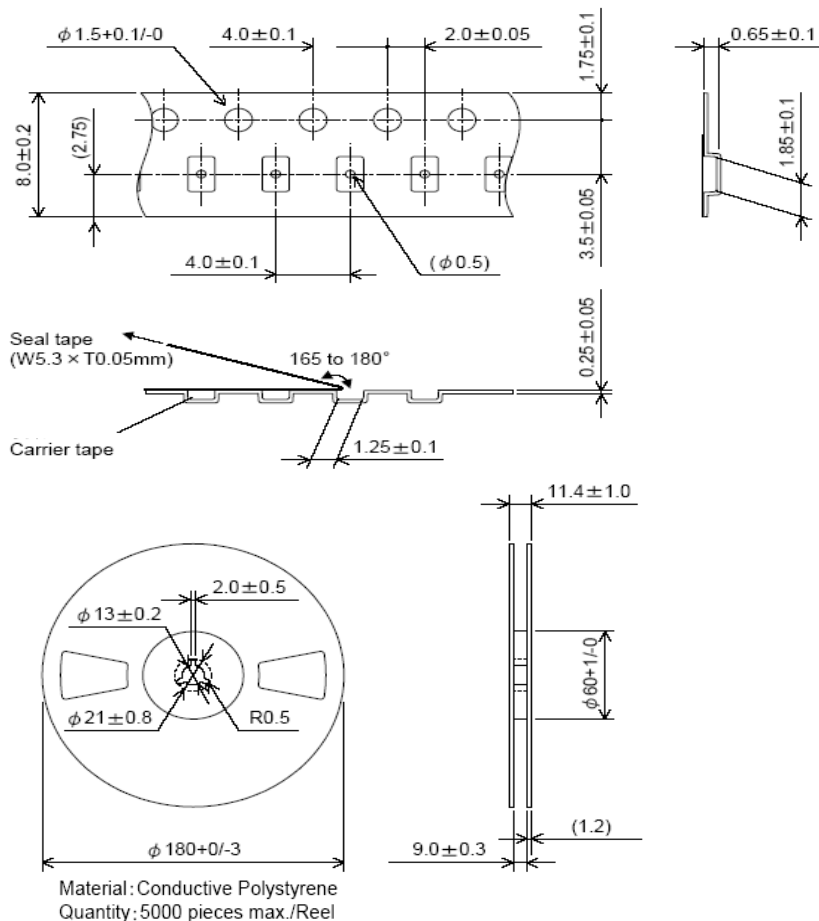
KHz	PF	CODE
32.768	12.5	A
32.768	9	B
32.768	7	C

Date Code

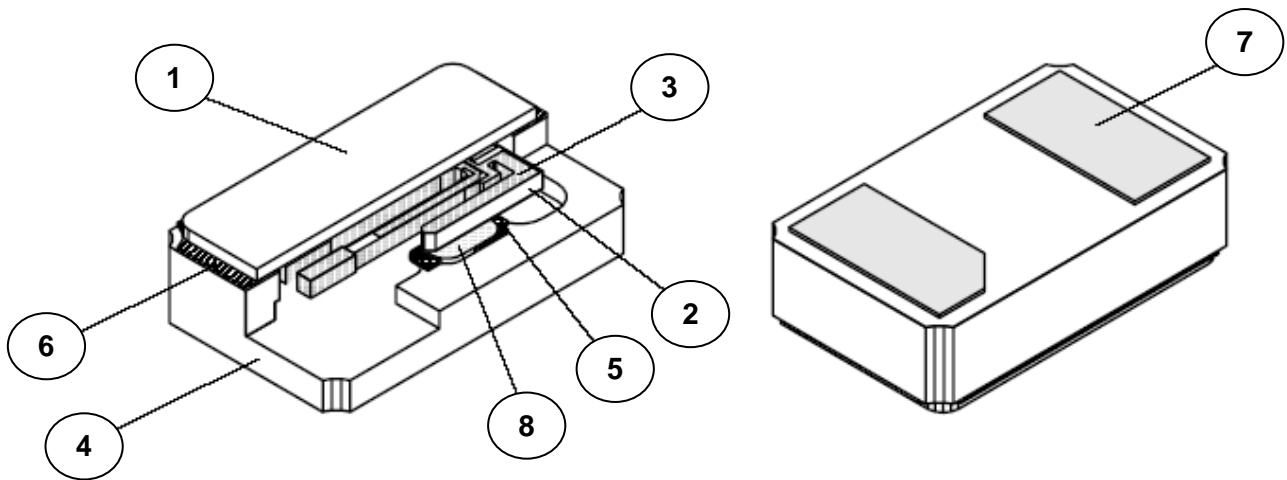
YEAR					MONTH											
					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2001	2005	2009	2013	2017	A	B	C	D	E	F	G	H	J	K	L	M
2002	2006	2010	2014	2018	N	P	Q	R	S	T	U	V	W	X	Y	Z
2003	2007	2011	2015	2019	a	b	c	d	e	f	g	h	j	k	l	m
2004	2008	2012	2016	2020	n	p	q	r	s	t	u	v	w	x	y	z

This date code will be cycled every four years

**PACKING (UNIT:mm)**



- REMARK :
- 230 mm (9.05) minimum leader which consist of carrier and/or tape followed by a minimum of 160 mm (6.3) of empty carrier tape sealed with cover tape.
  - 160 mm (6.3) minimum trailer of empty carrier tape sealed with cover tape.

**■ STRUCTURE ILLUSTRATION**


NO	COMPONENTS		MATERIALS	QTY	FINISH/SPECIFICATIONS
1	Lid		Clad Metals	1	Ni+Kovar+ Cu-Ni+Silver solder(Ag-Cu-Sn)
2	Chip	Crystal chip	SiO <sub>2</sub>	1	-
3		Electrode	Noble Metal	2	Cr+Au
4	Package	Base	Ceramic(Al <sub>2</sub> O <sub>3</sub> )	1	Color Black
5		Internal terminals	Au	2	Tungsten metallize + Ni plating + Au plating
6		Metallize for sealing	Au	1	Tungsten metallize + Ni plating + Au plating
7		PAD	Au	2	Tungsten metallize + Ni plating + Au plating
8	Conductive adhesive		Ag	2	Silicon resin

**■ UNIT WEIGHT:**

0.0027±0.001 g/pcs

## RELIABILITY SPECIFICATIONS

### 1. Mechanical Endurance

No.	Test Item	Test Methods	REF. DOC
1	Drop Test	150 cm height, fall freely onto concrete floor 3 times.	MIL-STD-202
1	Mechanical Shock	Device are shocked to half sine wave ( 1000 G ) three mutually perpendicular axes each 3 times. 1m sec. duration time	MIL-STD-202
1	Vibration	Frequency range                      10 ~ 55 Hz Amplitude                                      1.5 mm Sweep time                                      1 minute Perpendicular axes each test time      2 hours (Total test time 6 hours)	MIL-STD-883
1	Solderability	Temperature                                  255 °C ± 5°C Immersing depth                              0.5 mm minimum Immersion time                                3.5 ± 0.5 seconds Flux    Rosin resin methyl alcohol solvent ( 1 : 4 )	MIL-STD-883

### 2. Environmental Endurance

No.	Test Item	Test Methods	REF. DOC
2	Resistance To Soldering Heat	Pre-heat temperature                      160 °C Pre-heat time                                   90 ± 10 sec. Test temperature                              260 ± 5 °C Test time                                         5 ± 1 sec.	MIL-STD-202
2	High Temp. Storage	+ 125 °C ± 3 °C for 168 ± 12 hours	MIL-STD-883
2	Low Temp. Storage	- 40 °C ± 3 °C for 1000 ± 12 hours	MIL-STD-883
2	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883
3	Pressure Cooker Storage	121 ± 3°C, RH100%, 2 bar, for 240 hours	EIA-JESD22
3	High Temp & Humidity	85°C ± 3°C, RH 85% , 1000Hrs	EIA-JESD22

单击下面可查看定价，库存，交付和生命周期等信息

[>>TXC\(台湾晶技\)](#)