



**TXC CORPORATION**

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# SPECIFICATION FOR APPROVAL

CUSTOMER	:	_____
PRODUCT TYPE	:	SMD TUNING FORK 3.2X1.5
NOMINAL FREQ.	:	32.768KHz
TXC P/N	:	9H03200033
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

**Halogen Free  
RoHS Compliant**



# PRODUCT SPECIFICATION SHEET

PRODUCT TYPE : SMD TUNING FORK 3.2X1.5

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NOMINAL FREQ. : 32.768KHz

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TXC P/N : 9H03200033

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REVISION : S1

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RD	QA	MFG
王敏和		
8-Aug-12		

**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

**Halogen Free  
RoHS Compliant**

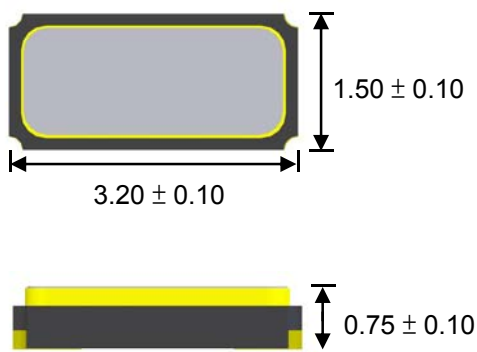


**ELECTRICAL SPECIFICATIONS**

	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	9.0			pF	-
4	Driver Level	DL	-	0.1	1	$\mu\text{W}$	-
5	Equivalent Series Resistance	ESR	-	-	70	K $\Omega$	at 25 °C $\pm 3^\circ\text{C}$
6	Turnover Temperature	Tp	20	25	30	$^\circ\text{C}$	at 25 °C $\pm 5^\circ\text{C}$
7	Parabolic Curvature Constant	K	-	-	-0.04	ppm/ $^\circ\text{C}^2$	-
8	Operating Temperature	-	-40	~	85	$^\circ\text{C}$	-
9	Storage Temperature	-	-55	~	125	$^\circ\text{C}$	-
10	Insulation Resistance	IR	500	-	-	M $\Omega$	at DC 100V $\pm 15\text{V}$
11	Shunt Capacitance	C0	-	1.0	-	pF	-
12	Motional Capacitance	C1	-	3.4	-	fF	-
13	Aging	$\Delta f/f$	$\pm 3$			ppm	1st Year

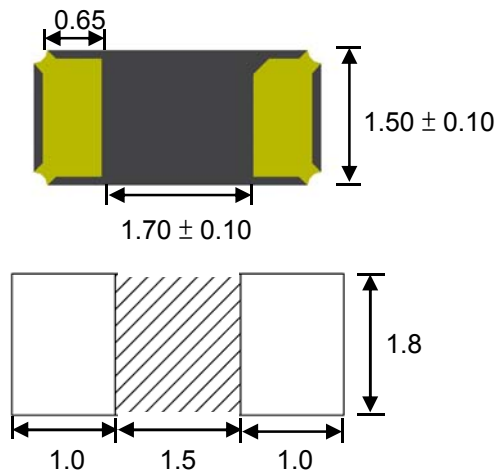
**DIMENSIONS**

(UNIT:mm)



**RECOMMENDED SOLDER PAD**

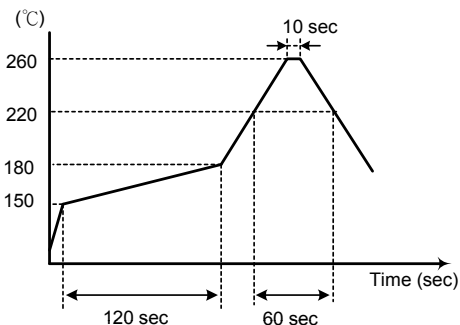
(UNIT:mm)



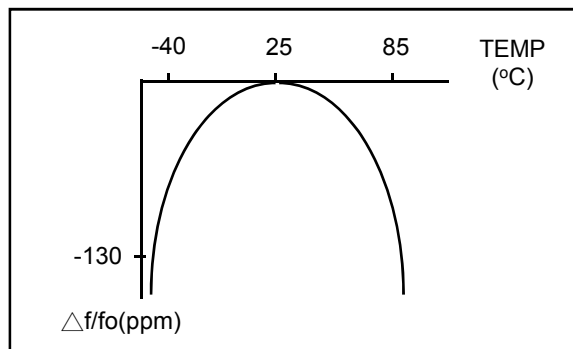
**SUGGESTED REFLOW PROFILE**

Total time : 200 sec. Max.

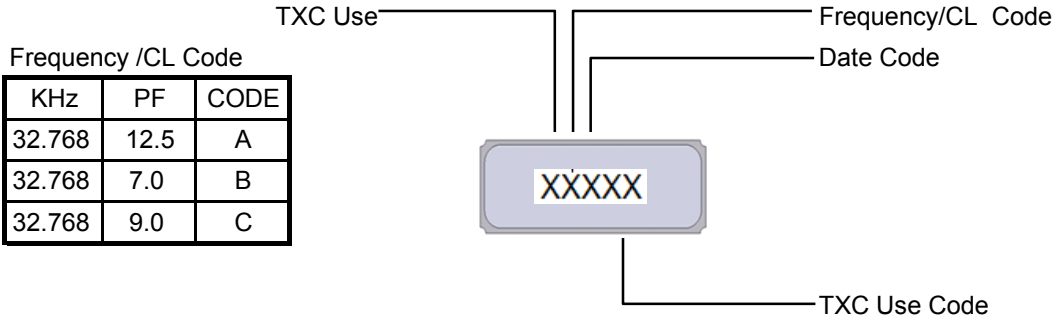
Solder melting point :220°C



**TEMPERATURE V.S FREQUENCY CURVE**



**MARKING**

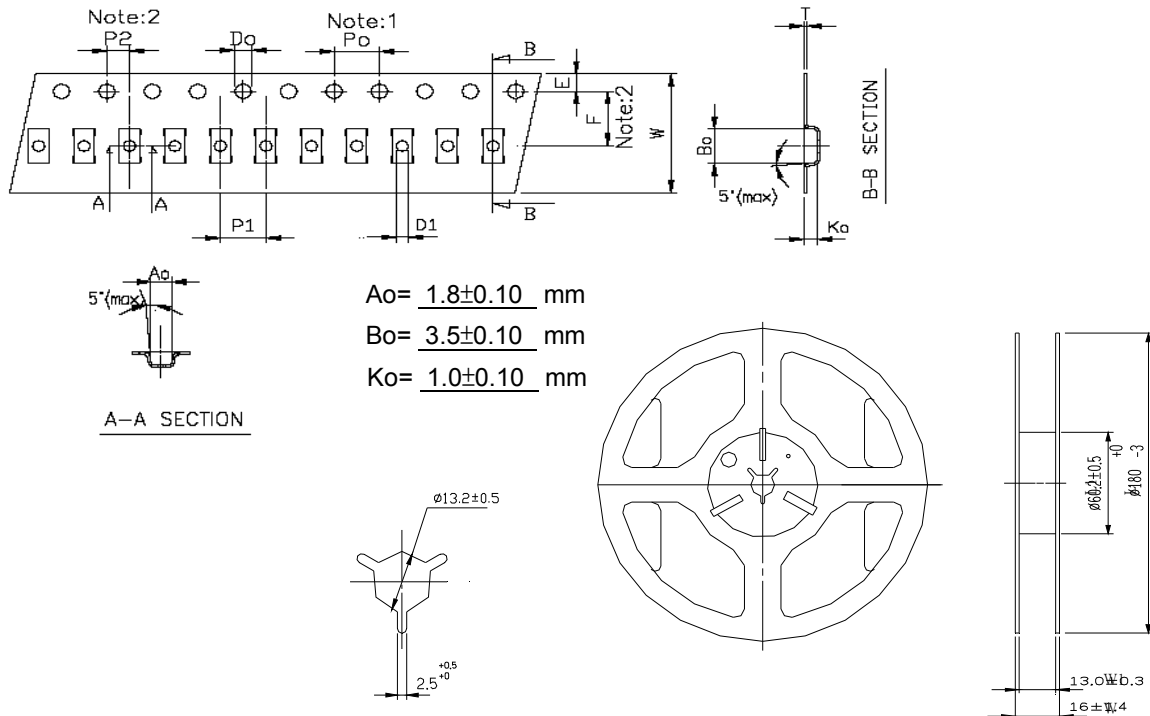


Date Code

					MONTH											
YEAR					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**



CARRIER TAPE DIMENSIONS	K1	P0	P1	P2	D0	D1	E	F	10P0	W	T	pcs / Reel
	-	4	4	2	1.55	1.1	1.75	5.5	40	12	0.25	3K

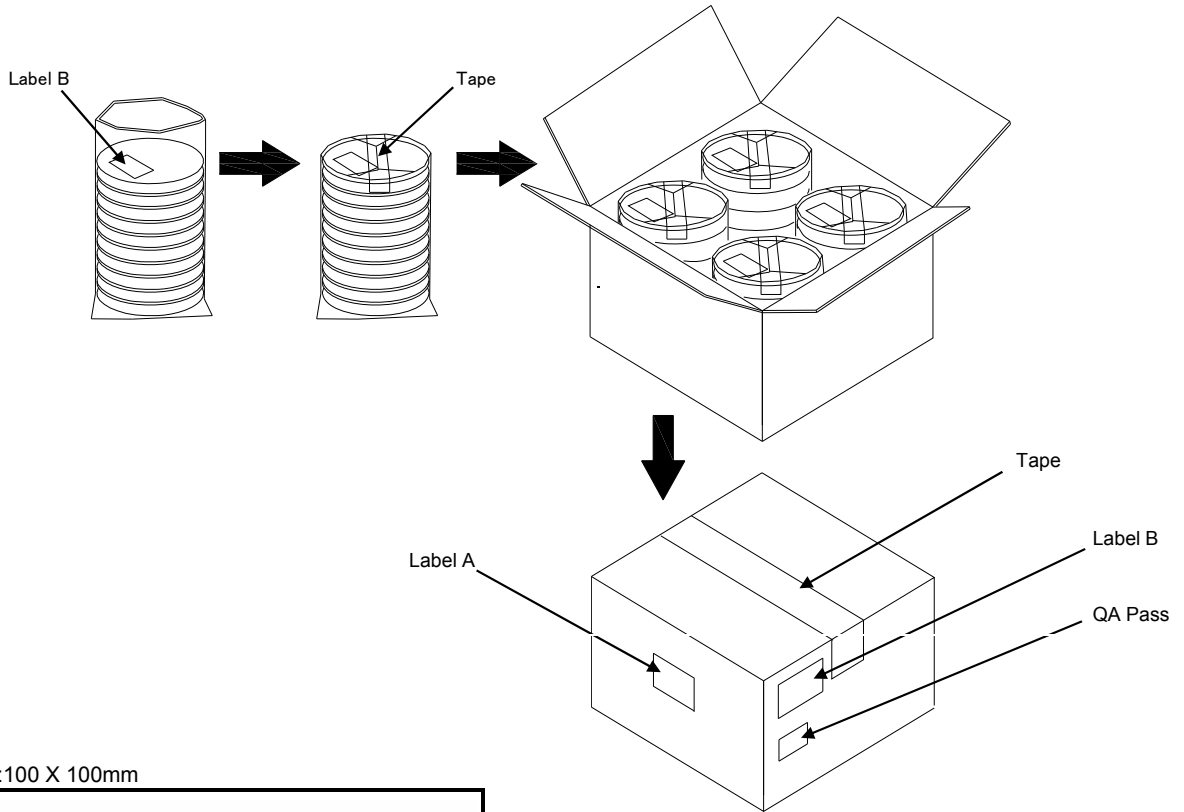
REEL DIMENSIONS	W	W1	L	L1
	16±1.4	13±0.3	180+0/-3	60.2±0.5

- 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.

**PACKING**

- Reel Quantity :
1. Reel X 5 (5 Reels x1)
  2. Reel X 10 (10 Reels x1)
  3. Reel X 20 (10 Reels x2)
  4. Reel X 40 (10 Reels x4)

- Box Size:
1. L200 X W200 X H140mm
  2. L200 X W200 X H250mm
  3. L400 X W200 X H250mm
  4. L400 X W400 X H280mm



(Label A) Size:100 X 100mm

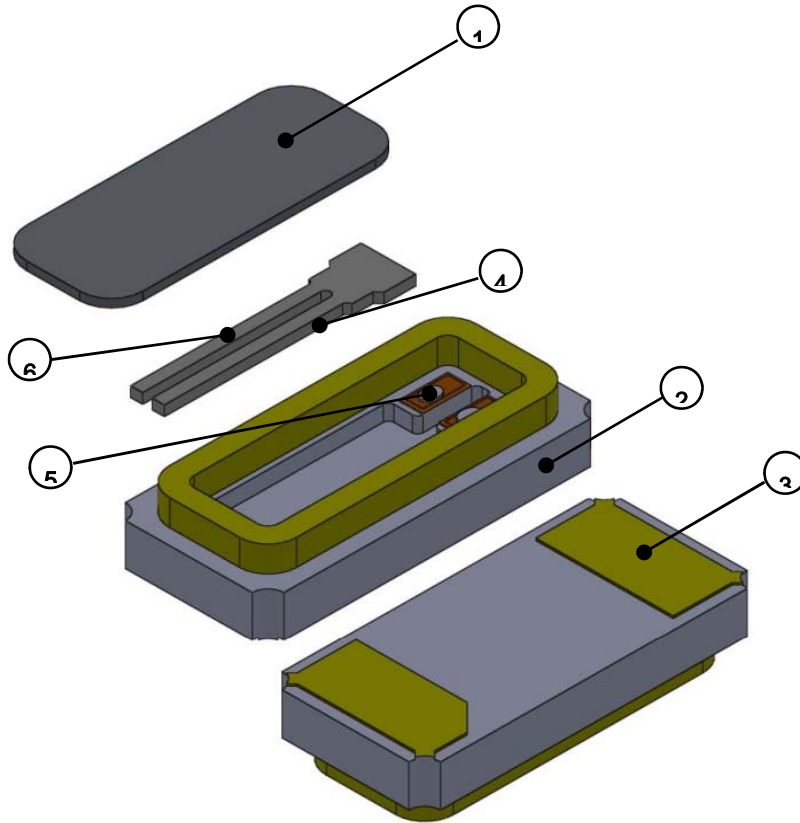
TXC
Inv No: 00096815
Po No: 21106326- 24- 1
Part No: <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span>
Qty: 40000 PCS
C/No: 157- 44

(Label B) Size:80 X 40mm

TXC CORPORATION		QA PASS
DATE CODE:	QTY:	2011/09/02
<span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span>		1000
LOT NO:	<b>RoHS</b>	
<span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span>		
PART NO:	<b>HF</b>	
FREQ: <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span> <span style="border: 1px solid black; padding: 2px;">  </span>		

**[STORAGE]**

- 1.The storage time to be 1 year maximum.
- 2.Don't be caught in the rain.
- 3.The storage environment shall be 5°C ~40°C temperature and 30% ~ 75%RH humidity and free from the sun shine.
- 4.If customers have special requirements, we can paste labels according to it.

**■ STRUCTURE ILLUSTRATION**


NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar(Fe+Co+Ni) Alloy	-
2	Base(Package)	Ceramic( $Al_2O_3$ )	Alumina Ceramics
3	PAD	Au	Tungsten metalize + Ni plating + Au plating
4	Crystal chip	$SiO_2$	-
5	Conductive adhesive	Ag	Silicon resin
6	Electrode	Au+Cr	-

**■ UNIT WEIGHT:**

0.01197g/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. 0.5m sec. duration time	MIL-STD-202
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-883
1	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 )	MIL-STD-883

**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-202
2	High Temp. Storage	+ 125 °C ± 3 °C for 1000 ± 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





■ **SUGGESTED MANUAL SOLDER CONDITION**

Temperature: 350 ± 10 °C

Time: 3 sec.

Re-solder times: twice

■ **FACTORY LOCATION**

TXC (NINGBO) CORPORATION

NO.189 Huang Shan West Road, Beilun District,

Ningbo Zhejiang China

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