



SPECIFICATION FOR APPROVAL

CUSTOMER : _____

PRODUCT TYPE : SMD TUNING FORK 3.2X1.5

NOMINAL FREQ. : 32.768KHz

TXC P/N : 9H03200033

REVISION : A2

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

NOMINAL FREQ. : 32.768KHz

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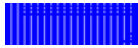
REVISION : A2

RD	QA	MFG
<i>Zhong Lin Wu</i> ZhongLin Wu	<i>Samson Xiong</i> Samson Xiong	<i>Min-Chiang Chao</i> Min-ChiangChao
----- 15-Jan-15	----- 15-Jan-15	----- 15-Jan-15

NOTE:

- (1)The green product standard set by TXC is based upon the international standards. Related information is publicly described on the TXC's Website, and updated regularly. The document is compliant with the latest green product quality system directives at the time.
- (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

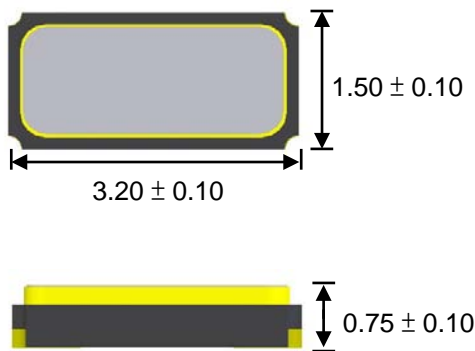


ELECTRICAL SPECIFICATIONS

	Parameters	Sym.	Electrical Spec.				Notes
			Min	Typical	Max	Unit	
1	Nominal Frequency	F0	32.768			KHz	-
2	Frequency Tolerance	$\Delta f/f_0$	± 20			ppm	at 25 °C $\pm 3^\circ\text{C}$
3	Load Capacitance	CL	9.0			pF	-
4	Driver Level	DL	-	0.1	1	μW	-
5	Equivalent Series Resistance	ESR	-	-	65	K Ω	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 Ω	at DC 100V $\pm 15\text{V}$
11	Shunt Capacitance	C0	-	1.0	-	pF	-
12	Motional Capacitance	C1	-	3.4	-	fF	-
13	Aging	$\Delta f/f$	± 3			ppm	1st Year

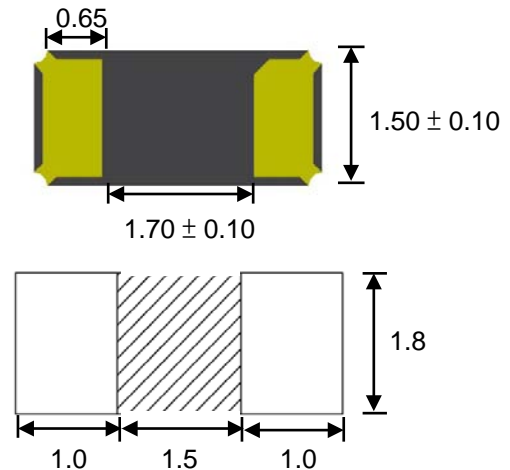
DIMENSIONS

(UNIT:mm)



RECOMMENDED SOLDER PAD

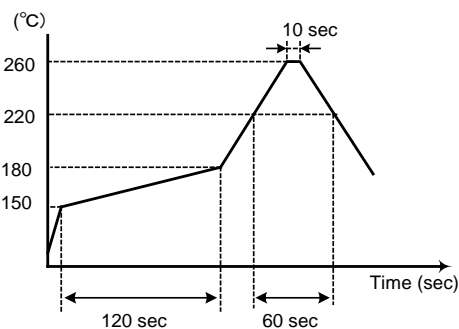
(UNIT:mm)



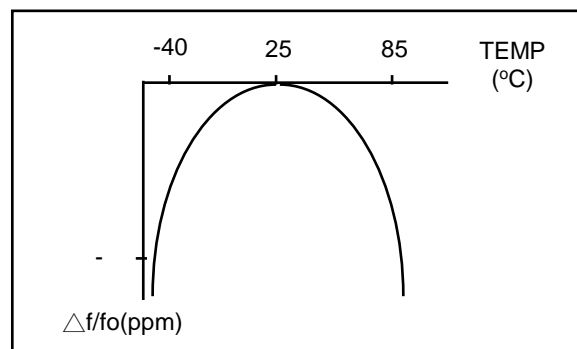
SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.

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



TEMPERATURE V.S FREQUENCY CURVE

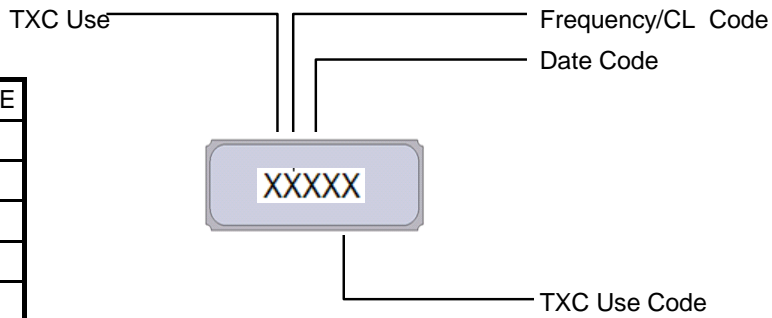




MARKING

Frequency /CL Code

KHz	PF	CODE
32.768	12.5	A
32.768	7.0	B
32.768	9.0	C
32.768	6.0	D
32.768	7.6	E
32.768	18.0	F
32.768	12.0	G

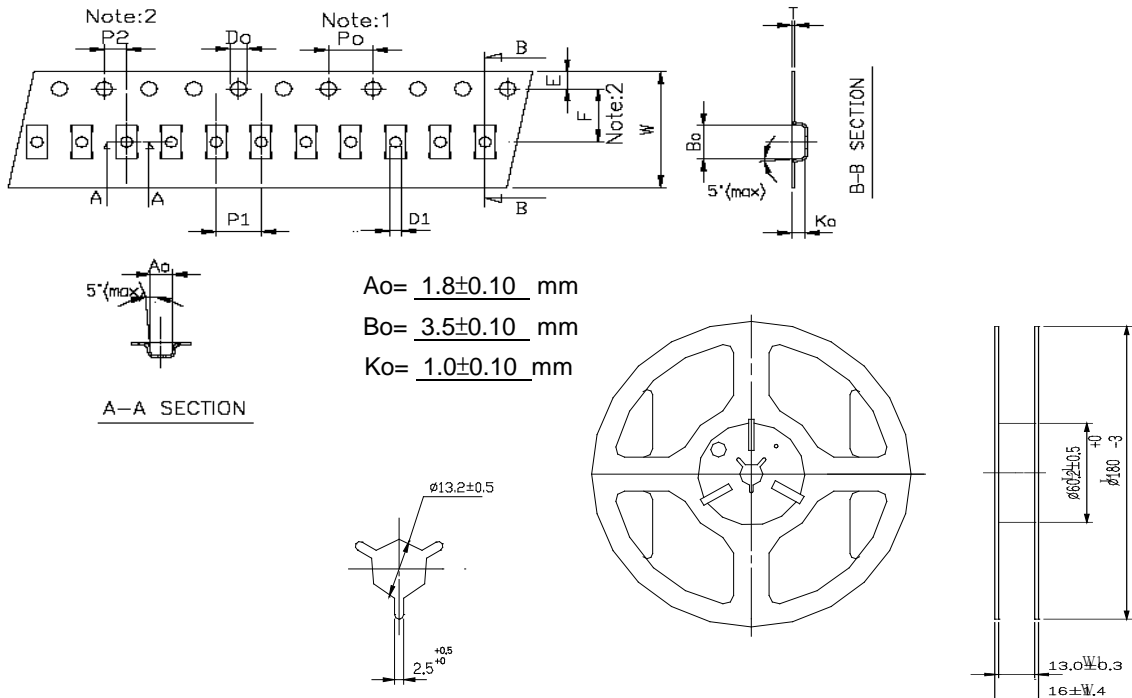


Date Code

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



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.



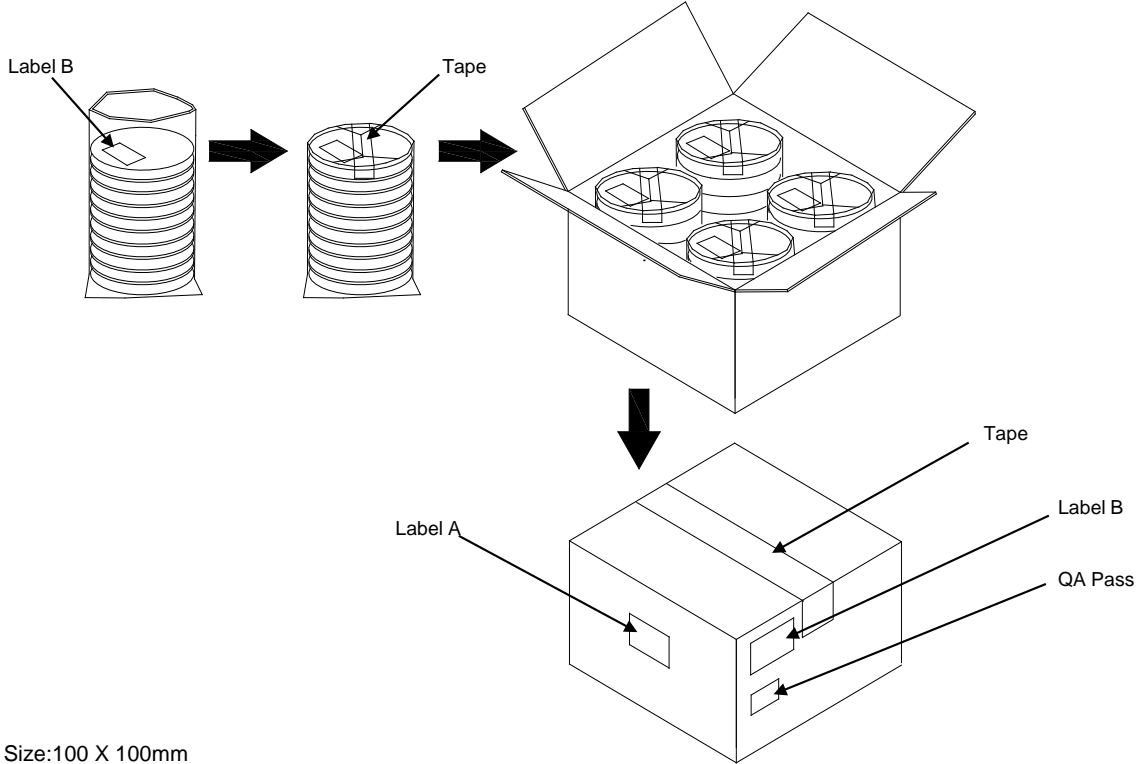
PACKING

Reel Quantity :

- 1. Reel X 6 (6 Reels)
- 2. Reel X 12 (12 Reels)
- 3. Reel X 25 (12 Reels + 13 Reels)
- 4. Reel X 50 (12 Reelsx2 + 13 Reelsx2)

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

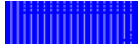
<h1>TXC</h1>
Inv No: 00096815
Po No: 21106326- 24- 1
Part No: □□□□□□□□
Q'ty: 40000 PCS
C/No: 157- 44

(Label B) Size:80 X 40mm

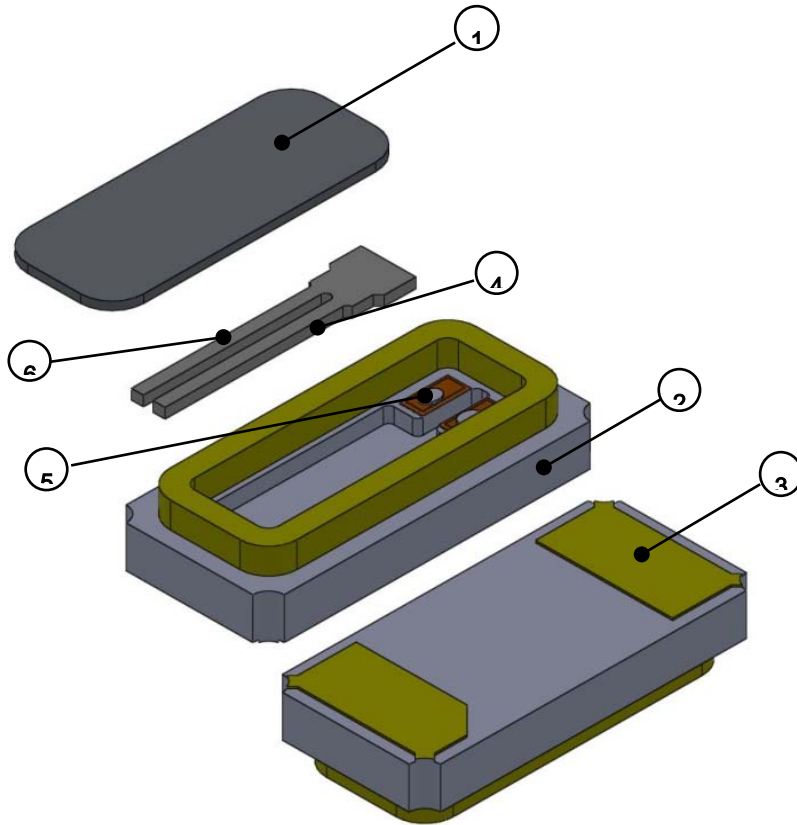
TXC CORPORATION		QA PASS
DATE CODE:	QTY:	2011/09/02
□□□□□□□□		□□□□
LOT NO:	RoHS	
□□□□□□□□		
PART NO:	HF	
□□□□□□□□		
FREQ: □□□□□□□□□□		

[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.



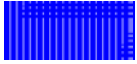
■ STRUCTURE ILLUSTRATION



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



■ **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