



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



TXC CORPORATION

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www.txccorp.com

PRODUCT SPECIFICATION SHEET

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NOMINAL FREQ. : 32.768KHz

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REVISION : A2

RD	QA	MFG
 ZhongLin Wu	 Samson Xiong	 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

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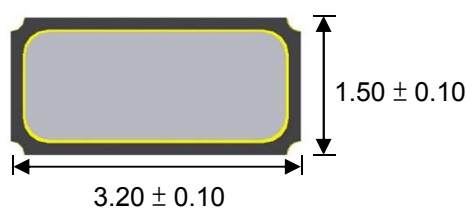
<u>Rev</u>	<u>Revise page</u>	<u>Revise contents</u>	<u>Date</u>	<u>Ref.No.</u>	<u>Reviser</u>
S1	NA	Initial release	8-Aug-12	-	Alan Cheng
A1	NA	S Turn A	15-Oct-12	-	Xiaoyan Jiang
A2	3	Equivalent Series Resistance Change	15-Jan-15	EC-001-150108-01	Xiaoyan Jiang

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

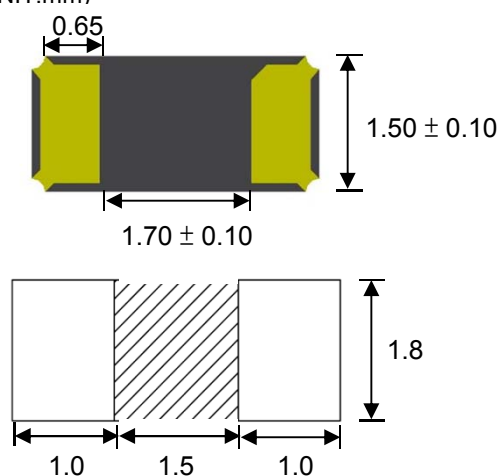
DIMENSIONS

(UNIT:mm)



RECOMMENDED SOLDER PAD

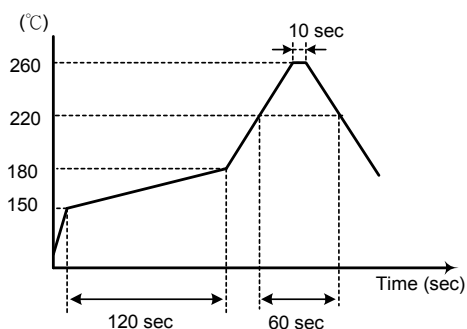
(UNIT:mm)



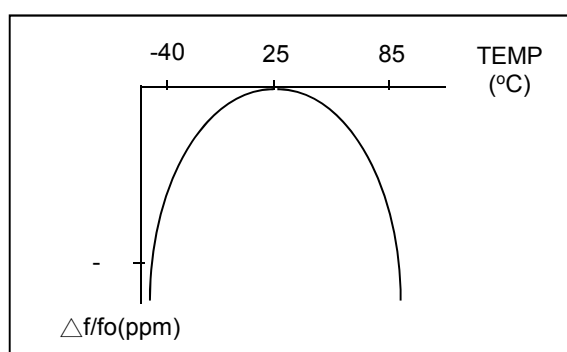
SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.

Solder melting point :220°C



TEMPERATURE V.S FREQUENCY CURVE



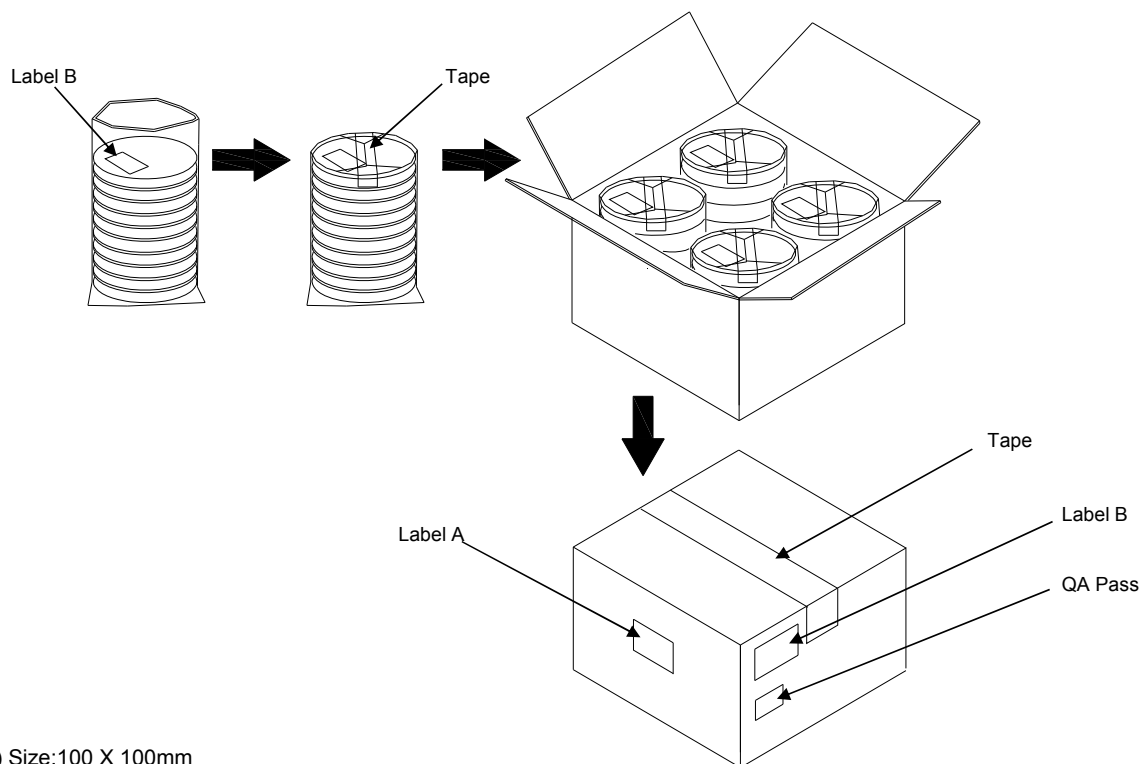
PACKING

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

TXC	
Inv No: 00096815	
Po No: 21106326- 24- 1	
Part No: 00000000	
Qty: 40000 PCS	
C/No: 157- 44	

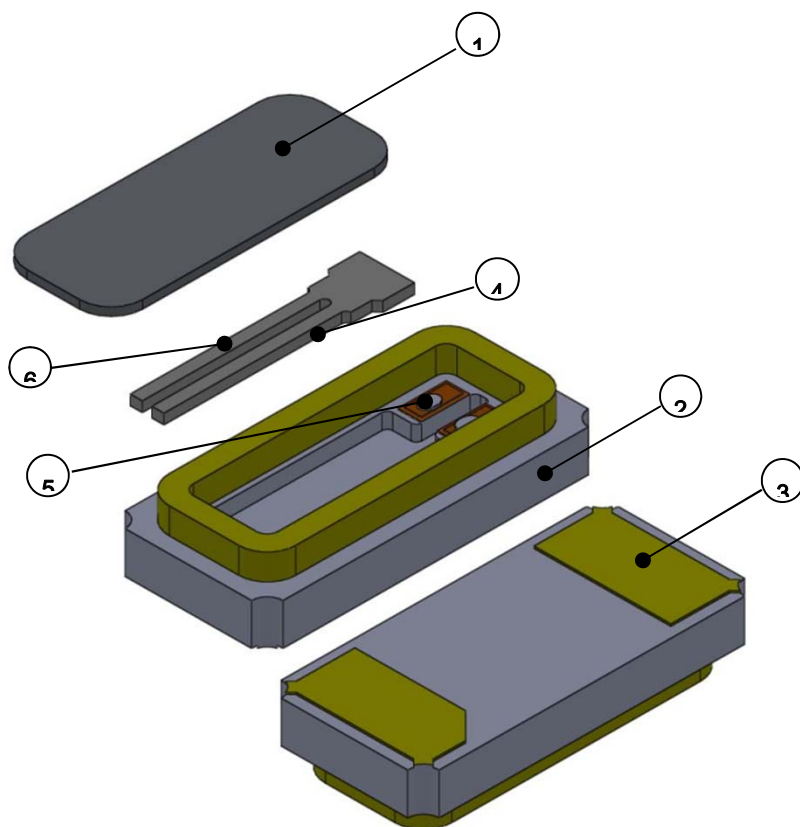
(Label B) Size:80 X 40mm

TXC CORPORATION		QA PASS
DATE CODE:		QTY:
0000000000		0000
LOT NO:		
00000000		
PART NO:		
00000000		
FREQ:	000000000000	

[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℃ ~40℃ 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 Amplitude Sweep time Perpendicular axes each test time (Total test time 12 hours) 10 ~ 2000 Hz 1.52 mm,20G 20 minute 4 hours	MIL-STD-883
1	Solderability	Temperature Immersing depth Immersion time Flux 245 °C ± 5°C 0.5 mm minimum 5 ± 1 seconds 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 Pre-heat time Test temperature Test time 125 °C 60 ~ 120 sec. 260 ± 5 °C 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	Temperature cycling	-40°C to 125°C ,10min dwell time at each temperature extreme. 1 min. maximum transition time.100cycles.	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