



TXC CORPORATION

4F, NO. 16, Sec. 2 Chung Yang S Rd., Peitou, Taipei, Taiwan.

TEL : 886-2-2894-1202 , 886-2-2895-2201 FAX : 886-2-2894-1206 , 886-2-2895-6207

www.txccorp.com

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



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PRODUCT SPECIFICATION SHEET

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REVISION : S1

PE/RD	QA	MFG
王敏和		
25-Jul-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

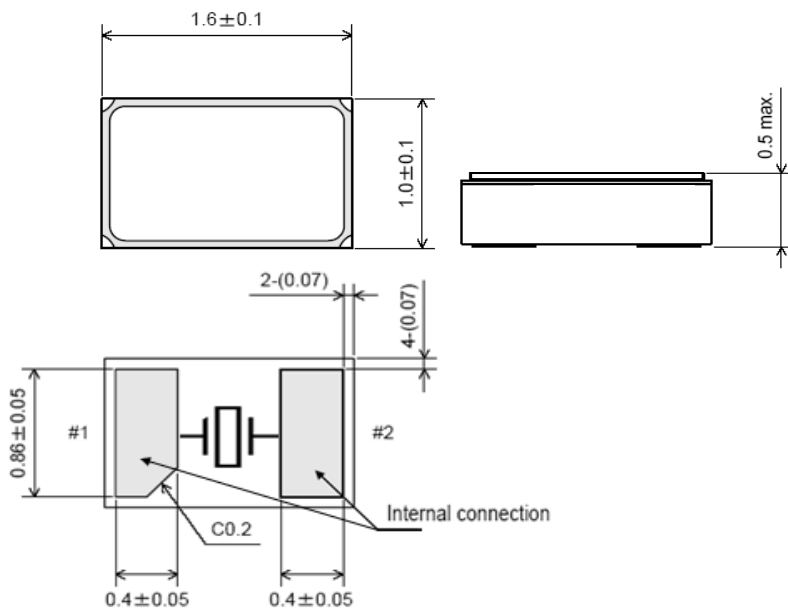
**RoHS Compliant
Halogen Free**

ELECTRICAL SPECIFICATIONS

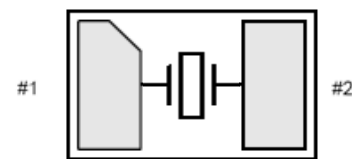
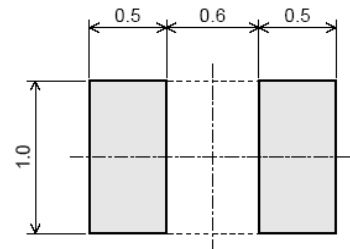
	Parameters	Sym.	Electrical Spec.				Notes
			Min	Typical	Max	Unit	
1	Nominal Frequency	F0	32.768			KHz	-
2	Frequency Tolerance	$\Delta f/f_0$	± 20			ppm	at 25 ± 3
3	Load Capacitance	CL	12.5			pF	-
4	Driver Level	DL	-	0.1	0.5	μW	-
5	Equivalent Series Resistance	ESR	-	-	90	K Ω	at 25 ± 3
6	Q Factor	Q	-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

DIMENSIONS

(UNIT:mm)


RECOMMENDED SOLDER PAD

(UNIT:mm)

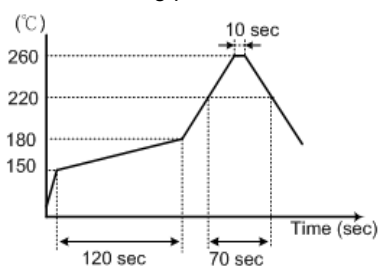
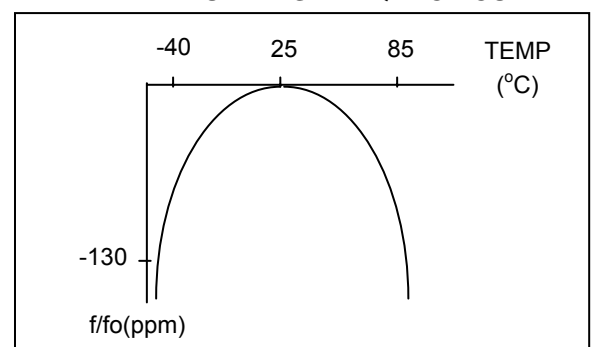


< Top view >

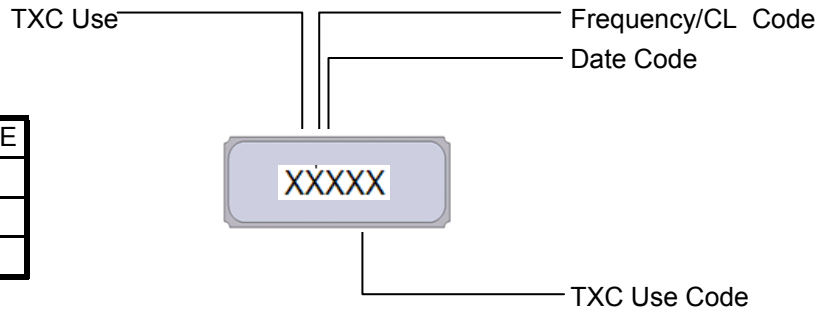
REFLOW PROFILE

Total time : 200 sec. Max.

Solder melting point :220


TEMPERATURE V.S FREQUENCY CURVE


MARKING



Frequency /CL Code

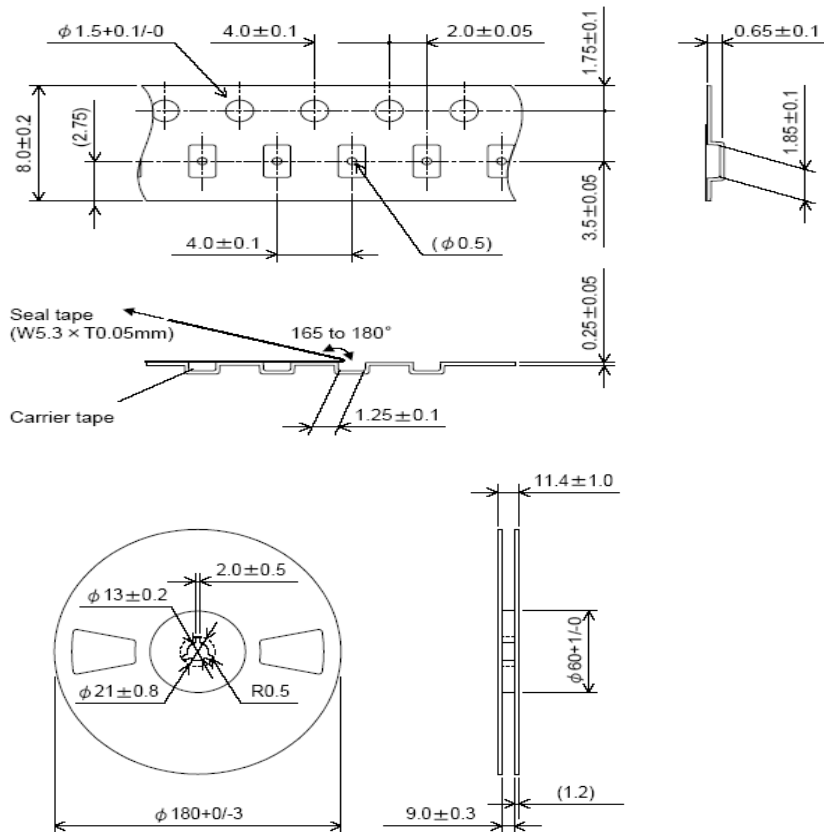
KHz	PF	CODE
32.768	12.5	A
32.768	9	B
32.768	7	C

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				

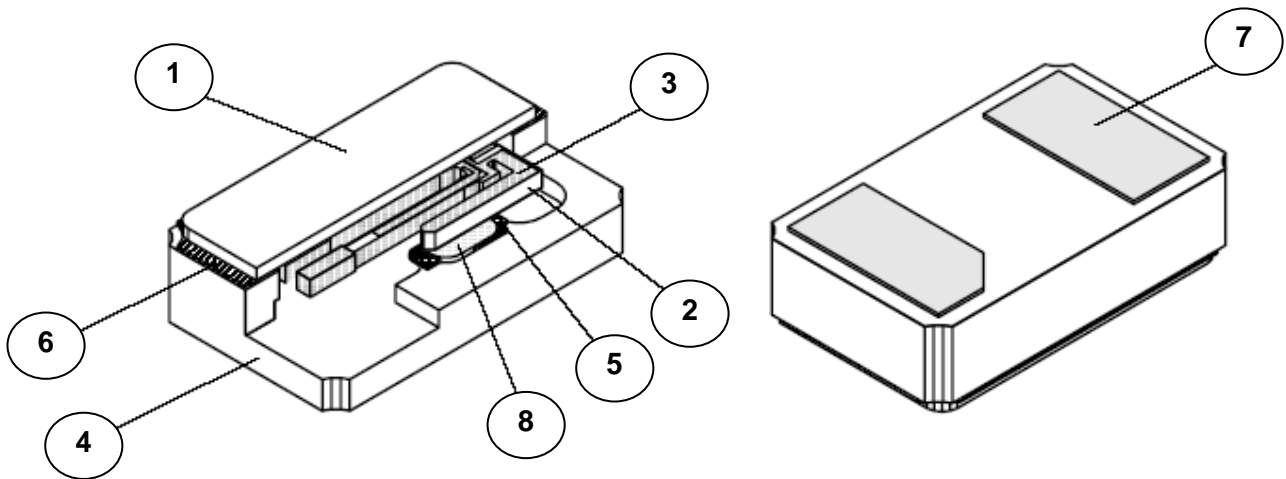
This date code will be cycled every four years

PACKING (UNIT:mm)



Material: Conductive Polystyrene
Quantity: 3000 pieces max./Reel

- 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 ₂	1	-
3		Electrode	Noble Metal	2	Cr+Au
4	Package	Base	Ceramic(Al ₂ O ₃)	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
1.1	Drop Test	150 cm height, fall freely onto concrete floor 3 times.	MIL-STD-202
1.2	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
1.3	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
1.4	Solderability	Temperature 255 ± 5 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
2.1	Resistance To Soldering Heat	Pre-heat temperature 160 Pre-heat time 90 ± 10 sec. Test temperature 260 ± 5 Test time 5 ± 1 sec.	MIL-STD-202
2.2	High Temp. Storage	+ 100 ± 3 for 100 ± 12 hours	MIL-STD-883
2.3	Low Temp. Storage	- 40 ± 3 for 1000 ± 12 hours	MIL-STD-883
2.4	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883
2.5	Pressure Cooker Storage	121 ± 3 , RH100%, 2 bar, for 240 hours	EIA-JESD22
2.6	High Temp & Humidity	40 ± 3 , RH 90~95% , 1000Hrs	EIA-JESD22

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