



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 TA TYPE
NOMINAL FREQ.	:	32.768KHz
TXC P/N	:	9H03200012
REVISION	:	A1
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



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PRODUCT SPECIFICATION SHEET

PRODUCT TYPE : SMD TA TYPE

NOMINAL FREQ. : 32.768KHz

TXC P/N : 9H03200012

REVISION : A1

PE/RD	QA	MFG
<i>Simon Wang</i>	<i>Tzen Hsieh</i>	<i>Shu-Chen ko</i>
2011/9/15	2011/9/15	2011/9/15

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

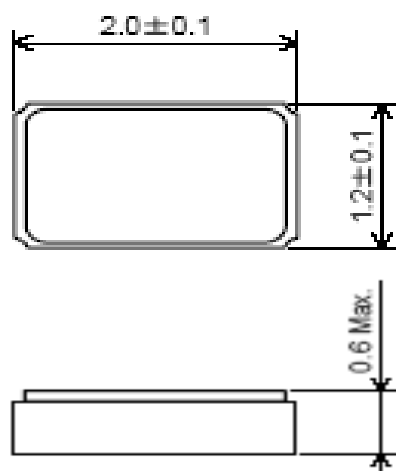
Issue Date: 12.15'08 VER.E

ELECTRICAL SPECIFICATIONS

	Parameters	SYM.	Electrical Spec.				Notes
			MIN	TYPE	MAX	UNITS	
1	Nominal Frequency	F0	32.768			KHz	-
2	Frequency Tolerance	-	± 20			ppm	at 25 °C
3	Driver Level	DL	-	0.1	0.5	uW	-
4	Load Capacitance	CL	12.5			pF	-
5	Series Resistance	-	-	-	90	K Ω	-
6	Peak Temperature (Frequency)	-	20	25	30	°C	at 25 °C $\pm 5^{\circ}\text{C}$
7	Frequency-Temperature coefficient	-	-	-	-4.0×10^{-8}	$^{\circ}\text{C}^2$	-
8	Storage Temperature	-	-55	~	125	°C	-
9	Operating Temperature	-	-40	~	85	°C	-
10	Shunt Capacitance	C0	-	1.3	-	pF	-
11	Motional Capacitance	C1	-	6.4	-	fF	-
12	Insulation Resistance	-	500	-	-	M Ω	at DC 100V $\pm 15\text{V}$
13	Aging	-	± 3			ppm	1st Year

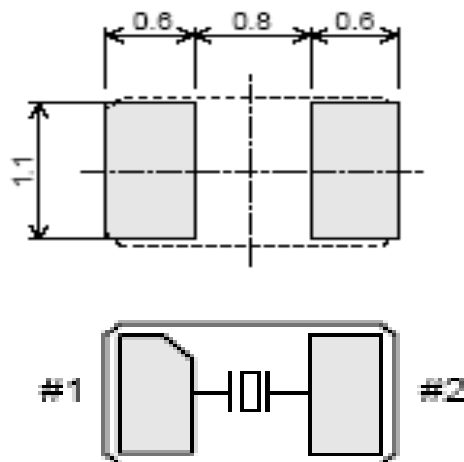
DIMENSIONS

(UNIT:mm)



RECOMMENDED SOLDER PAD

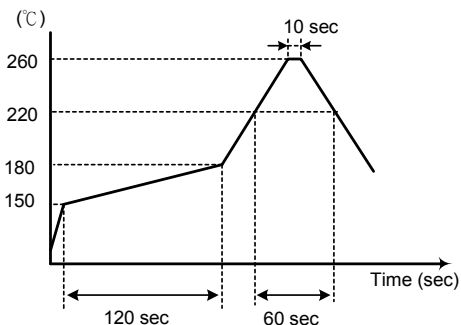
(UNIT:mm)



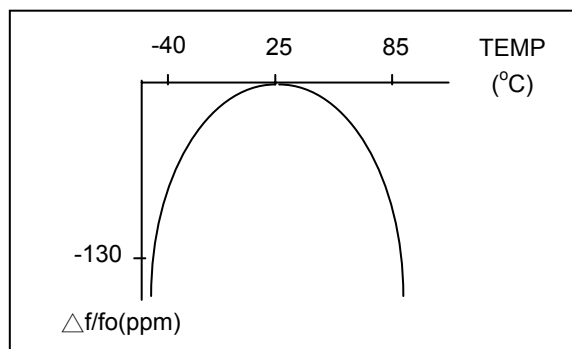
SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.

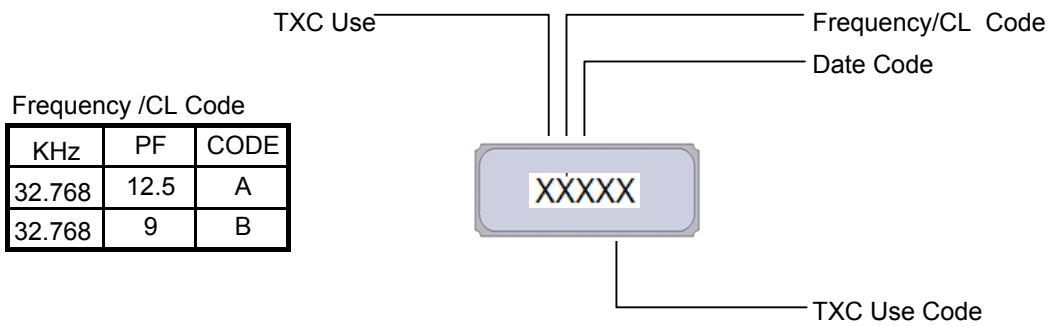
Solder melting point :220°C



TEMPERATURE V.S FREQUENCY CURVE



■ **MARKING**

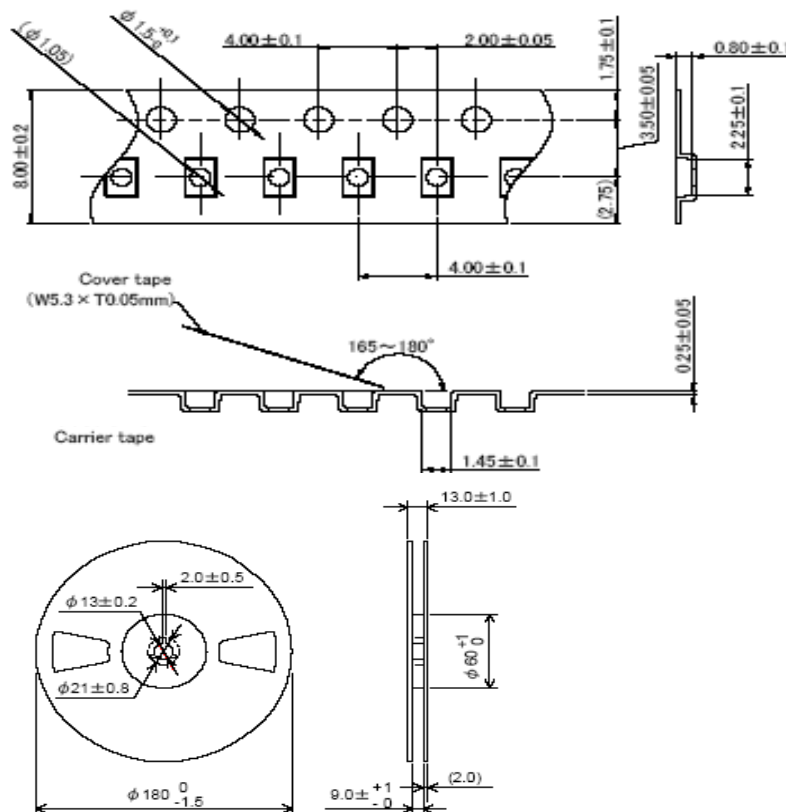


Date Code

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)

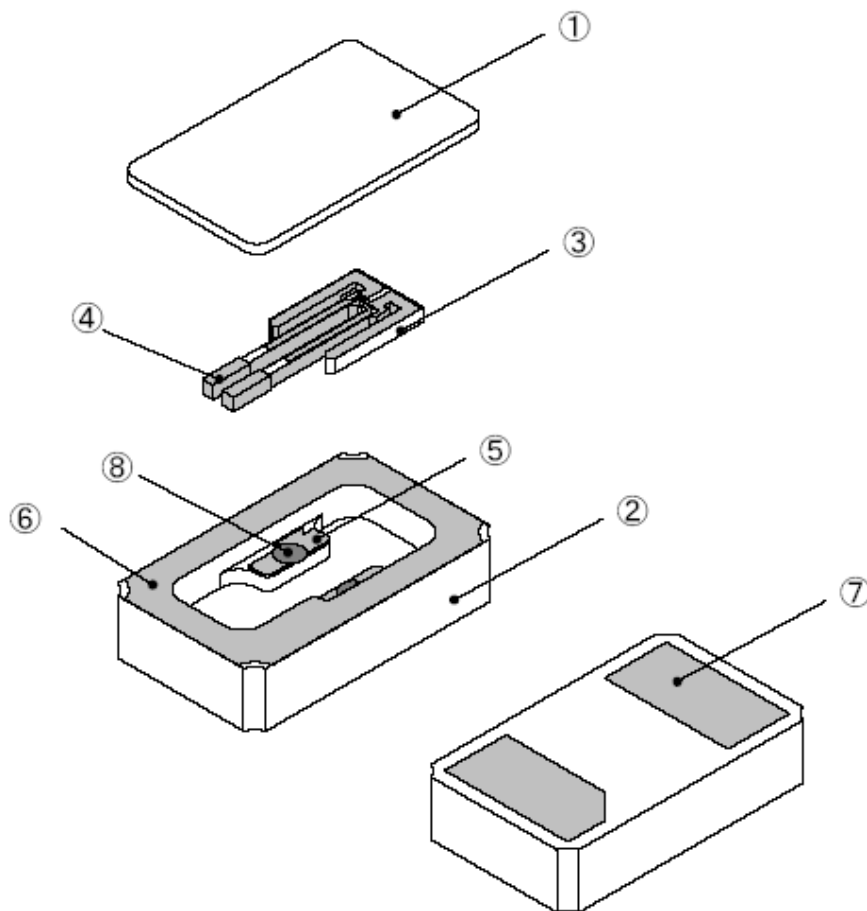


Amount	PCS/REEL
	3K

3000 pieces of taped crystal units are put into a packing reels

- 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



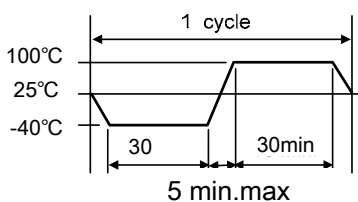
NO	COMPONENTS	MATERIALS	QTY	FINISH/SPECIFICATIONS
1	Lid	Kovar (Fe/Co/Ni)	1	-
2	Base(Package)	Ceramic(Al_2O_3)	1	Color Black
3	Crystal blank	SiO_2	1	-
4	Electrode	Noble Metal	2	-
5	Internal terminals	Au	2	Tungsten metallize + Ni plating + Au plating
6	Metallize for sealing	Au	1	Tungsten metallize + Ni plating + Au plating
7	PAD	Au	2	Tungsten metallize + Ni plating + Au plating
8	Conductive adhesive	Ag	2	Silicon resin

■ 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.	JIS C6701
1.2	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times. 1m sec. duration time	JIS C60068-2-27
1.3	Vibration	Frequency range 10 ~ 55 Hz Amplitude 1.5 mm, 20G Sweep time 1 minute Perpendicular axes each test time 2 hours (Total test time 6 hours)	JIS C60068-2-6
1.4	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
2.1	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
2.2	High Temp. Storage	+ 100 °C ± 3 °C for 1000 ± 12 hours	JIS C600682-2
2.3	Low Temp. Storage	- 40 °C ± 3 °C for 1000 ± 12 hours	JIS C600682-1
2.4	Thermal Shock	Total 100 cycles of the following temperature cycle  The diagram shows a temperature cycle with three levels: 100°C, 25°C, and -40°C. The cycle consists of a 30-second dwell at 100°C, a 5-minute maximum ramp down to -40°C, a 30-minute dwell at -40°C, and a 5-minute maximum ramp up to 100°C. The total duration of one cycle is 1 hour and 10 minutes.	JIS C0025
2.5	Pressure Cooker Storage	121 ± 3°C, RH100%, 2 bar, for 240 hours	JIS C6701
2.6	High Temp & Humidity	40°C ± 3°C, RH 90~95% , 1000Hrs	JIS C600682-3