TXC CORPORATION

www.txccorp.com

SPECIFICATION FOR APPROVAL

CUSTOMER	:	
PRODUCT TYPE	:	TUNING FORK ø2.0X6.0 (DIP Type)
NOMINAL FREQ.	:	32.768KHz
TXC P/N	:	9H03200045
REVISION	:	S1
CUSTOMER P/N	:	
PM / SALES	:	
DATE	:	
CUSTOMER CONFIRMATION	:	(Singnature)
		(Date)

Pb used in internal connecting (Sn:Pb=10:90) is exempt from EU directive

RoHS Compliant

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PRODUCT SPECIFICATION SHEET

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PE/RD	QA	MFG
Simon Wang Simon Wang		
2017/3/31		

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Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
S1	N/A	Initial released	29-Mar-17	PNR14012701	Simon Wang

Spec Sheet Contents

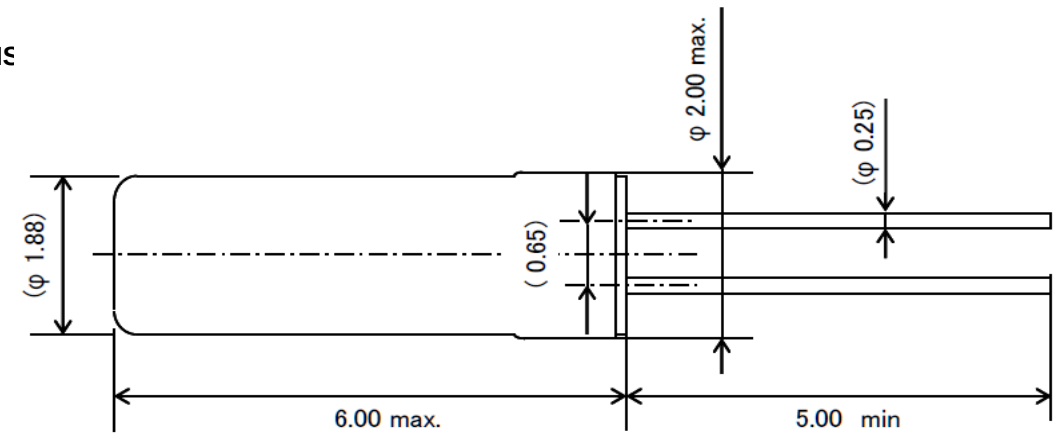
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■ ELECTRICAL SPECIFICATIONS

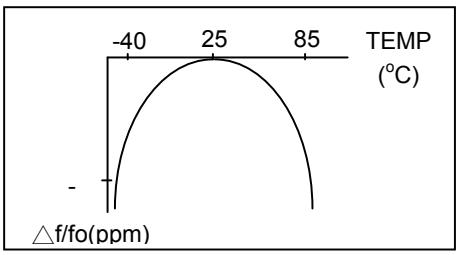
■ UNIT WEIGHT: 0.04638 g/pcs

	Parameters	SYM.	Electrical Spec.				Notes
			MIN.	TYP.	MAX.	UNITS	
1	Nominal Frequency	F0		32.768		KHz	-
2	Frequency Tolerance	-		± 20		ppm	at 25 ℃
3	Driver Level	DL	-	0.1	1	uW	-
4	Load Capacitance	CL		9.0		pF	-
5	Series Resistance	-	-	-	50	Kohms	-
6	Peak Temperature (Frequency)	-	20	25	30	℃	at 25 ℃ ±5℃
7	Frequency-Temperature coefficent	-	-	-0.035	-0.043	ppm/℃^{2}	-
8	Operating Temperature	OP	-40	~	85	℃	-
9	Storage Temperature	ST	-55	~	125	℃	-
10	Shunt Capacitance	C0	-	2.1	-	pF	-
11	Motional Capacitance	C1	-	0.9	-	fF	-
12	Quality Factor	Q	40	-	-	K	-
13	Insulation Resistance	IR	500	-	-	Mohms	at DC 100V±15V
14	Aging	-		±5		ppm	1st Year

■ DIMENSIONS



■ TEMPERATURE V.S FREQENCY CURVE



■ SUGGESTED WAVE SOLDER PROFILE

a. Perheating

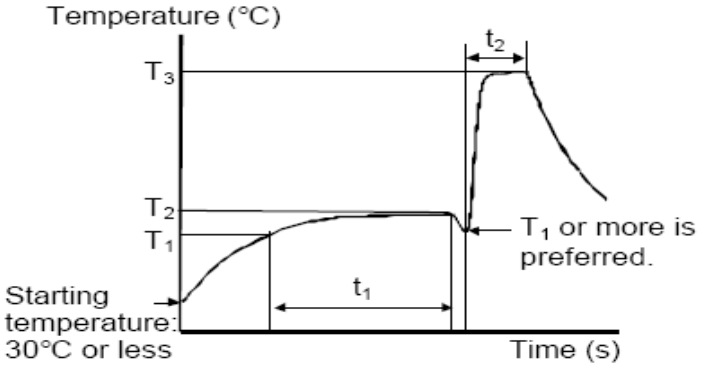
T1 to T2 : 100 to 120 °c

t1 :40 sec.

b. Solder dip

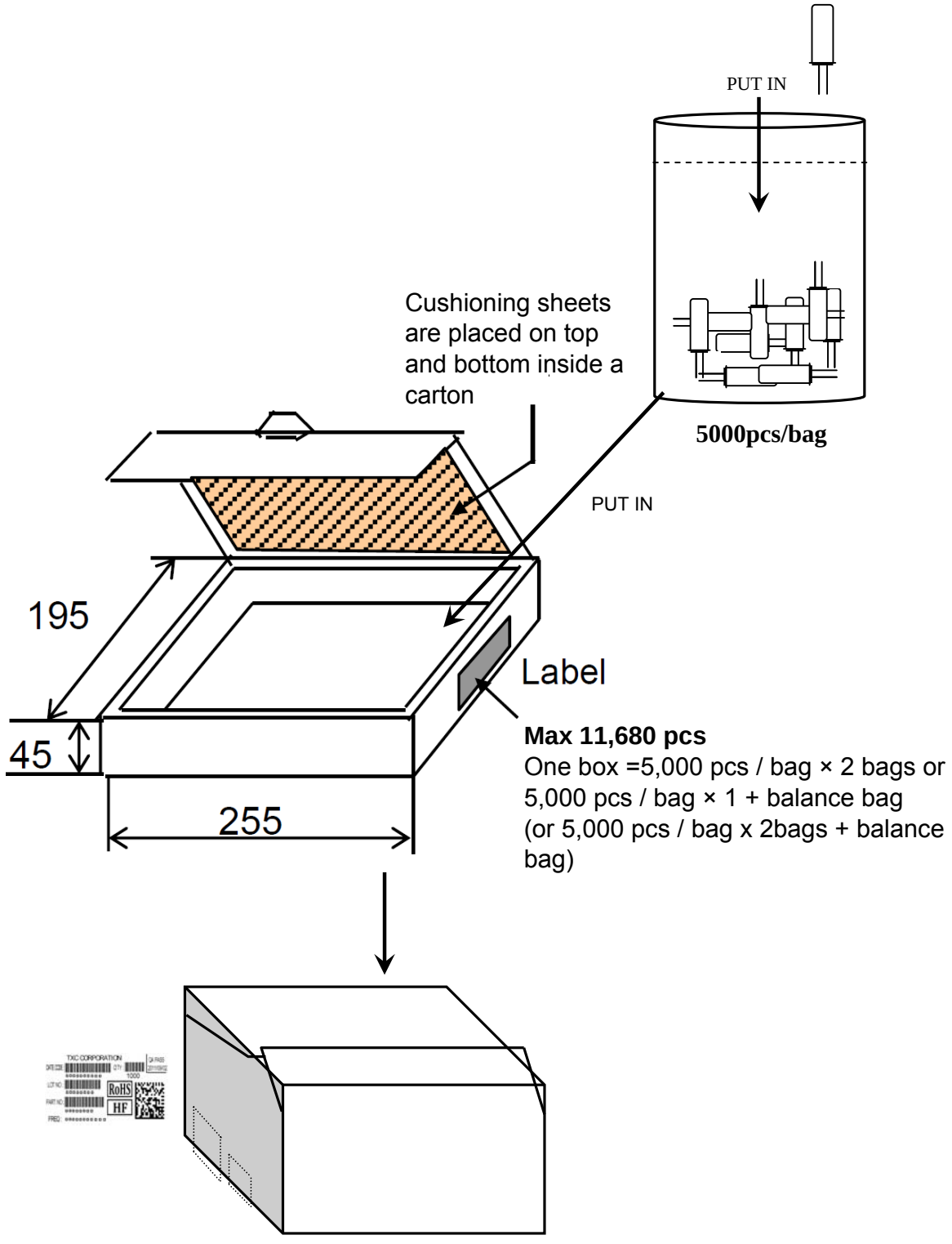
T3 : 260°C

t2 : 10 sec.



Heating profile for wave soldering

■ PACKING



[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.

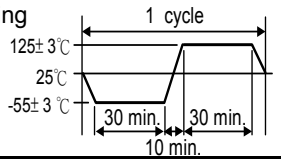
4.If customers have special requirements, we can paste labels according to it.

■ RELIABILITY SPECIFICATIONS

MECHANICAL CHARACTERISTICS

No.	TEST ITEM	TEST METHODS	TEST CRITERIA	REF. DOC
1	Drop Test	75 cm Height, Fall freely onto firm Wood 3 Times.	dF/F<+/-10ppm	JIS C6701
2	Fine Leak	Helium Bombing 5Kgf / cm^2 for 2 Hours .	Leak Rate Less Than $2x10^{-8}$ atm.cc/sec	MIL-STD-883E Method 1014.10
3	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually pendicular axes each 3 times.	dF/F<+/-5ppm	MIL-STD-883E Method 2002.4
4	Vibration	Frequency range 10 ~ 2000 Hz Amplitude 1.52 mm Sweep Time 20 minute Test Time 4 hours	dF/F<+/-10ppm	MIL-STD-883E Method 2007.3
5	Solderability	Temperature 260°C +/- 5 °C Immersing depth 0.5 mm minimum Immersion time 10 +/- 0.5 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)	Check by Microscope At Least 95% Coated	MIL-STD-883E Method 2003.7

ENVIROMENTAL CHARACTERISTICS

1	Reflow	Pre-heat Temperature 100 to 120 °C Pre-heat Time 40 sec. Test Temperature 260 °C Test Time 10 +/- 5 sec.	dF/F<+/-10ppm	MIL-STD-202F Method 210D
2	Aging Test	85 °C ,336 HOUR	dF/F<+/-5ppm	JIS C6701
2	High Temp. Storage	Leave at +85 °C +/- 2 °C for 500 hours	dF/F<+/-5 ppm	JIS 5021
3	Low Temp. Storage	Leave at - 40 °C +/- 2 °C for 500 hours	dF/F<+/- 5 ppm	JIS 5022
4	Thermal Shock	Total 5 cycles of the following temperature cycle 	dF/F<+/-10ppm	MIL-STD-883E Method 1011.8

*a : Measure after 24 hours soak at room temperature

*b. Rr is 70kΩ max. after the each above tests.

[Measurement condition]

Electrical characteristics measured by S&A250B or equivalent.

SUGGESTION USED :

Lead wire bent:

1). When the lead wire is to be bent, avoid applying a force greater then 800g to its base.

2). If the quartz crystal unit is to be mounted sideways onto the circuit board,care should be taken not to bead the lead wires right at their base to prevent cracks from being produced in the glass provided at the lead wire base.

3) When beading the lead wires of the quartz crystal unit,do not scrape off the solder plating from the wires.

Mounting:

1). If the quartz crystal unit is to be mounted on the circuit board in an upright position, it should be mounted so that its body would be located at a distance equal to, or greater than its diameter from the circuit board.

2). If the quartz crystal unit is to be installed sideways onto the circuit board,secure the head of sealing tube using a rubber-based adhesive. Such practice as soldering the head of the sealing tube to secure it must be strictly avoided, as it may cause marked deterioration of performances.

3). The quartz crystals are designed and manufactured so as to satisfy the client's specifications regarding vibrations and impacts. However, in the event the crystal has been dropped onto the floor, be sure to confirm its satisfactory performances before using it.

Soldering :

1). Lead wires should be soldered within 10 seconds with the iron heated to a tip temperature of no higher than 270^{o}C

2). When the method of solder-dip mounting is adopter, it is recommended that dipping be performed with the unit. quartz crystal unit set up upright on the circuit board. If solder-dipping is to be performed carried out with the quartz crystal unit placed sideways on the circuit board , take care not to allow heat to be transmitted across the whole quartz crystal

3). When the whole quartz crystal unit is heated (in a reflow oven, for example), it will lead to marked deterioration of the performances. This is because the holder is quite small, and the method involves press sealing of the crystal with solder. Hence, such devices as reflow ovens should not be used.

■ NOTE:

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.
5. 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.
6. Revision "Sx" is for engineering samples only. PE/RD's approval required.
7. Revision "Ax" is production ready. PE, QA and MFG's approval required.
8. Inform TXC in advance if you use ultrasonic welding in assembling process .
9. In the case that the products described herein are used as part of any devices or equipment which might influence any one of the human body, human life and property, such as physical exercise equipment, medical equipment or vehicles, please let us know that.