

# SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_

PRODUCT TYPE : HC-49/S

NOMINAL FREQ. : 25.000000MHz

TXC P/N : 9B25000004

REVISION : A2

CUSTOMER P/N : \_\_\_\_\_

PM / SALES : \_\_\_\_\_

DATE : \_\_\_\_\_

CUSTOMER CONFIRMATION : \_\_\_\_\_  
(Singnature)

(Date)

**RoHS Compliant**

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PE/RD	QA	MFG
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2017/6/27	2017/6/27	2017/6/27

**RoHS Compliant**



<u>Rev</u>	<u>Revise page</u>	<u>Revise contents</u>	<u>Date</u>	<u>Ref.No.</u>	<u>Reviser</u>
A1	N/A	Initial released	2007/4/4	N/A	Shu-Chen Ko
A2	ALL	Format change ref. DCN-15P030016	2016/4/28	EC-U01-160331-01	Shu-Chen Ko

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**ELECTRICAL SPECIFICATIONS**

Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement and tests are as follow:

- Ambient temperature : 25+/-5°C
- Relative humidity : 40%~70%

If there is any doubt about the results, measurement shall be made within the following limits:

- Ambient temperature : 25+/-1°C
- Relative humidity : 40%~70%

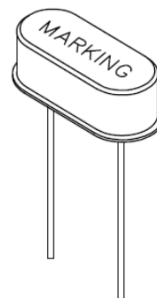
Measure equipment

SAUNDERS 250B CRYSTAL IMPEDANCE METER.

Crystal cutting type

The crystal is using AT CUT (thickness shear mode).

Unit Weight : 0.54 g +/- 0.05g



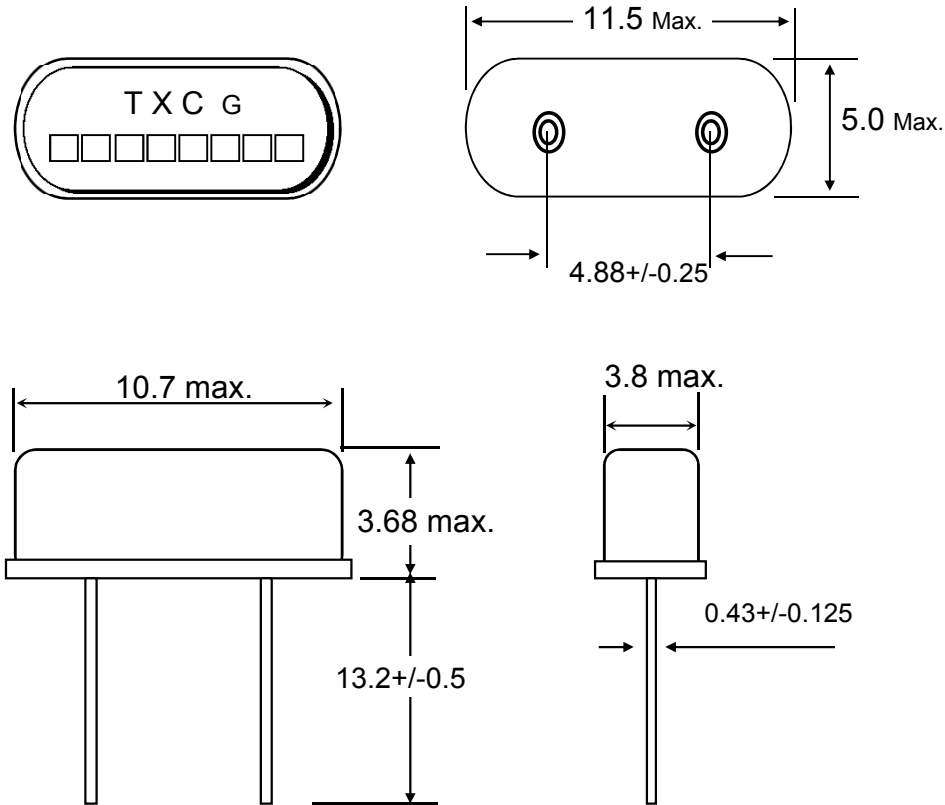
please refer to marking code page

	Parameters	SYM.	Electrical Spec.				Notes
			MIN.	TYP.	MAX.	UNITS	
1	Nominal Frequency	FL	25.000000			MHz	-
2	Oscillation Mode	-	Fundamental			-	-
3	Load Capacitance	CL	18			pF	-
4	Frequency Tolerance	FT	-30		+30	ppm	at 25 °C +/- 3 °C
5	Frequency Stability	ST	-30		+30	ppm	Over Operating Temp. Range (Reference 25°C)
6	Operating Temperature	OT	-40	~	+85	°C	-
7	Aging	-	-3		+3	ppm	1st Year
8	Drive level	DL	-	100	1000	uW	-
9	Effective Resistance	Rr	-	-	20	Ω	-
10	Shunt Capacitance	C0	-	-	7	pF	-
11	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
12	Storage Temperature Range	-	-40	~	+85	°C	-
13	SPDB(+/-5000ppm)	SPDB		~	-3	dB	-

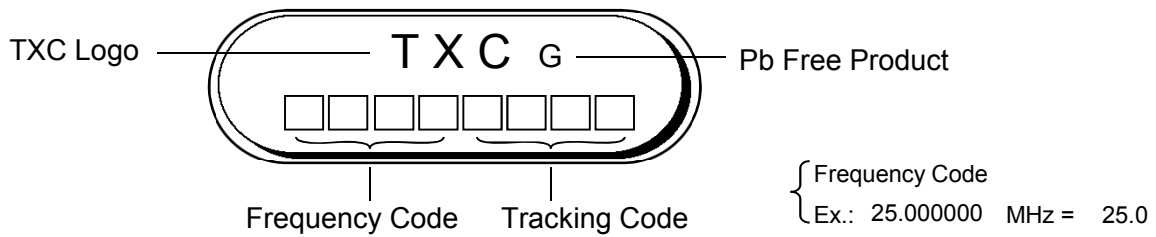
**FACTORY LOCATION : CHINA**

**■ DIMENSIONS**

(Unit:mm)



**■ MARKING**

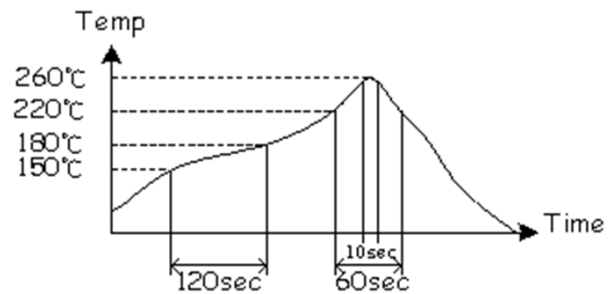


**■ SUGGESTED REFLOW PROFILE**

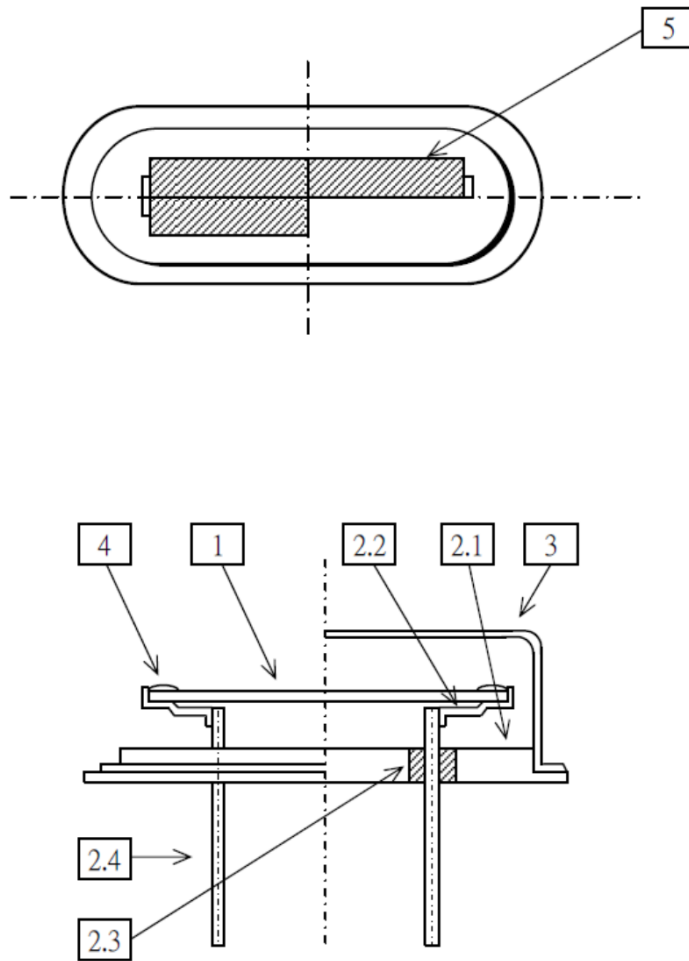
Solder melting point :220+/-10 °C, 60 sec. Min.  
 Peak Temperature: 260 +/- 5 °C, 10 sec. Max.

**■ SUGGESTED MANUAL SOLDER CONDITION**

Temperature: 350 +/- 10 °C  
 Time: 3 sec.  
 Re-solder times: twice



■ **STRUCTURE ILLUSTRATION**

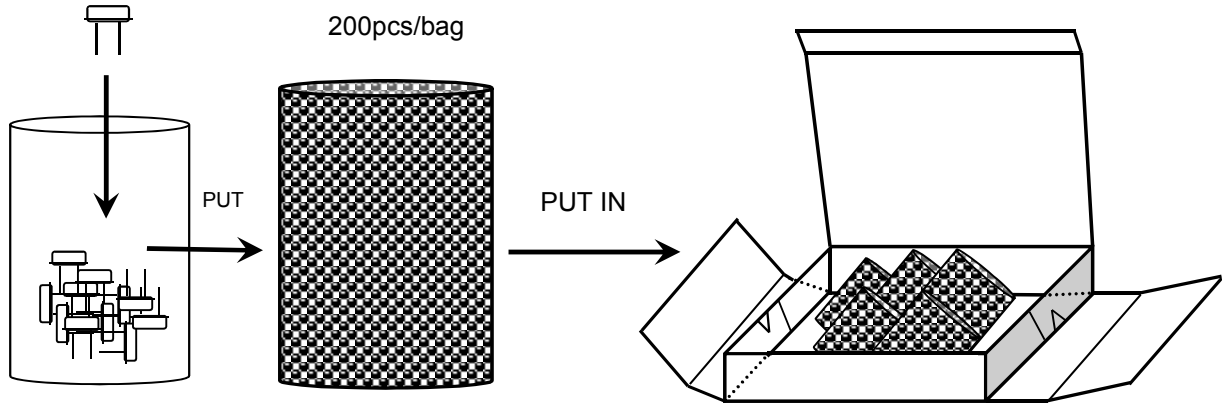


NO	COMPONENTS		MATERIALS	FINISH/SPECIFICATIONS
1	CRYSTAL BLANK		QUARTZ (SiO <sub>2</sub> )	/
2	2.1	HOLDER	SPCC	Ni PLATED
	2.2	SUPPORTER	NICKEL SILVER	/
	2.3	GLASS	GLASS	/
	2.4	LEAD	KOVAR	/
3	COVER	NICKEL SILVER	(Coating : Sn/Ag/Cu)	
4	CONDUCTIVE ADHESIVE	Ag + RESIN	/	
5	ELECTRODE	Noble Metal	/	

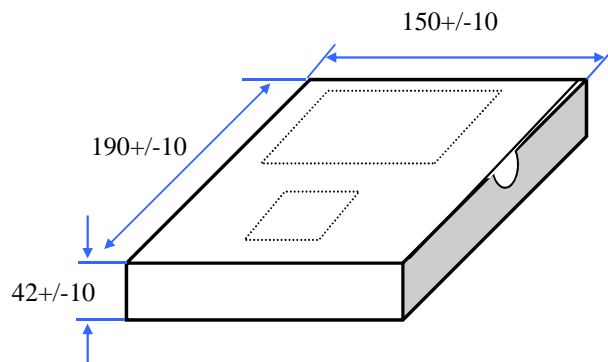
**Packing For Pb Free Parts :**

**1. INNER BOX : (Unit : mm)**

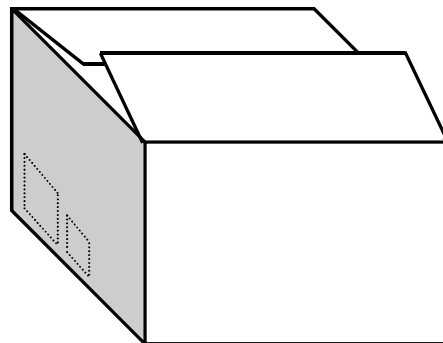
5bagx200pcs  
=1000pcs/box



**2. LOGO STICKER (CARTON and INNER BOX) : (Unit : mm)**



PUT IN



# (1) Put in stuff between space.

**[STORAGE]**

1. Don't be caught in the rain.
2. The storage environment shall be 5°C ~40°C temperature and 30% ~ 75%RH humidity and free from the sun shine.
3. If customers have special requirements, we can paste labels according to it.



**RELIABILITY SPECIFICATIONS**

1. Mechanical Endurance

No.	Test Item	Test Methods	Test Criteria
1	Drop test	50 cm Height, Fall freely onto firm wood for 3 times.	B C
1	Mechanical Shock	1000 G , 0.5 m Sec. , 3 times for all 3 directions.	B C
1	Vibration	Frequency range                      10 ~ 2000 Hz Acceleration                              5G Sweep time                                20 minute Pencilular axes each test time      4 hours (Total test time 12 hours)	B C
1	Terminal Strength	17.7N force for 60sec +/-1sec.	F
2	Solderability	Pb free :Temperature 235+/-5°C,Immersion time:5+/-1sec	E
		Pb :Temperature 215+/-5°C,Immersion time:5+/-1sec	

2. Environmental Endurance

No.	Test Item	Test Methods	SPEC
2	Resistance To Soldering Heat	Test temperature                      260 +/- 5 °C Test time                                    10 +/- 1 sec. Emersion Rate                            25 +/- 6 mm/s Immersed of specimen                1.5mm	ACD
2	High Temp. Storage	+ 85°C +/- 3 °C for 500 +/- 12 Hrs	ACD
2	Low Temp. Storage	- 40 °C +/- 3 °C for 500 +/- 12 Hrs	ACD
2	Temperature cycle	-40°C~85°C,for 300 cycles. 	ACD
3	High Temp & Humidity	85°C +/- 3°C , RH 85% , 500 Hrs	ACD

**HANDING CAUTIONS**

Prohibit the use of ultrasonic welding in Assembling

**■ RELIABILITY SPECIFICATIONS**

Specifications	
A	Frequency change: Within +/-20ppm or in customer's specification.
B	Frequency change: Within +/-10ppm or in customer's specification.
C	Equivalent series resistance(E.S.R) change: Within +/-15% or 10Ω(larger value).
D	After conditioning , quartz crystal units shall be subjected to standard atmospheric conditions for 24 hour, and measured.
E	Minimum 95% of immersed terminal shall be covered with new uniform solder.
F	No damage on specimen

**Measurement condition**

Electrical characteristics measured by S&A250B or equivalent.

**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 .