TXC CORPORATION

www.txccorp.com

SPECIFICATION FOR APPROVAL

CN: 1612042442

CUSTOMER	:	
PRODUCT TYPE	:	HC-49/S
NOMINAL FREQ.	:	4.000000MHz
TXC P/N	:	AS04000015
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

TXC CORPORATION

www.txccorp.com

PRODUCT SPECIFICATION SHEET

CN: 1612042442

PRODUCT TYPE	:	HC-49/S
NOMINAL FREQ.	:	4.000000MHz
TXC P/N	:	AS04000015
REVISION	:	S1

PE/RD	QA	MFG
Wen yuan Chang Wen yuan Chang		
6-Dec-16		

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

RoHS Compliant

Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
S1	N/A	Initial Released	6-Dec-16	N/A	Xiaoyan Jiang

Spec Sheet Contents

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

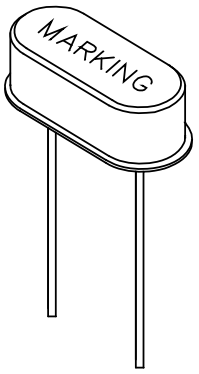
SAUNDERS 250A/250B CRYSTAL IMPEDANCE METER.

Crystal cutting type

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

Unit Weight:

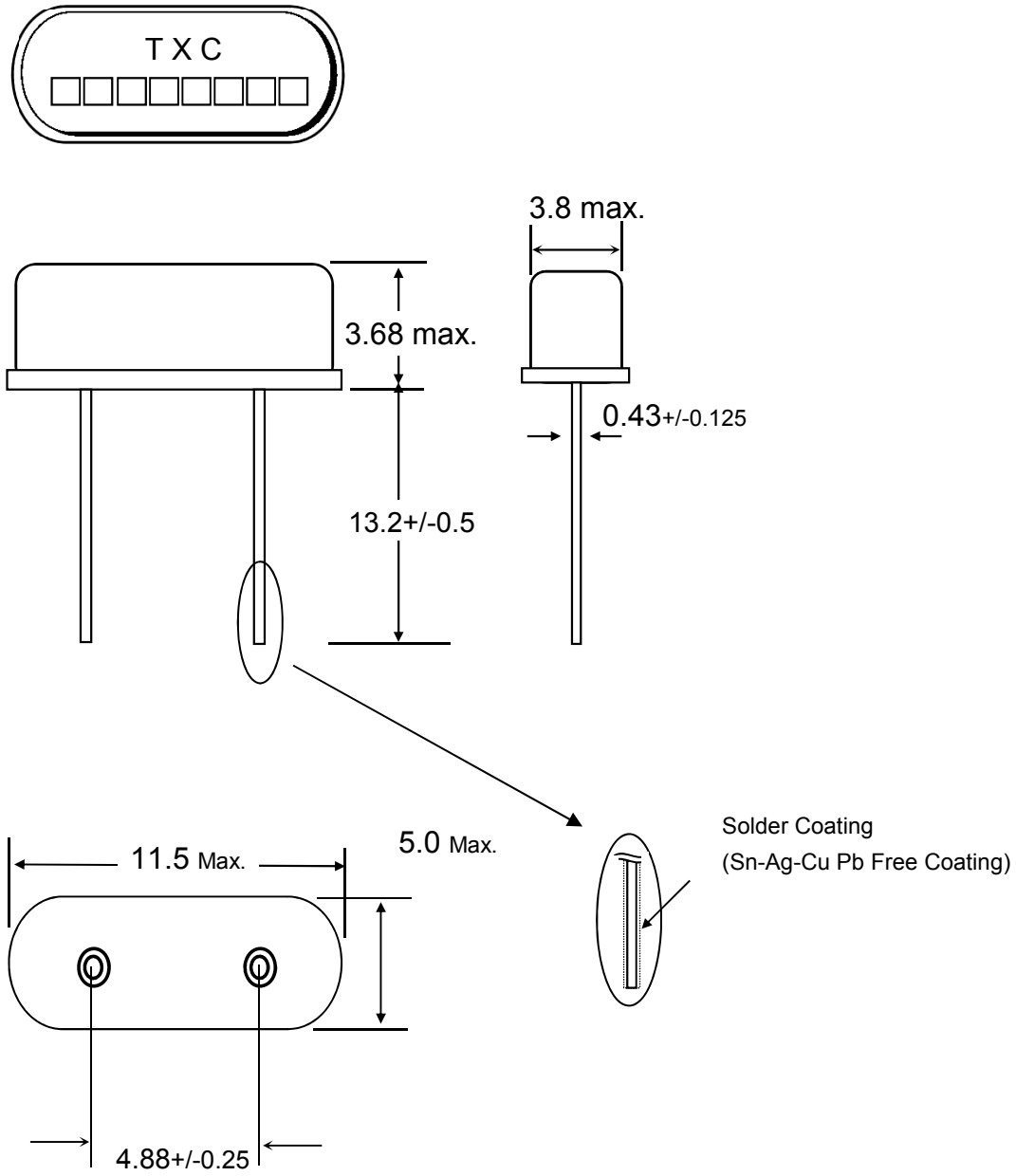
0.53±0.03 g/pcs



please refer to marking code page

	Parameters	SYM.	Electrical Spec.				Notes
			MIN	TYP	MAX	UNITS	
1	Nominal Frequency	FL		4.000000		MHz	-
2	Oscillation Mode	-		Fundamental		-	-
3	Load Capacitance	CL		14		pF	-
4	Frequency Tolerance	-		±30		ppm	at 25 ℃ ± 3 ℃
5	Frequency Stability	-		±30		ppm	Over Operating Temp. Range (Reference 25℃)
6	Operating Temperature	-	-40	~	85	℃	-
7	Aging	-		±5		ppm	1st Year
8	Drive Level	DL	-	100	-	uW	-
9	Effective Resistance Rr	Rr	-	-	100	Ω	-
10	Shunt Capacitance C0	C0	-	-	7	pF	-
11	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
12	Storage Temperature Range	-	-40	~	85	℃	-

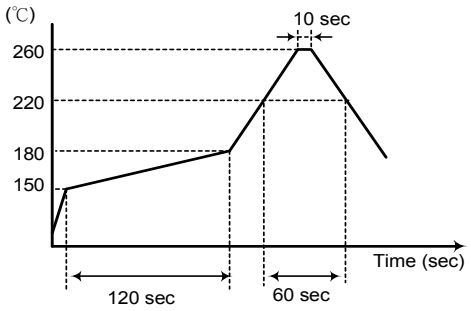
DIMENSIONS UNIT:mm



■ SUGGESTED REFLOW PROFILE

Solder melting point :220±10 ℃, 60 sec. Min.

Peak Temperature: 260 ± 5 ℃, 10 sec. Max.



■ SUGGESTED MANUAL SOLDER CONDITION

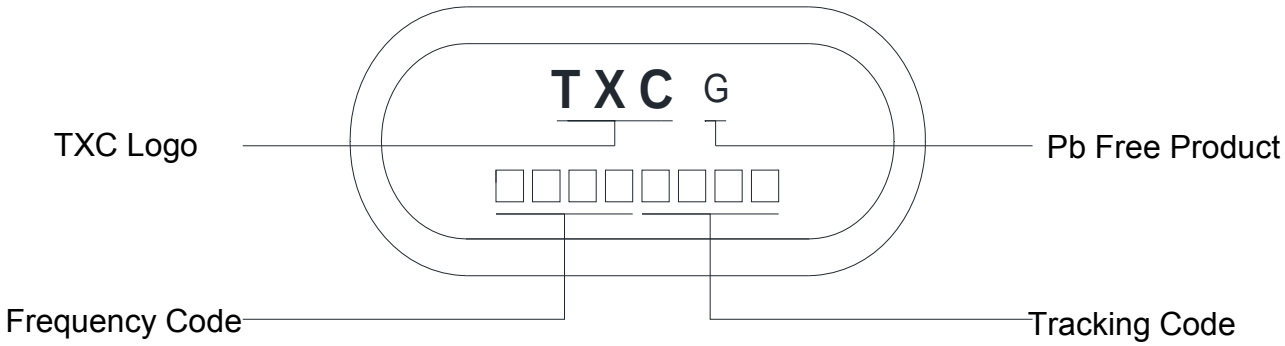
Temperature: 350 ± 10 ℃

Time: 3 sec.

Re-solder times: twice

MARKING

Marking For Pb Free Parts：

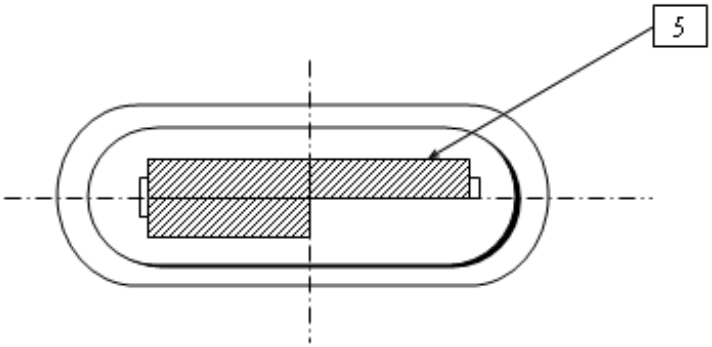


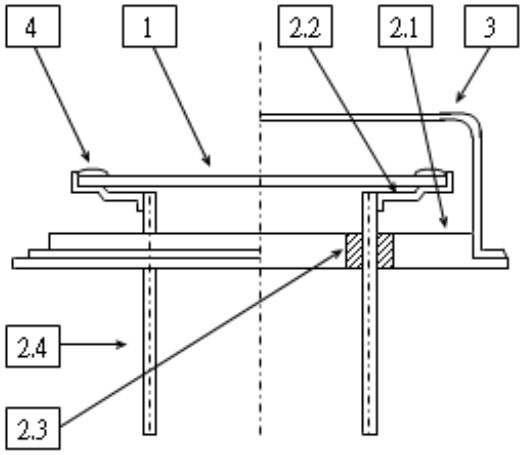
Production Location:China(Ningbo)

→

Introduction： Pb Free Product
49S 13.21 MHz
Made in 2009/JAN. 01Lot

■ STRUCTURE ILLUSTRATION

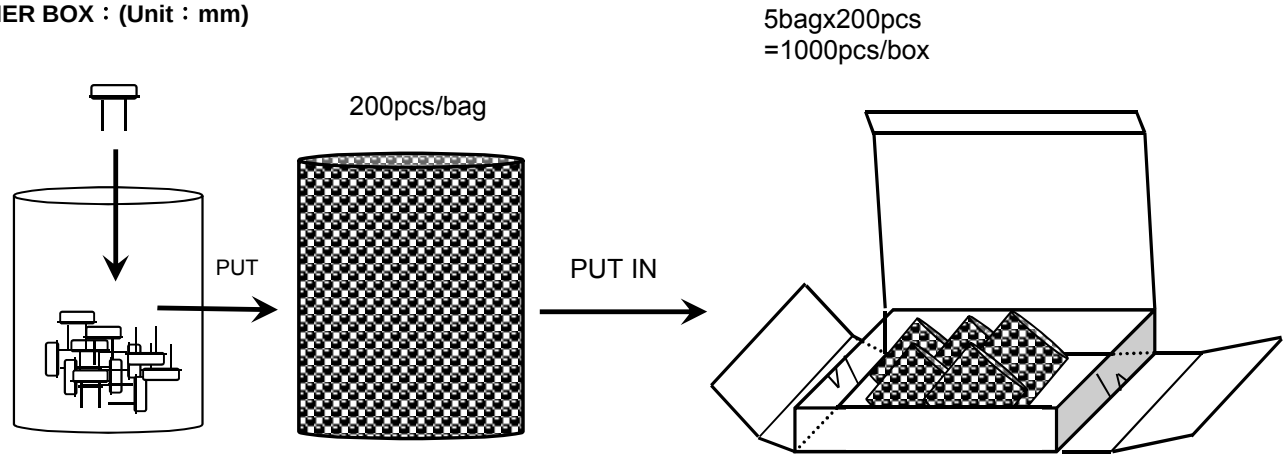




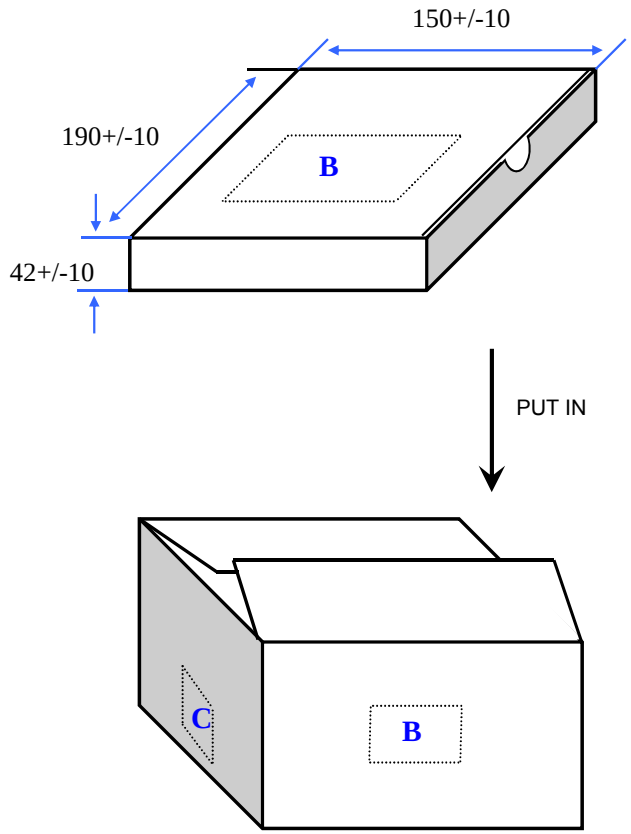
NO		COMPONENTS		MATERIALS	FINISH/SPECIFICATIONS
1		CRYSTAL BLANK		QUARTZ(SiO_2)	-
2	2.1	CRYSTAL BASE	HOLDER	SPCC(Fe)	Ni Plated
	2.2		SUPPORTER	Nickel Silver(Cu/Zn/Ni)	-
	2.3		GLASS	GLASS	-
	2.4		LEAD	Kovar (Fe/Co/Ni)	Ni Plated+Solder(Sn/Ag/Cu) Dipped
3		CRYSTAL COVER		Nickel Silver(Cu/Zn/Ni)	Ni Plated
4		CONDUCTIVE ADHESIVE		Resin + Ag	-
5		ELECTRODE		Noble Metal	-

Packing For Pb Free Parts ：

1.INNER BOX：(Unit：mm)

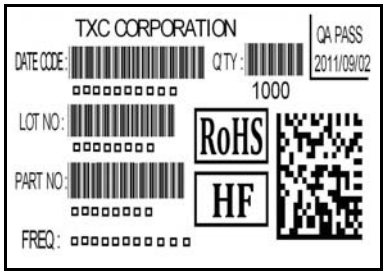


2.LOGO STICKER(CARTON and INNER BOX)：(Unit：mm)



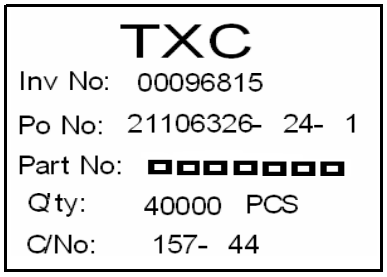
Label B

(Example)



Label C

(Example)



Put in stuff between space.

[STORAGE]

1.Don't be caught in the rain.

2.The storage environment shall be 5℃ ~40℃ temperature and 30% ~ 75%RH humidity and free from the sun shine.

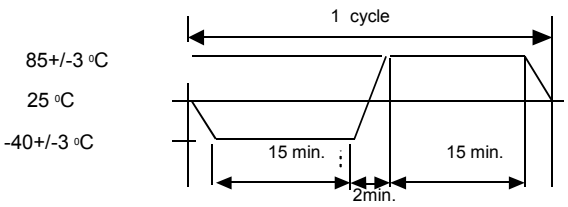
3.If customers have special requirements, we can paste labels according to it.

■ RELIABILITY SPECIFICATIONS (AEC-Q200 Compliant)

1.Mechanical Endurance

No.	Test Item	Test Methods	Test Criteria
1.1	Mechanical Shock	1000 G , 0.5 m Sec. , 3 times for all 3 directions.	B C
1.2	Vibration	Frequency range 10 ~ 2000 Hz Acceleration 20G Sweep time 20 minute Pendicular axes each test time 4 hours (Total test time 12 hours)	B C
1.3	Terminal Strength	A: 10N force in axes of terminal, 10±1sec. B: A bend through 90°and return to normal position shall be defined as one bend for a total of three ,the rate of bending shall be approximately 3sec per bend in each direction.	F
1.4	Board Flex	Duration time:60 Sec Minimum,Deviation:3mm	B C
1.5	Solderability	Temperature 245 °C +/- 5°C Immersing depth 0.5 mm minimum Immersion time 5 +/- 0.5 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)	E

2.Environmental Endurance

No.	Test Item	Test Methods	SPEC
2.1	Resistance To Soldering Heat	Test temperature 260 +/- 5 °C Test time 10 +/- 1 sec.	ACD
2.2	High Temp. Storage	+ 85℃ ± 3 ℃ for 1000 ± 12 Hrs	ACD
2.3	Low Temp. Storage	- 40 ℃ ± 3 ℃ for 1000 ± 12 Hrs	ACD
2.4	Temperature cycle	-40℃~85℃,for 1000 cycles. 	ACD
2.5	Operational Life	1000 hrs @ 85± 3°C. Rated VDD applied with 1 MΩ.	ACD
2.6	High Temp & Humidity	85℃ ± 3℃ , RH 85% , 1000 Hrs	ACD

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

Measurements are carried out with Network-analyzer(S&A 250B or equival