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	:	HC-49/S
NOMINAL FREQ.	:	4.000000MHz
TXC P/N	:	9B04000011
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.

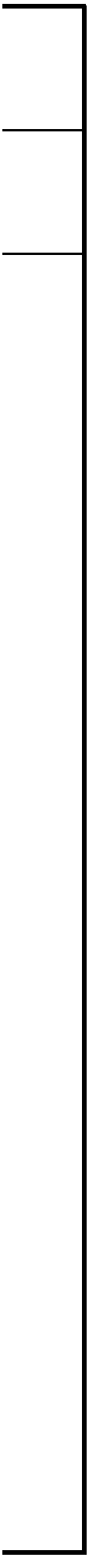
(3) Any changes to these specifications must be agreed upon by both parties and new revision of the Product Specification Sheet will be issued.

(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

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RoHS Compliant



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PRODUCT SPECIFICATION SHEET

PRODUCT TYPE	:	HC-49/S
NOMINAL FREQ.	:	4.000000MHz
TXC P/N	:	9B04000011
REVISION	:	A1

PE/RD	QA	MFG
Simon Wang	Jon Hsieh	Shu-Chen ko
2024/9/27	***2024/9/27***	***2024/9/27***

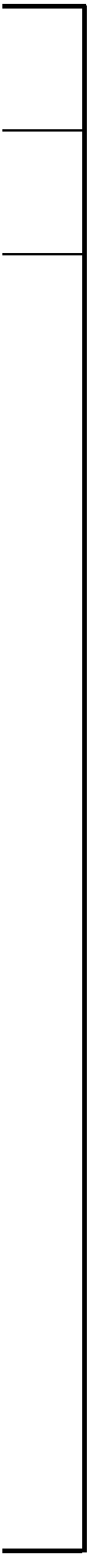
NOTE:

(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



Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
A1	N/A	Initial Released	2011/7/15	N/A	Shu-Chen K

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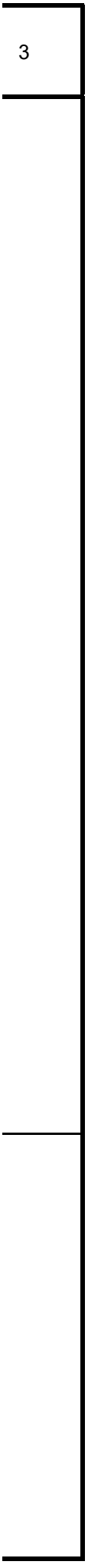
CONTENT

SPECIFICATIONS	PAGE
• ELECTRICAL SPECIFICATIONS	4
• DIMENSIONS	5
• MARKING	6
• PACKING	7
• RELIABILITY SPECIFICATIONS	8

ATTACHMENT(S) (optional)

TESTING DATA

- ELECTRICAL CHARACTERISTICS TEST A ☐ YES ☑ NO
- TEMPERATURE CHARACTERISTICS TEST B ☐ YES ☑ NO


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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

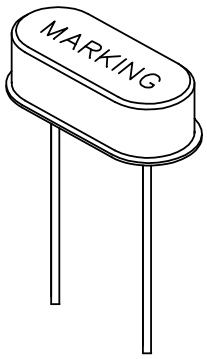
Relative humidity : 40%~70%

Measure equipment

SAUNDERS 250A/250B CRYSTAL IMPEDANCE METER.

Crystal cutting type

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



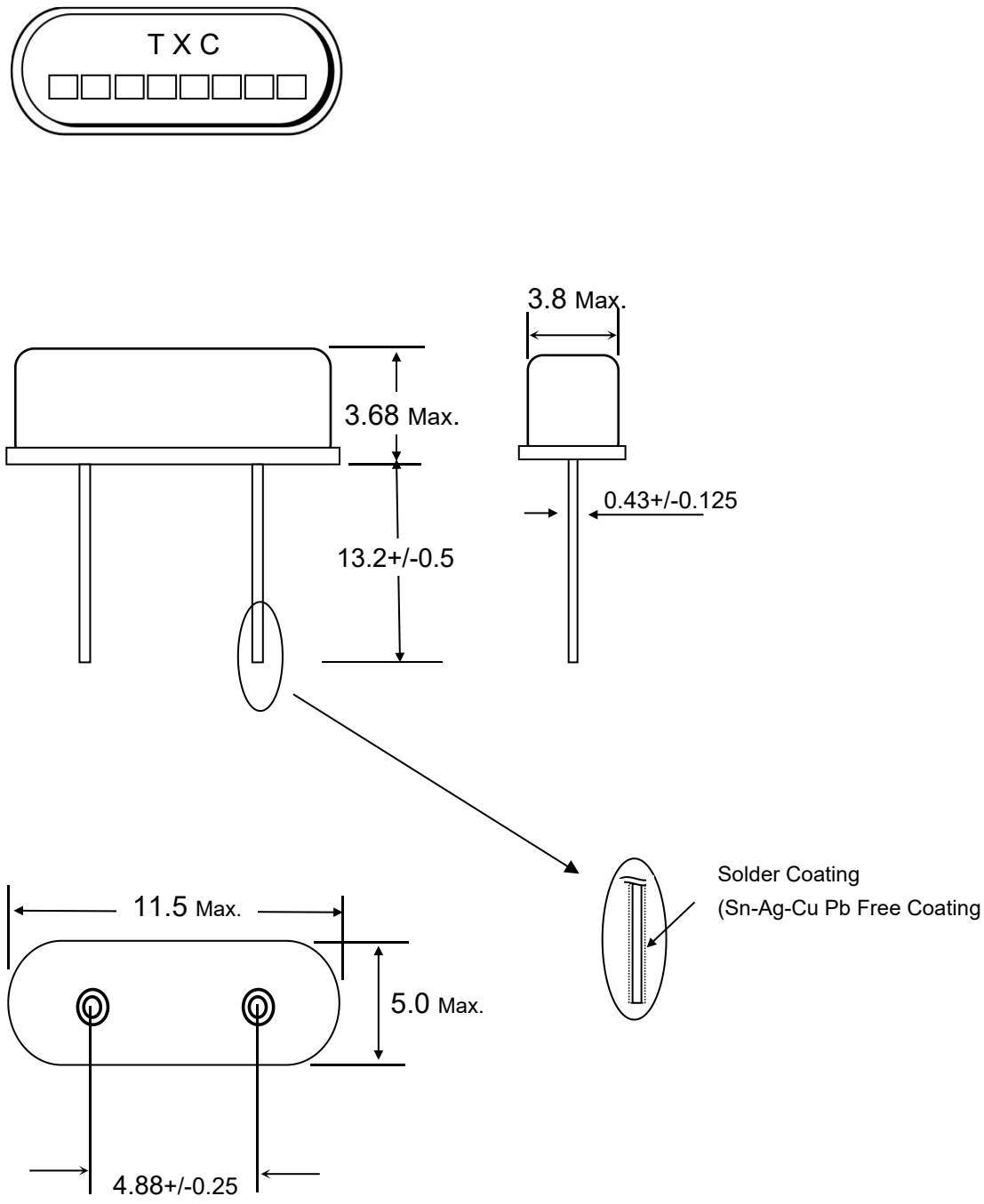
please refer to marking code page

1.	Nominal Frequency	4.000000 MHz
2.	Oscillation Mode	Fundamental
3.	Load Capacitance	27.0 pF
4.	Frequency Tolerance (25 °C)	+/- 20 ppm
5.	Effective Series Resistance	100 Ohms Max.
6.	Shunt Capacitance (C0)	7.0 pF Max.
7.	Motional Capacitance (C1)	N/A fF
8.	Drive Level	100 uW Typ.
9.	Operation Temperature Range	-20 °C ~ +70 °C
10.	Stability Over Temperature Range	+/- 20 ppm (related to 25 °C)
11.	Insulation Resistance	500 MOhms Min. at DC 100V
12.	Attenuation of Spurious Frequency Amplitude	N/A
13.	Ratio of Holder to Motional (C0/1)	N/A
14.	Storage Temperature	-40 °C ~ +85 °C
15.	Aging	+/- 3.0 ppm / year.
16.	Weight	0.54 g +/- 0.05g


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DIMENSIONS

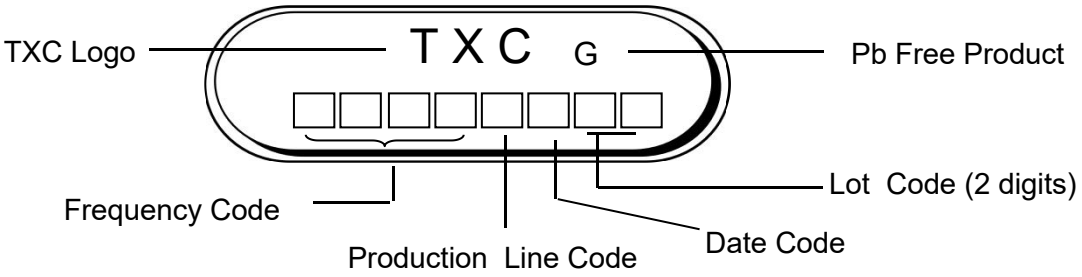
UNIT:mm




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MARKING

Marking For Pb Free Parts :

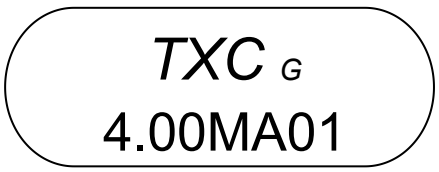


Date Code:

YEAR \ MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2009	2013	2017	2021	2025	A	B	C	D	E	F	G	H	J	K	L	M
2010	2014	2018	2022	2026	N	P	Q	R	S	T	U	V	W	X	Y	Z
2011	2015	2019	2023	2027	a	b	c	d	e	f	g	h	j	k	l	m
2012	2016	2020	2024	2028	n	p	q	r	s	t	u	v	w	x	y	z

*This date code will be cycled every four years.

For example : Marking

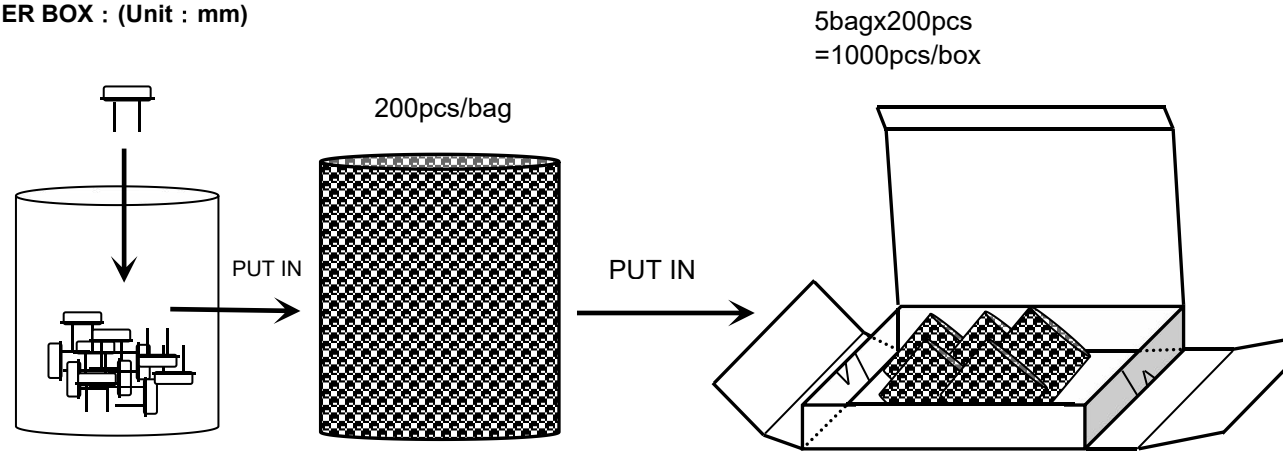


Introduction： Pb Free Product
49S 4.000 MHz
Made in 2009/JAN. 01Lot

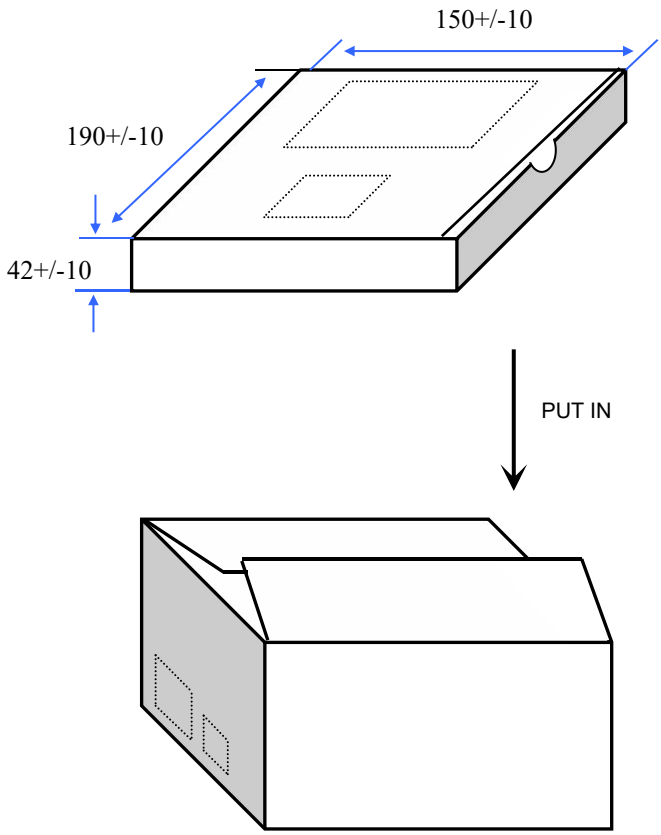

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Packing For Pb Free Parts :

1.INNER BOX : (Unit : mm)



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



(1) Put in stuff between space.

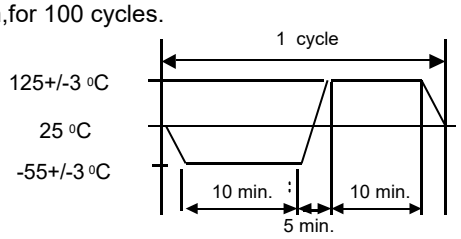

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■ RELIABILITY SPECIFICATIONS

1.Mechanical Endurance

No.	Test Item	Test Methods		REF.DOC
1.1	Drop Test	50 cm height, fall freely onto firm wood for 3 times.		JIS C6701
1.2	Mechanical Shock	Half sine wave, 1000 G , 0.5 m Sec. , 3 times for all 3 directions.		MIL-STD-20
1.3	Vibration	Frequency range Amplitude Sweep time Pendicular axes each test time	10 ~ 55 Hz 1.52 mm 1 minute 2 hours (Total test time 6 hours)	MIL-STD-88
1.4	Gross Leak	Alcohol pressure 5 Kg/ cm^2 for 1 hr ,then electrical test 125°C FC#40 ,120 Seconds. (1.5 × 10^{-5} $Pa.m^3$/sec)		MIL-STD-88
1.5	Fine Leak	Helium Bombing 4.5 Kg/ cm^2 for 2 hr		
1.6	Solderability	Temperature Immersing depth Immersion time Flux	235 °C +/- 5°C 0.5 mm minimum 5 +/- 1 seconds Rosin resin methyl alcohol solvent (1 : 4)	MIL-STD-88

2.Environmental Endurance

No.	Test Item	Test Methods		REF.DOC
2.1	Resistance To Soldering Heat	Test Temperature Test Time (Solder Pot)	260 °C +/- 5 °C 10 +/- 1 sec.	MIL-STD-20
2.2	High Temp. Storage	+ 125 °C +/- 3 °C for 500 hours		MIL-STD-88
2.3	Low Temp. Storage	- 40 °C +/- 3 °C for 96 hours		
2.4	Thermal Cycles	-55°C~125°C,Dwell time:10 min,for 100 cycles. 		MIL-STD-88
2.5	High Temp&Humidity	85°C ± 3°C , RH 85% , 500 Hrs		JIS-C-502

* Measure in room temperature after each tests.

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