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 SMD
NOMINAL FREQ.	:	4.096000MHz
TXC P/N	:	9C04000017
REVISION	:	A2
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	:	HC-49/S SMD
NOMINAL FREQ.	:	4.096000MHz
TXC P/N	:	9C04000017
REVISION	:	A2

PE/RD	QA	MFG
Simon Wang	Tom Hsieh	Shu-Chen Ko
2012/8/29	*2012/8/29*	*2012/8/29*

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	2010/3/25	N/A	Shu-Chen Ko
A2	7	Reel Size Change	2012/1/19	ECR-11A031101	Shu-Chen Ko

CONTENT

SPECIFICATIONS	PAGE
• ELECTRICAL SPECIFICATIONS	4
• DIMENSIONS	5
• SUGGESTED REFLOW PROFILE	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

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

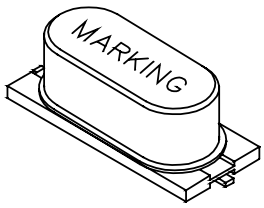
Relative humidity : 40%~70%

Measure equipment

SAUNDERS 250A/250B CRYSTAL IMPEDANCE METER.

Crystal cutting type

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

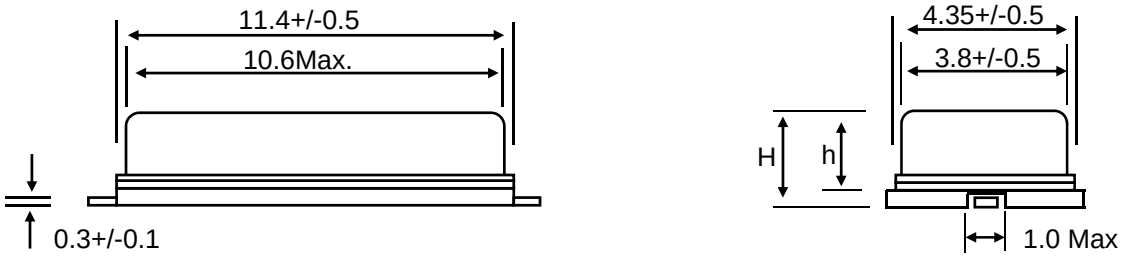


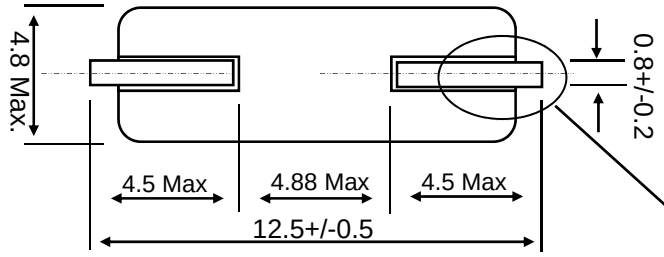
please refer to marking code page

1.	Nominal Frequency	4.096000 MHz
2.	Oscillation Mode	Fundamental
3.	Load Capacitance	20.0 pF
4.	Frequency Tolerance (25 °C)	+/- 30 ppm
5.	Effective Series Resistance	120 Ohms Max.
6.	Shunt Capacitance (C0)	7.0 pF Max.
7.	Motional Capacitance (C1)	N/A
8.	Drive Level	100 uW Typ.
9.	Operation Temperature Range	-40 °C ~ +85 °C
10.	Stability Over Temperature Range	+/- 30 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	0.58 g +/- 0.05g

DIMENSIONS

UNIT:mm

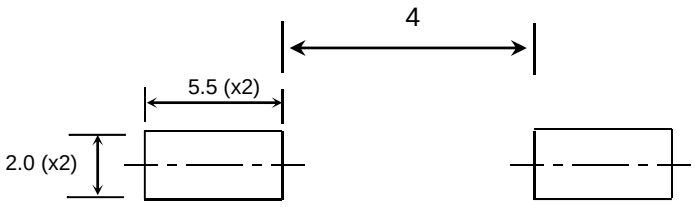




CHOOSE	TYPE	H(SMDHIGH)	h(BODY HIGH)
■	S3	3.8+/-0.3	3.3+/-0.3
□	S2	3.0+/-0.3	2.3+/-0.3

Solder Coating
(Sn-Ag-Cu Pb Free Coating)

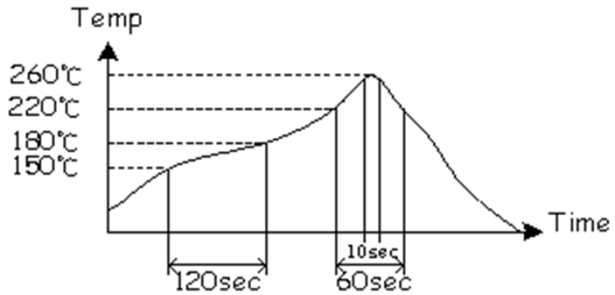
Suggested Layout



SUGGESTED REFLOW PROFILE

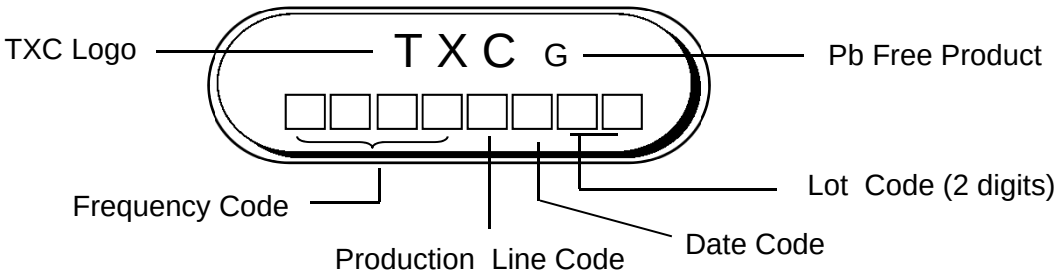
Total time : 200 sec. Max.

Solder melting point :220 °C



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

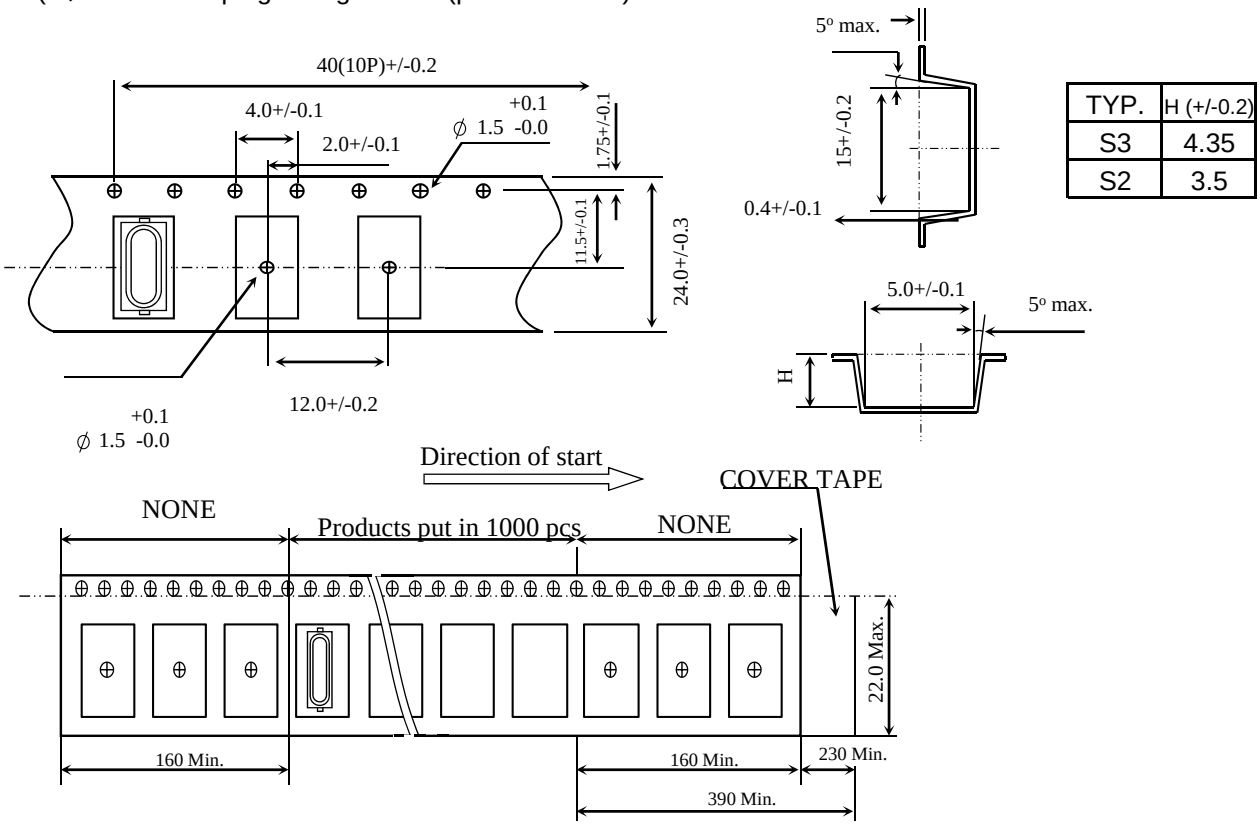


→

Introduction： Pb Free Product
49S 4.096 MHz
Made in NGB 2009/JAN 01Lot

(A) Tape and reel configuration:(Unit：mm)

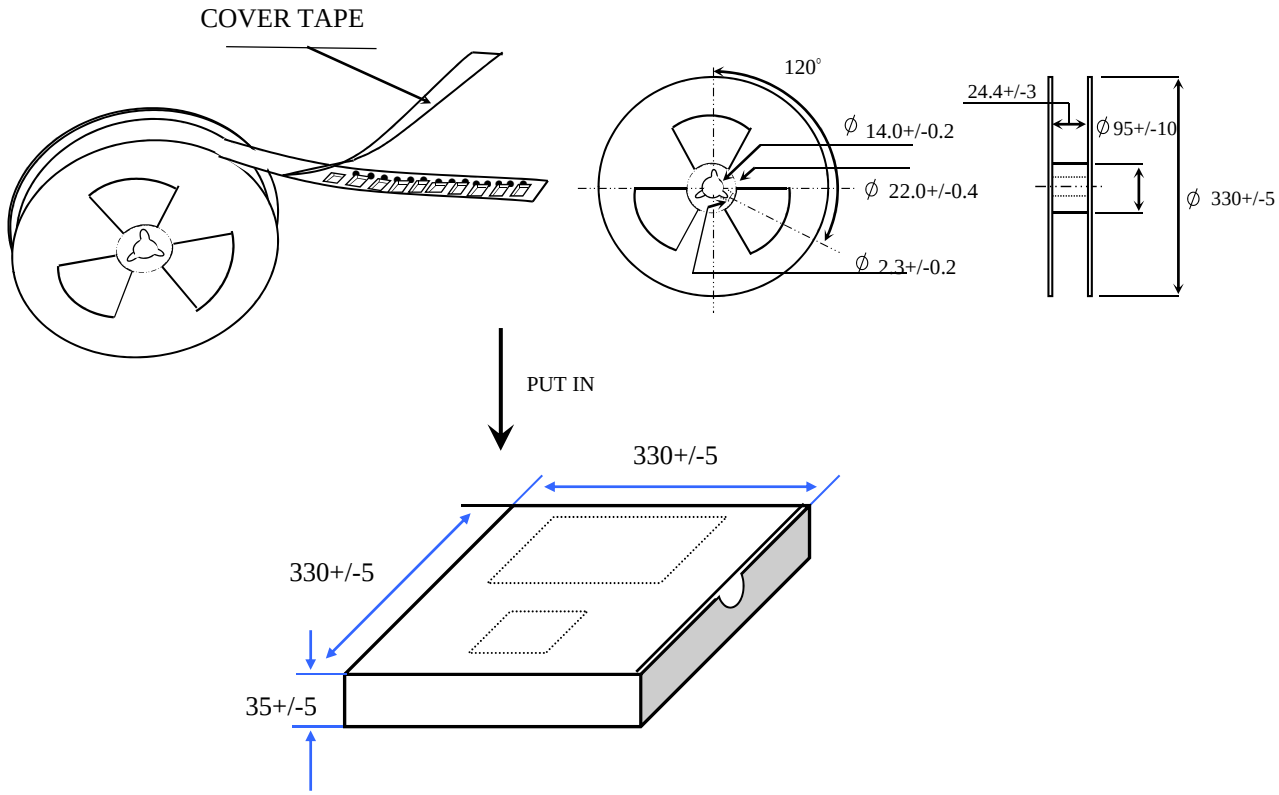
(a) Emboss taping configuration. (per EIA-481-2)



TYP.	H (+/-0.2)
S3	4.35
S2	3.5

(b) Reel configuration.

(B) Packing & Label :(Unit：mm)

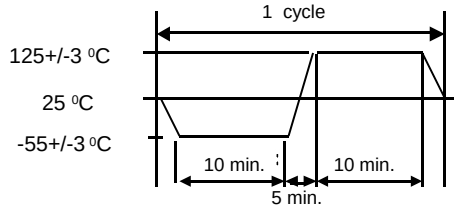


■ RELIABILITY SPECIFICATIONS

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-202
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-883
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-883
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-883

2.Environmental Endurance

No.	Test Item	Test Methods		REF.DOC
2.1	Resistance To Soldering Heat	Pre-heat temperature Pre-heat time Test temperature Test time	125 °C 60 ~ 120 sec. 260 +/- 5 °C 10 +/- 1 sec.	MIL-STD-202
2.2	High Temp. Storage	+ 125 °C +/- 3 °C for 500 hours		MIL-STD-883
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-883
2.5	High Temp&Humidity	85℃ ± 3℃ , RH 85% , 500 Hrs		JIS-C-5023

* Measure in room temperature after each tests.