



# SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_  
PRODUCT TYPE : HC-49/S SMD  
NOMINAL FREQ. : 27.000000MHz  
TXC P/N : 9C27000102  
REVISION : A5  
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

勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-34970699  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

**RoHS Compliant**



# PRODUCT SPECIFICATION SHEET

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NOMINAL FREQ. : 27.000000MHz

TXC P/N : 9C27000102

REVISION : A5

PE/RD	QA	MFG
<i>Simon Wang</i>	<i>Tzen Hsieh</i>	<i>Shu-Chen ko</i>
2011/10/18	2011/10/18	2011/10/18

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	2007/2/16	N/A	Shu-Chen Ko
A2	N/A	Form Change " E "	2009/4/15	ECN-08P112702	Shu-Chen Ko
A3	4	Operation Temperature Range Change	2010/10/29	ECN-10A102801	Shu-Chen Ko
A4	4	Rr Change from 40 to 30	2011/8/23	ECN-11A082301	Simon Wang
A5	7	Label (G) Cancel	2011/10/1	ECN-11P090801	Simon Wang

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### 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:

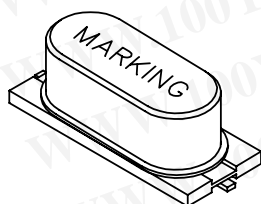
- Ambient temperature : 25+/-1°C
- Relative humidity : 40%~70%

**Measure equipment**

SAUNDERS 250A/250B CRYSTAL IMPEDANCE METER.

**Crystal cutting type**

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



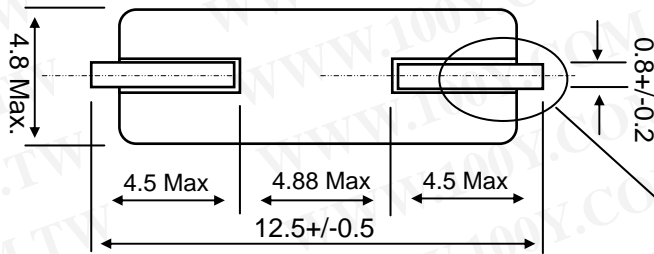
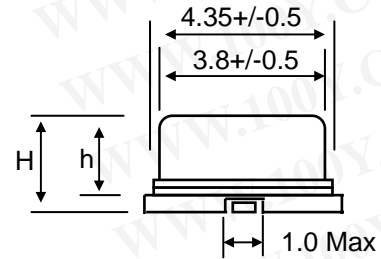
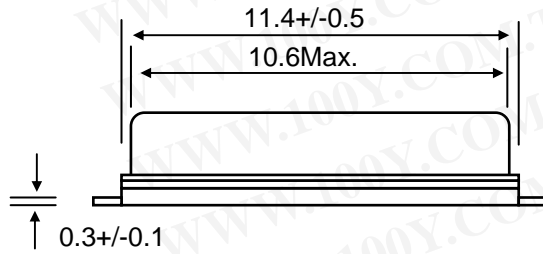
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please refer to marking code page

1.	Nominal Frequency	27.000000 MHz
2.	Oscillation Mode	Fundamental
3.	Load Capacitance	18.0 pF
4.	Frequency Tolerance (25 °C)	+/- 10 ppm
5.	Effective Series Resistance	30 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	-20 °C ~ +70 °C
10.	Stability Over Temperature Range	+/- 10 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	+/- 5.0 ppm/year
16.	Weight	0.58 g +/- 0.05g

**DIMENSIONS**

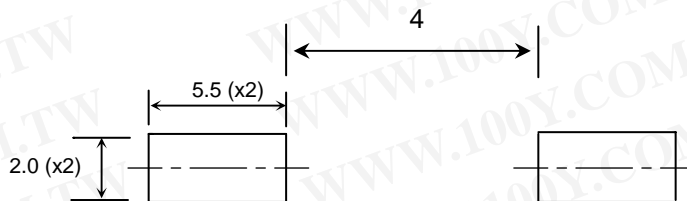
UNIT:mm



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

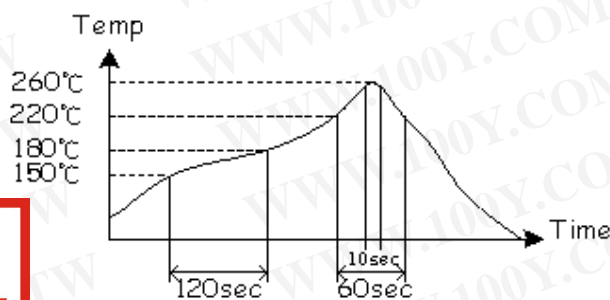
**Suggested Layout**

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



**SUGGESTED REFLOW PROFILE**

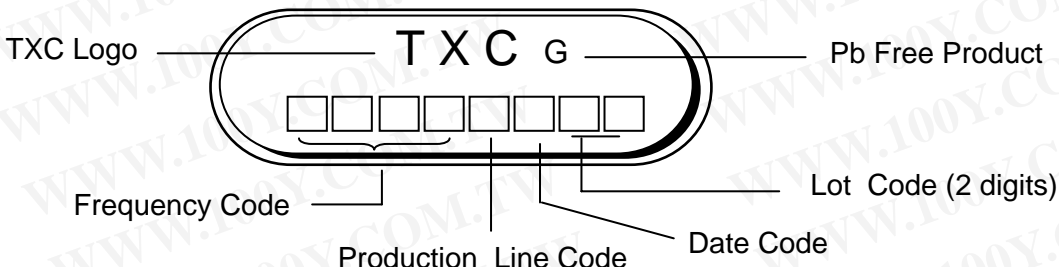
Total time : 200 sec. Max.  
Solder melting point :220 °C



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**MARKING**

**Marking For Pb Free Parts :**

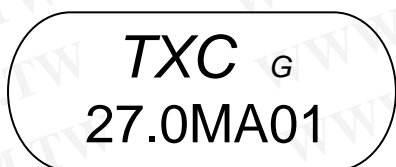


**Date Code:**

YEAR					MONTH											
					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2005	2009	2013	2017	2021	A	B	C	D	E	F	G	H	J	K	L	M
2006	2010	2014	2018	2022	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	2011	2015	2019	2023	a	b	c	d	e	f	g	h	j	k	l	m
2008	2012	2016	2020	2024	n	p	q	r	s	t	u	v	w	x	y	z

\*This date code will be cycled every four years.

**For example : Marking**

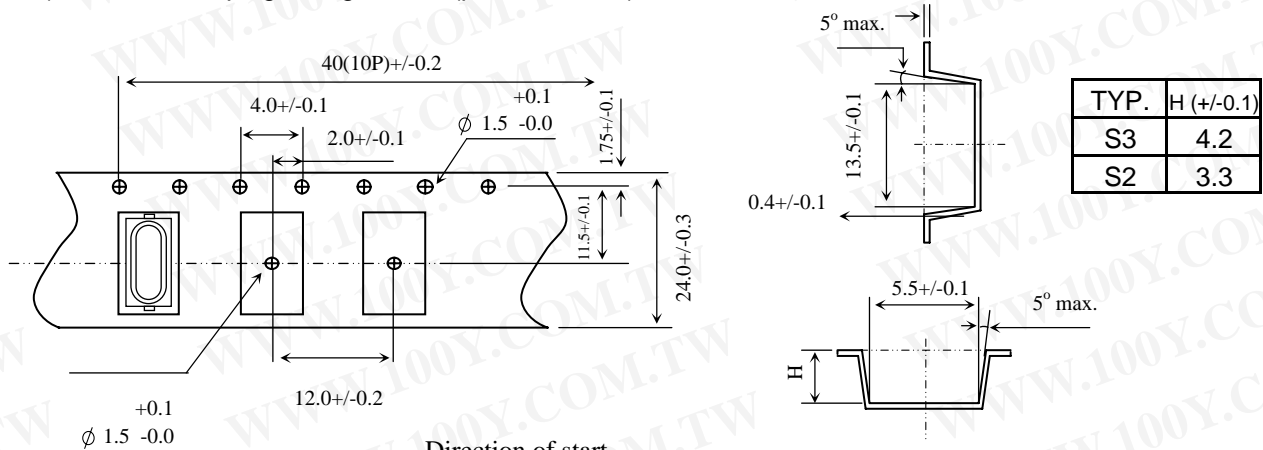


Introduction : Pb Free Product  
49S 27.000 MHz  
Made in NGB 2009/JAN 01Lot

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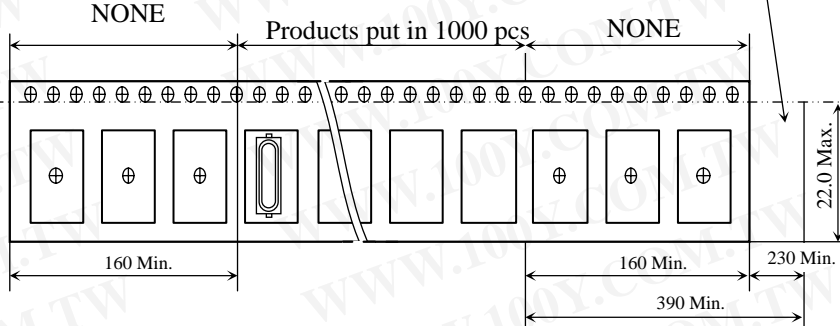
**(A) Tape and reel configuration:(Unit : mm)**

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



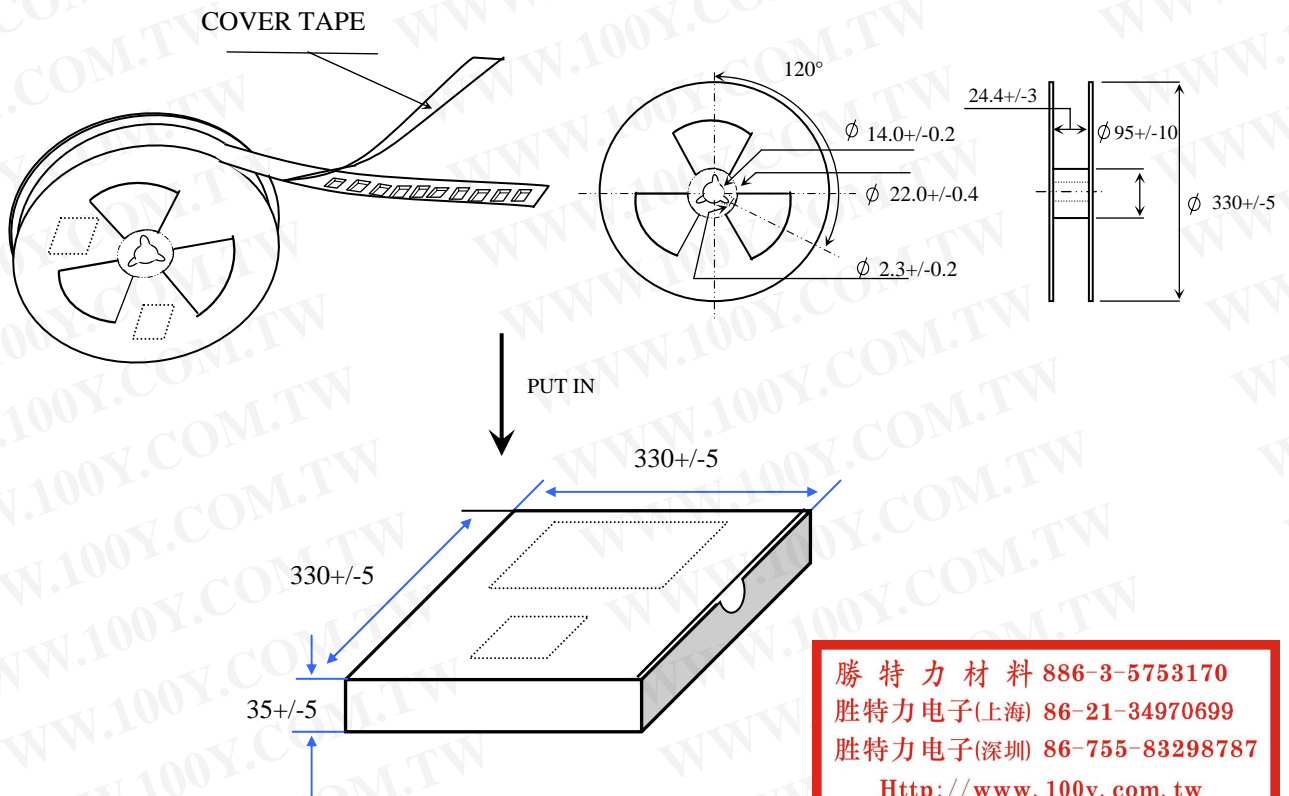
Direction of start

COVER TAPE



(b) Reel configuration.

**(B) Packing & Label :(Unit : mm)**



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## RELIABILITY SPECIFICATIONS

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### 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      10 ~ 55 Hz Amplitude                1.52 mm Sweep time               1 minute Pencil axes each test time    2 hours (Total test time 6 hours)	MIL-STD-883
1.4	Gross Leak	Alcohol pressure 5 Kg/ cm <sup>2</sup> for 1 hr ,then electrical test 125°C FC#40 ,120 Seconds. (1.5 × 10 <sup>-5</sup> Pa.m <sup>3</sup> /sec)	MIL-STD-883
1.5	Fine Leak	Helium Bombing 4.5 Kg/ cm <sup>2</sup> for 2 hr	
1.6	Solderability	Temperature                235 °C +/- 5°C Immersing depth            0.5 mm minimum Immersion time              5 +/- 1 seconds Flux                              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      125 °C Pre-heat time                60 ~ 120 sec. Test temperature              260 +/- 5 °C Test time                        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.