**TXC CORPORATION**

5F, 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. | : | 25.000000MHz |
| TXC P/N | : | 9C25000211 |
| 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

1
2
3
4
5

**RoHS Compliant**

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# PRODUCT SPECIFICATION SHEET

| | | |
|---|---|---|
| PRODUCT TYPE | : | HC-49/S SMD |
| NOMINAL FREQ. | : | 25.000000MHz |
| TXC P/N | : | 9C25000211 |
| REVISION | : | A1 |

| PE/RD | QA | MFG |
|---|---|---|
| Simon Wang | | Shu-Chen Ko |
| *2008/10/30* | *2008/10/30* | *2008/10/30* |

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 | 2006/11/15 | N/A | Shu-Chen Ko |
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# CONTENT


| SPECIFICATIONS | PAGE |
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| • SUGGESTED REFLOW PROFILE | 5 |
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| • PACKING | 7 |
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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

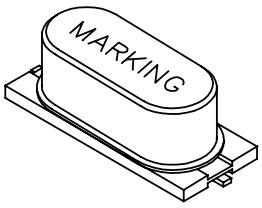
**Relative humidity :** 40%~70%

**Measure equipment**

**SAUNDERS 250A/250B CRYSTAL IMPEDANCE METER.**

**Crystal cutting type**

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

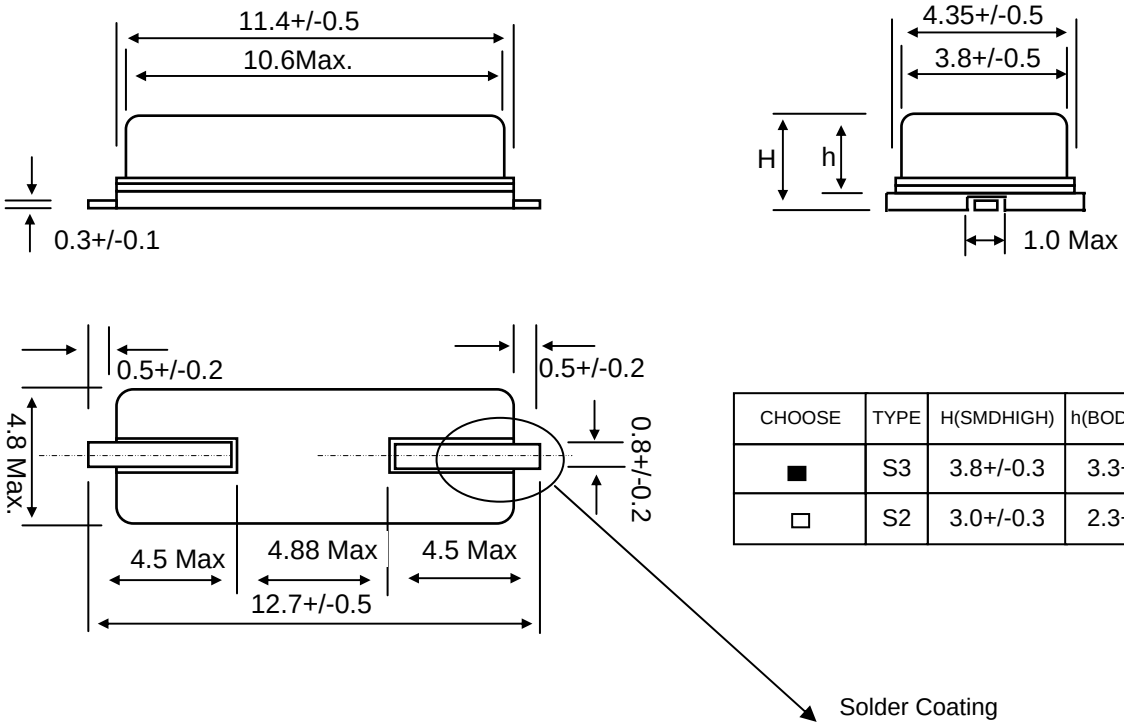



please refer to marking code page

| | | |
|---|---|---|
| 1. | Nominal Frequency | 25.000000 MHz |
| 2. | Oscillation Mode | Fundamental |
| 3. | Load Capacitance | 20.0 pF |
| 4. | Frequency Tolerance (25 °C) | +/- 20 ppm |
| 5. | Effective Series Resistance | 40 Ohms Max. |
| 6. | Shunt Capacitance (C0) | 7.0 pF Max. |
| 7. | Motional Capacitance (C1) | N/A |
| 8. | Drive Level | 100 uW |
| 9. | Operation Temperature Range | -20 °C ~ +80 °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 | +/- 5.0 ppm/5year |
| 16. | Weight | 0.58 g +/- 0.05g |
| | | |
| | | |
| | | |

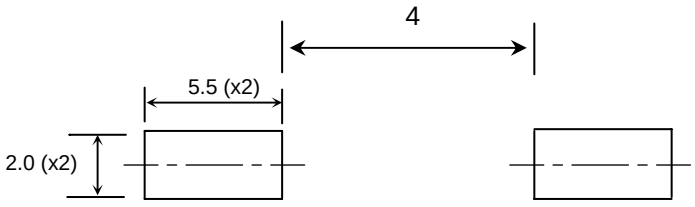
**DIMENSIONS**

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 |

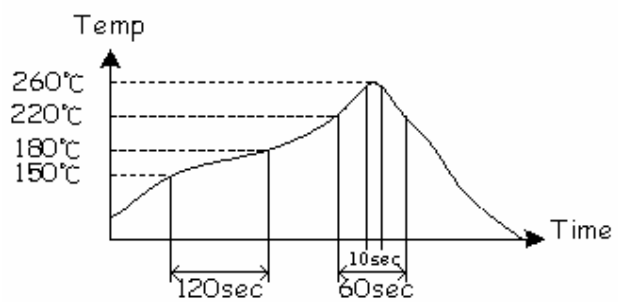
**Suggested Layout**




**SUGGESTED REFLOW PROFILE**

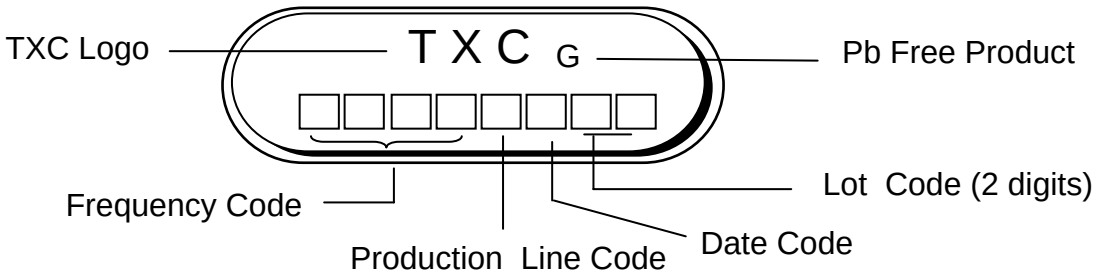
Total time : 200 sec. Max.

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 2005 2009 2013 2017 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2002 2006 2010 2014 2018 | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2003 2007 2011 2015 2019 | a | b | c | d | e | f | g | h | j | k | l | m |
| 2004 2008 2012 2016 2020 | n | p | q | r | s | t | u | v | w | x | y | z |

*This date code will be cycled every four years.

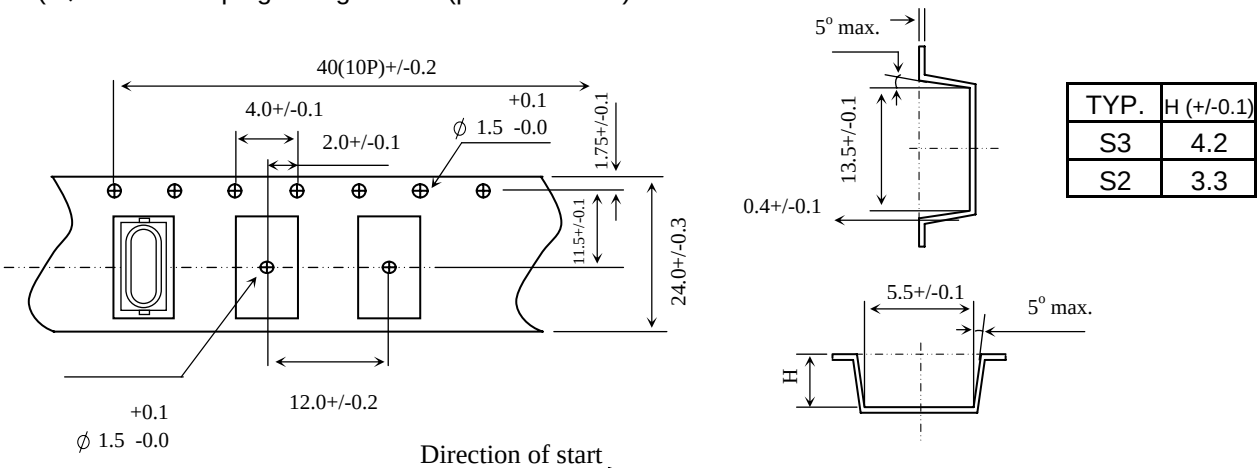
**For example： Marking**



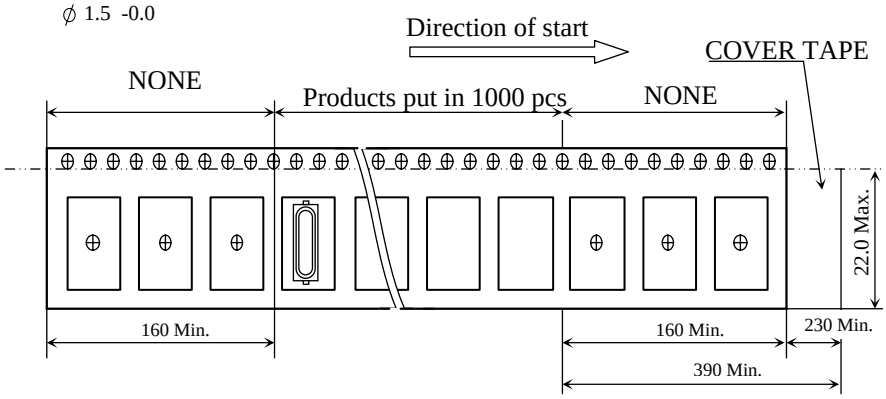

Introduction： Pb Free Product
49S 25.000 MHz
Made in NGB 2005/JAN 01Lot

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

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

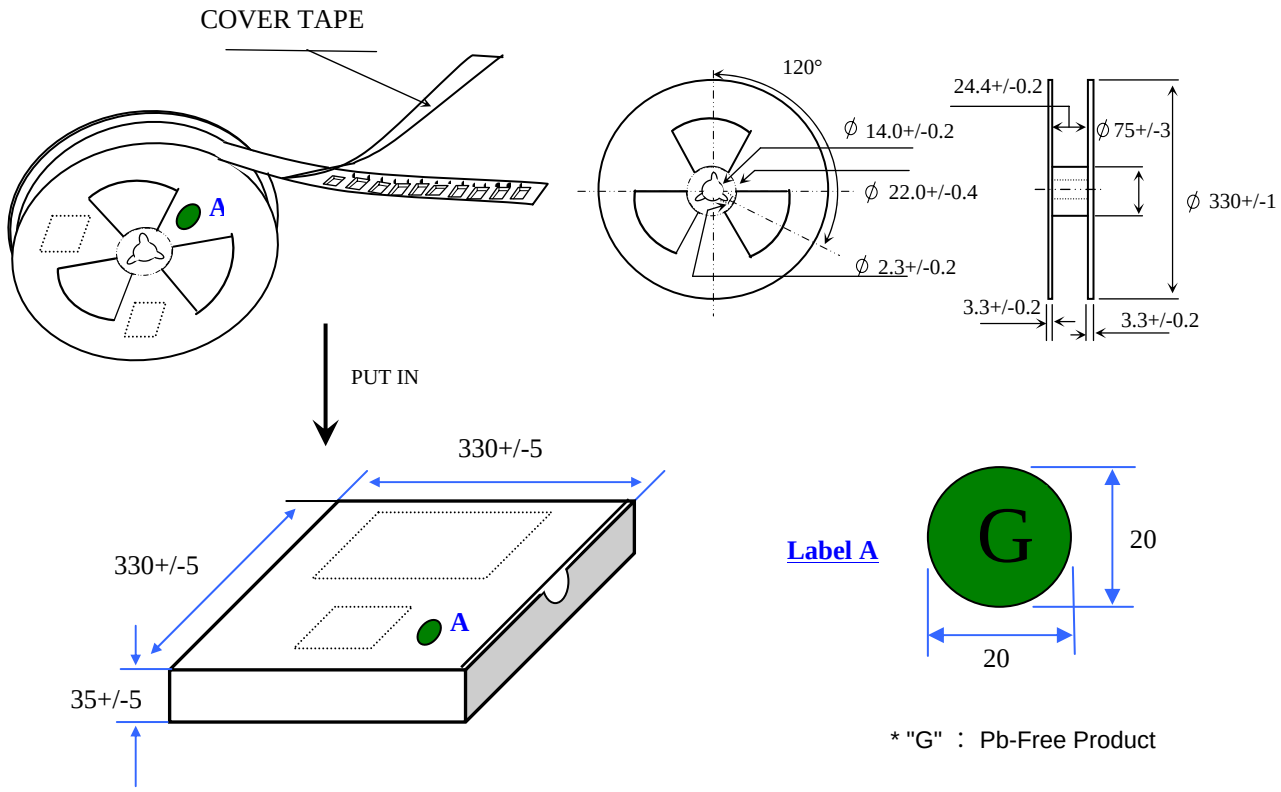



| TYP. | H (+/-0.1) |
|---|---|
| S3 | 4.2 |
| S2 | 3.3 |




( b) Reel configuration.

## (B) Packing & Label :(Unit：mm)

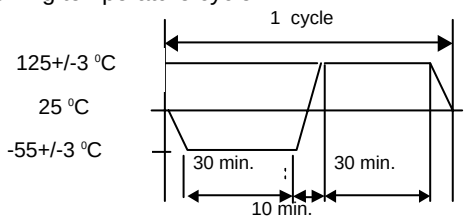



**Label A**




* "G" ： Pb-Free Product

**RELIABILITY SPECIFICATIONS**

| No. | Test Item | Test Methods | REF.DOC |
|---|---|---|---|
| 1 | Drop Test | 50 cm height, fall freely onto firm wood for 3 times. | JIS C6701 |
| 2 | Mechanical Shock | Device are shocked to half sine wave ( 1000 G ) three mutually pendicular axes each 3 times. 0.5m sec. duration time | MIL-STD-202F |
| 3 | Vibration | Frequency range 10 ~ 55 Hz<br>Amplitude 1.52 mm<br>Sweep time 1 minute<br>Pendicular axes each test time 2 hours<br>(Total test time 6 hours) | MIL-STD-883E |
| 4 | Solderability | Temperature 235 °C +/- 5°C<br>Immersing depth 0.5 mm minimum<br>Immersion time 5 +/- 0.5 seconds<br>Flux Rosin resin methyl alcohol solvent ( 1 : 4 ) | MIL-STD-883E |
| 5 | Resistance To Soldering Heat | Pre-heat temperature 125 °C<br>Pre-heat time 60 ~ 120 sec.<br>Test temperature 260 +/- 5 °C<br>Test time 10 +/- 1 sec. | MIL-STD-202F |
| 6 | High Temp. Storage | + 125 °C +/- 2 °C for 500 +/- 12 hours | MIL-STD-883E |
| 7 | Low Temp. Storage | - 40 °C +/- 2 °C for 500 +/- 12 hours | |
| 8 | Thermal Cycles | Total 100 cycles of the following temperature cycle<br> | MIL-STD-883E |
| 9 | Humidity | Device are left in temperature at +85 °C +/-2 °C with relative humidity of 85% for 500 hours. | JIS-C-5023 |