

# SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_

PRODUCT TYPE : SMD SEAM SEALING X'TAL 3.2×2.5

NOMINAL FREQ. : 25.000000MHz

TXC P/N : 7M25000014

REVISION : A3

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.

**MSL:Level 1  
RoHS Compliant**

# PRODUCT SPECIFICATION SHEET

PRODUCT TYPE : SMD SEAM SEALING X'TAL 3.2×2.5

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NOMINAL FREQ. : 25.000000MHz

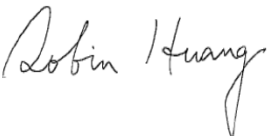
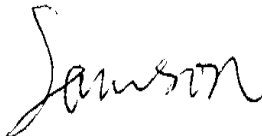

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TXC P/N : 7M25000014

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REVISION : A3

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| PE/RD   | QA  | MFG  |
|---|---|--|
|  |  |  |
| 3-Mar-11  | 3-Mar-11  | 3-Mar-11   |

**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

**MSL:Level 1  
RoHS Compliant**



## Spec Sheet Contents

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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±3°C  
 Relative humidity : 40%~70%

**Measure equipment**

Electrical characteristics measured by S&A250B or equivalent.

**Crystal cutting type**

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

**Unit Weight:**

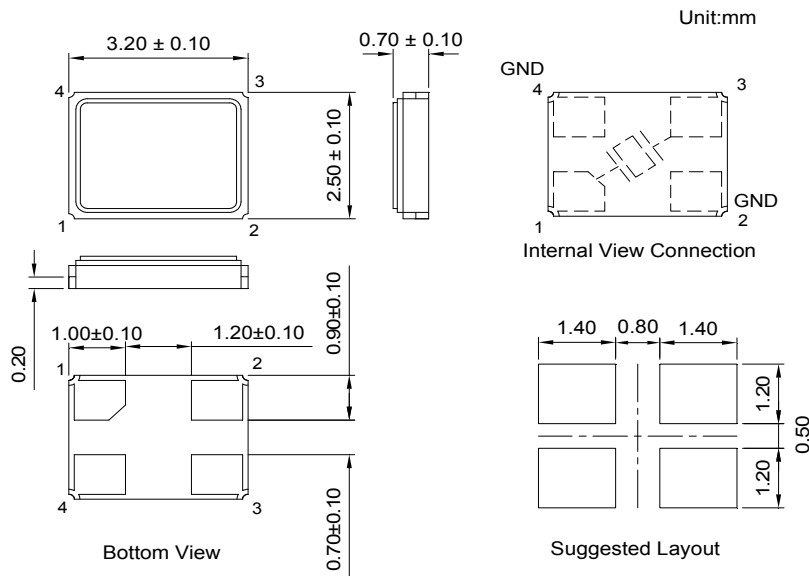
0.018±0.001 g/pcs

|    | Parameters                | SYM. | Electrical Spec. |      |     |       | Notes                                       |
|----|---------------------------|------|------------------|------|-----|-------|---|
|    |                           |      | MIN              | TYPE | MAX | UNITS |   |
| 1  | Nominal Frequency         | FL   | 25.000000        |      |     | MHz   | -   |
| 2  | Oscillation Mode          | -    | Fundamental      |      |     | -     | -   |
| 3  | Load Capacitance          | CL   | 18               |      |     | pF    | -   |
| 4  | Frequency Tolerance       | -    | ±10              |      |     | ppm   | at 25 °C ± 3 °C                             |
| 5  | Frequency Stability       | -    | ±10              |      |     | ppm   | Over Operating Temp. Range (Reference 25°C) |
| 6  | Operating Temperature     | -    | -10              | ~    | 70  | °C    | -   |
| 7  | Aging                     | -    | ±3               |      |     | ppm   | 1st Year                                    |
| 8  | Drive Level               | DL   | -                | 300  | 500 | µW    | -   |
| 9  | Effective Resistance Rr   | Rr   | -                | -    | 30  | Ω     | -   |
| 10 | Shunt Capacitance C0      | C0   | -                | -    | 5   | pF    | -   |
| 11 | Insulation Resistance     | -    | 500              | -    | -   | MΩ    | at DC 100V                                  |
| 12 | Storage Temperature Range | -    | -40              | ~    | 85  | °C    | -   |

**■ FACTORY LOCATION**

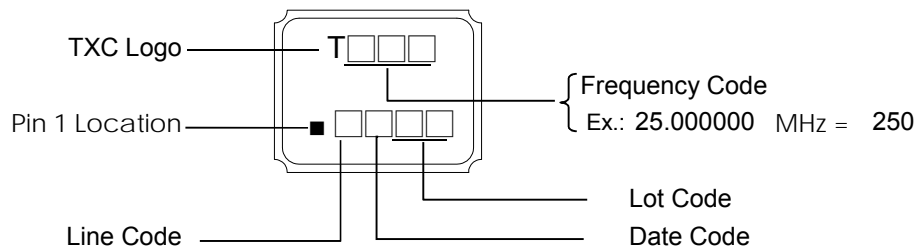
TXC (NINGBO) CORPORATION  
 NO.189 Huang Shan West Road, Beilun District,  
 Ningbo Zhejiang China

**■ DIMENSIONS**  
(Unit:mm)



\*Coplanarity of solderable areas Camber 0.10 mm Max

**■ MARKING**



**Date Code:**

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

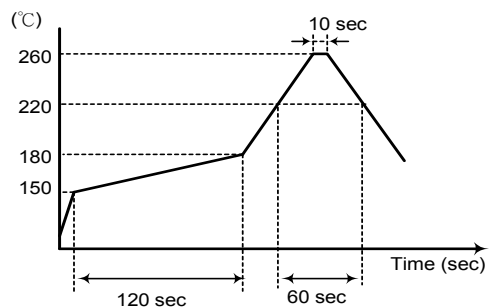
\*This date code will be cycled every four years

**■ SUGGESTED REFLOW PROFILE**

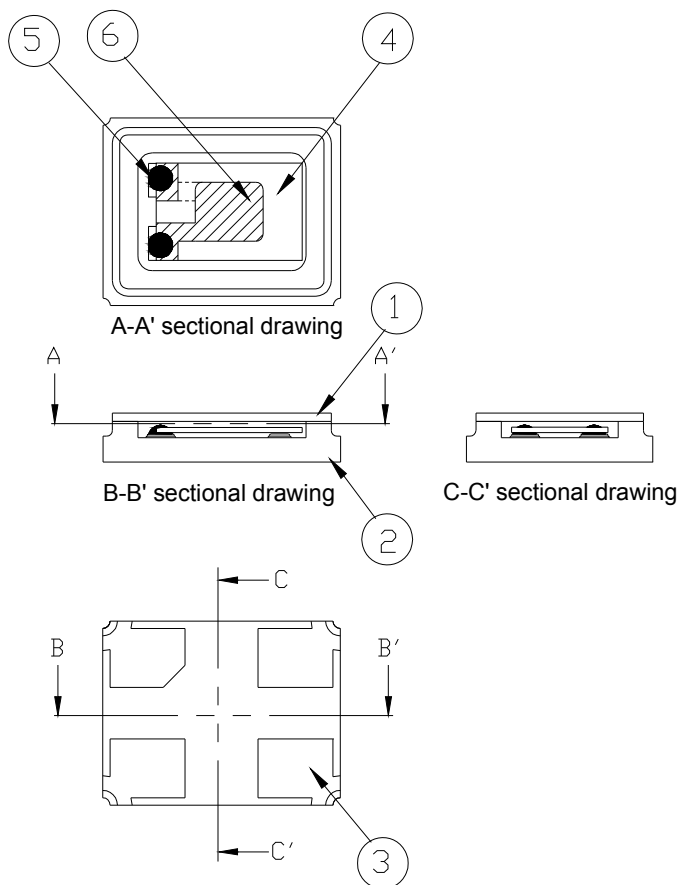
Solder melting point :220±10 °C, 60 sec. Min.  
Peak Temperature: 260 ± 5 °C, 10 sec. Max.

**■ SUGGESTED MANUAL SOLDER CONDITION**

Temperature: 350 ± 10 °C  
Time: 3 sec.  
Re-solder times: twice

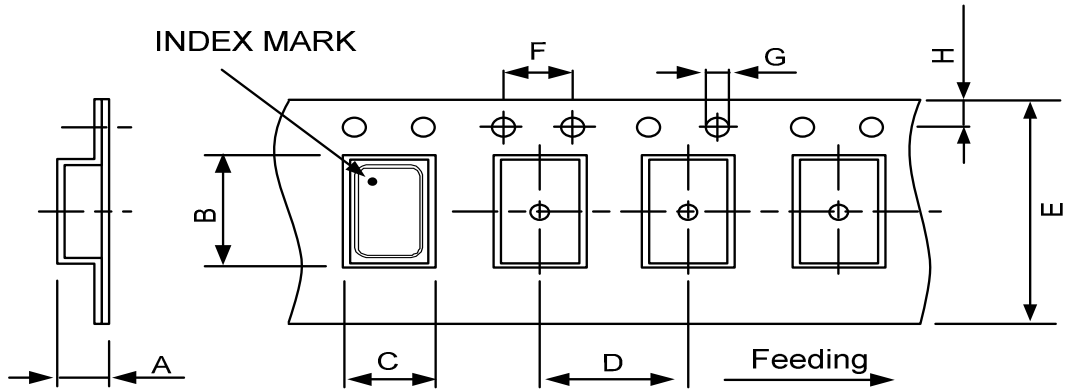


■ STRUCTURE ILLUSTRATION



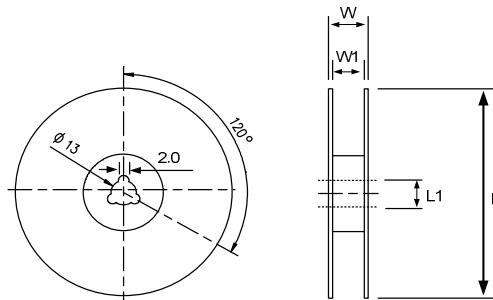
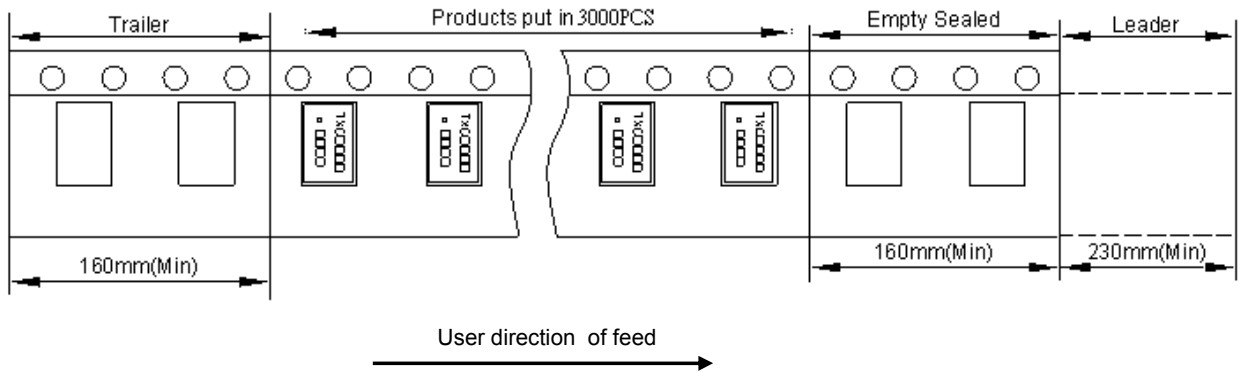
| NO | COMPONENTS          | MATERIALS   | FINISH/SPECIFICATIONS                             |
|----|---------------------|---|---|
| 1  | Cap                 | Kovar (Fe/Co/Ni)  | -   |
| 2  | Package             | Ceramic (Al <sub>2</sub> O <sub>3</sub> ) + Kovar (Fe/Co/Ni)+ Ag/Cu | Color black                                       |
| 3  | PAD                 | Au  | Tungsten metalize<br>+ Ni plating<br>+ Au plating |
| 4  | Crystal blank       | SiO <sub>2</sub>  | -   |
| 5  | Conductive adhesive | Resin+Ag  | Silicon resin                                     |
| 6  | Electrode           | Noble Metal   | -   |

■ EMOSS CARRIER TAPE & REEL



|            |           |           |           |           |           |           |           |           |             |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|
| DIMENSIONS | A         | B         | C         | D         | E         | F         | G         | H         |             |
|            | 1.65±0.10 | 3.40±0.10 | 2.70±0.10 | 4.00±0.10 | 8.00±0.20 | 4.00±0.10 | 1.55±0.10 | 1.75±0.10 | (UNIT : mm) |

REMARK :



|            |          |         |           |        |             |
|------------|----------|---------|-----------|--------|-------------|
| DIMENSIONS | L        | L1      | W         | W1     |             |
|            | 178±1.00 | 13±0.50 | 11.5±0.20 | 8±0.10 | (UNIT : mm) |



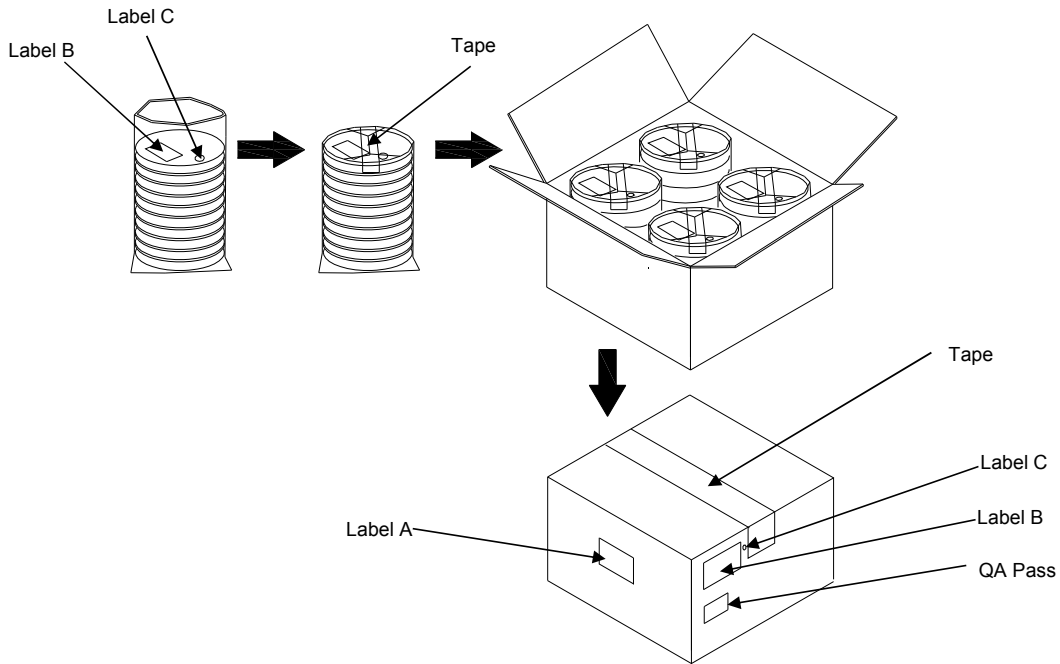
**PACKING**

Reel Quantity :

- 1. Reel X 6 (6 Reels)
- 2. Reel X 12 (12 Reels)
- 3. Reel X 25 (12 Reels + 13 Reels)
- 4. Reel X 50 (12 Reelsx2 + 13 Reelsx2)

Box Size:

- 1. L200 X W200 X H140mm
- 2. L200 X W200 X H250mm
- 3. L400 X W200 X H250mm
- 4. L400 X W400 X H280mm



(Label A) Size:100 X 100mm

|             |             |
|-------------|-------------|
| <b>NO:</b>  |             |
| <b>P/O:</b> | □□□□□□□□-□□ |
| <b>P/N:</b> | □□□□□□□□□□  |
| <b>NUM:</b> | □□□□□PCS    |

(Label C) Size:  $\phi$  20mm



GREEN PARTNER

(Label B) Size:80 X 40mm

|                        |      |                      |
|------------------------|------|----------------------|
| <b>TXC CORPORATION</b> |      | QC PASS<br>XXXXXX/XX |
| DATE CODE:             |      |                      |
| LOT NO:                | QTY: |                      |
| PARTS NO:              |      |                      |
| FREQ:                  |      |                      |

**[STORAGE]**

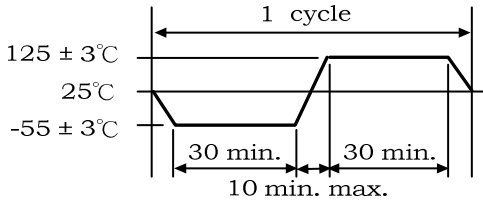
- 1.The storage time to be 1 year maximum.
- 2.Don't be caught in the rain.
- 3.The storage environment shall be 5°C ~40°C temperature and 30% ~ 75%RH humidity and free from the sun shine.
- 4.If customers have special requirements, we can paste labels according to it.

**RELIABILITY SPECIFICATIONS**

1. Mechanical Endurance

| No. | Test Item        | Test Methods  | Test Criteria |
|-----|------------------|---|---------------|
| 1.1 | Drop Test        | 75 cm height, 3 times on concrete floor .   | A . C         |
| 1.2 | Mechanical Shock | Device are shocked to half sine wave ( 1000 G ) three mutually perpendicular axes each 3 times. 0.5 ms duration time                                  | A . C         |
| 1.3 | Vibration        | Frequency range 10 ~ 2000 Hz<br>Amplitude 1.52 mm/20G<br>Sweep time 20 minutes<br>Perpendicular axes each test time 4 Hrs<br>(Total test time 12 Hrs) | A . C         |
| 1.4 | Solderability    | Temperature 240 °C ± 5°C<br>Immersing depth 0.5 mm minimum<br>Immersion time 5 ± 1 seconds<br>Flux Rosin resin methyl alcohol solvent ( 1 : 4 )       | E             |

2. Environmental Endurance

| No. | Test Item                    | Test Methods  | Test Criteria |
|-----|------------------------------|---|---------------|
| 2.1 | 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.                          | B . C . D     |
| 2.2 | High Temp. Storage           | + 125 °C ± 3 °C for 500 ± 12 Hrs  | B . C . D     |
| 2.3 | Low Temp. Storage            | - 40 °C ± 3 °C for 500 ± 12 Hrs   | B . C . D     |
| 2.4 | Thermal Shock                | Total 100 cycles of the following temperature cycle<br> | B . C . D     |
| 2.5 | High Temp & Humidity         | 85°C ± 3°C , RH 85% , 500 Hrs   | B . C . D     |

**RELIABILITY SPECIFICATIONS**

| Specifications |   |
|----------------|---|
| A              | Frequency change: Within $\pm 5$ ppm or in customer's specification.  |
| B              | Frequency change: Within $\pm 10$ ppm or in customer's specification.   |
| C              | Equivalent series resistance(E.S.R) change: Within $\pm 15\%$ or $10\Omega$ (larger value).                               |
| D              | After conditioning , quartz crystal units shall be subjected to standard atmospheric condicions for 2 hour, and measured. |
| E              | Minimum 95% of immersed terminal shall be covered with new uniform solder.  |

**Measurement condition**

Electrical characteristics measured by S&A250B or equivalent.