

SPECIFICATION FOR APPROVAL

CUSTOMER : _____

PRODUCT TYPE : SMD SEAM SEALING CXO 7.0x5.0

NOMINAL FREQ. : 16.000000MHz

TXC P/N : 7W16070003

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


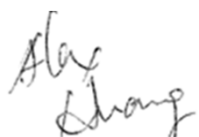

PRODUCT SPECIFICATION SHEET

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NOMINAL FREQ. : 16.000000MHz

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| PE/RD | QA | MFG |
|---|---|---|
|  Oscar Chen |  Alex Huang |  Leye Tang |
| 31-Jul-15 | 31-Jul-15 | 31-Jul-15 |

NOTE:

- (1) The green product standard set by TXC is based upon the international standards. Related information is publicly described on the TXC's Website, and updated regularly. The document is compliant with the latest green product quality system directives at the time.
- (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

■ ELECTRICAL SPECIFICATIONS

Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement and tests are as follow:

Ambient temperature : $25 \pm 5^{\circ}\text{C}$
 Relative humidity : 40%~70%

If there is any doubt about the results, measurement shall be made within the following limits:

Ambient temperature : $25 \pm 3^{\circ}\text{C}$
 Relative humidity : 40%~70%

Measure equipment

Electrical characteristics measured by MD 37WX-05M or equivalent.

Crystal cutting type

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

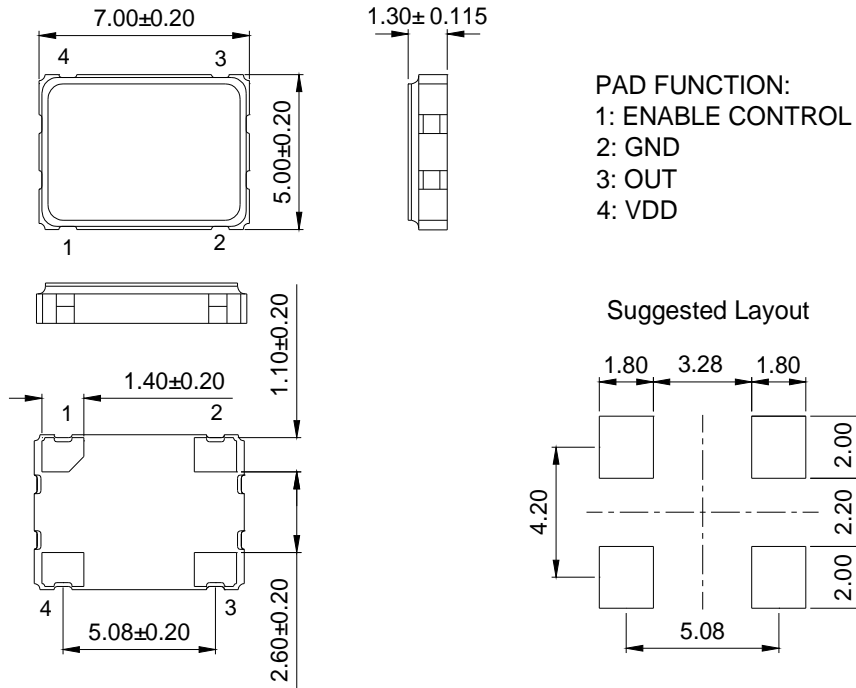
Unit Weight:

0.152±0.002 g/pcs

| | Parameters | Symbol | Electrical Spec. | | | | Notes |
|----|---------------------------|--------|------------------|------|--------|---------|-------------------|
| | | | Min. | Typ. | Max. | Units | |
| 1 | Nominal Frequency | - | 16.000000 | | | MHz | - |
| 2 | Frequency Stability | - | ±50 | | | ppm | - |
| 3 | Operating Temperature | Topr | -40 | 25 | 85 | °C | - |
| 4 | Storage Temperature | Tstg | -55 | ~ | 125 | °C | - |
| 5 | Supply Voltage | VDD | 3.3 ±10% | | | V | - |
| 6 | Input Current | Icc | - | - | 10 | mA | - |
| 7 | Enable Control | - | Yes | | | - | Pad 1 |
| 8 | Output Load : CMOS | CL | 15 | | | pF | - |
| 9 | Output Voltage High | VoH | 90%Vdd | - | - | V | - |
| 10 | Output Voltage Low | VoL | - | - | 10%Vdd | V | - |
| 11 | Rise Time | Tr | - | - | 5 | ns | 10%→90%VDD Level |
| 12 | Fall Time | Tf | - | - | 5 | ns | 90%→10%VDD Level |
| 13 | Symmetry (Duty ratio) | TH/T | 45 | ~ | 55 | % | - |
| 14 | Start-up Time | Tosc | - | - | 10 | ms | - |
| 15 | Enable Voltage High | Vhi | 70%Vdd | - | - | V | - |
| 16 | Disable Voltage Low | Vlo | - | - | 30%Vdd | V | - |
| 17 | Aging | - | ±3 | | | ppm/yr. | 1st. Year at 25°C |
| 18 | Output Disable Delay Time | T off | - | - | 150 | us | - |
| 19 | Output Enable Delay Time | T on | - | - | 150 | us | - |

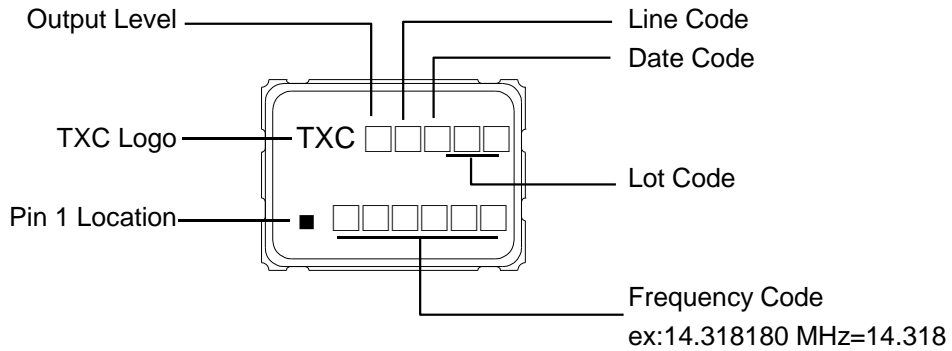
■ DIMENSIONS

(Unit:mm)



PAD FUNCTION:
1: ENABLE CONTROL
2: GND
3: OUT
4: VDD

■ MARKING



Output Level:

| | | | | | | | | | | | | | | | | | |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| V _{DD} (V) | 5.00 | 3.30 | 2.80 | 2.50 | 1.80 | 2.90 | 3.00 | 2.85 | 2.60 | 2.55 | 2.00 | 1.50 | 2.70 | 3.40 | 1.90 | 1.20 | 1.00 |
| CODE | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S |

Date Code:

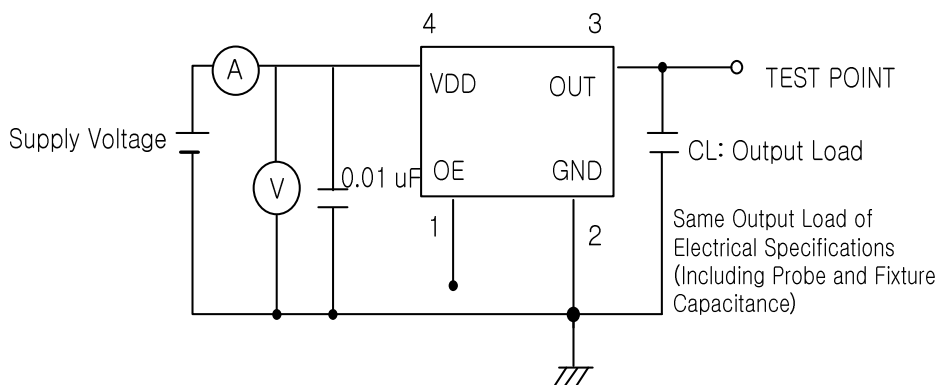
| | | MONTH | | | | | | | | | | | | | |
|------|------|-------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | |
| YEAR | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | | |
| 2005 | 2009 | 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

Production location:Taiwan

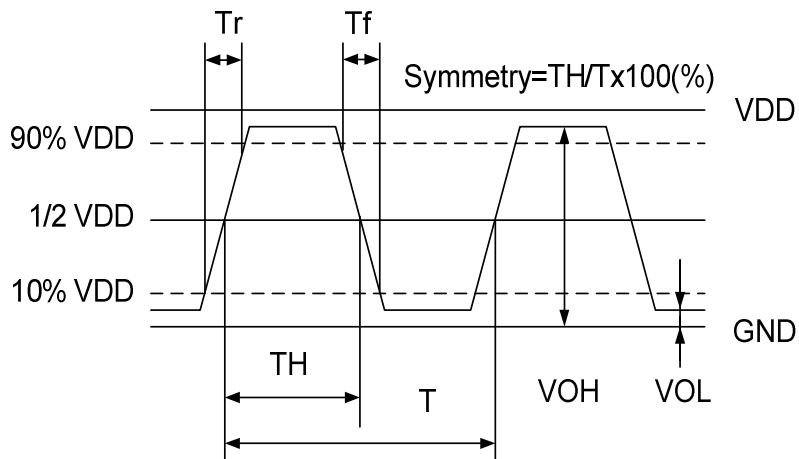
TEST DIAGRAM

Control input (output enable/disable)
 Logic 1 or open on pad 1: Oscillator output
 Logic 0 on pad 1 : Disable output to high impedance



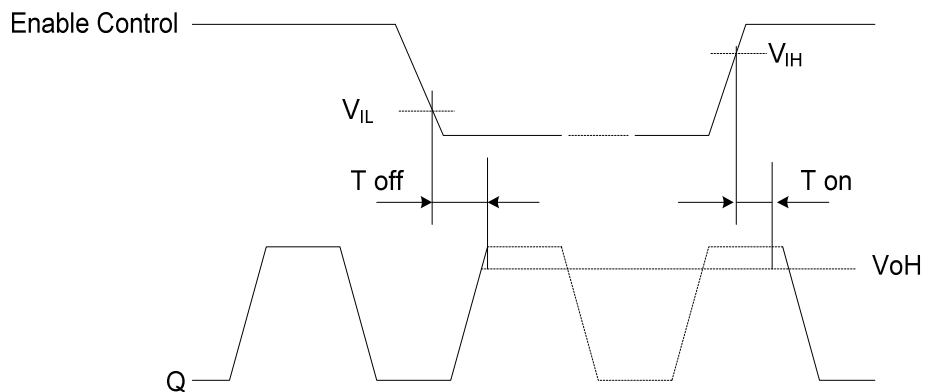
WAVEFORM CONDITIONS

Waveform measurement system should have a min. bandwidth of 5 times the frequency being tested.



■ OUTPUT ENABLE / DISABLE DELAY

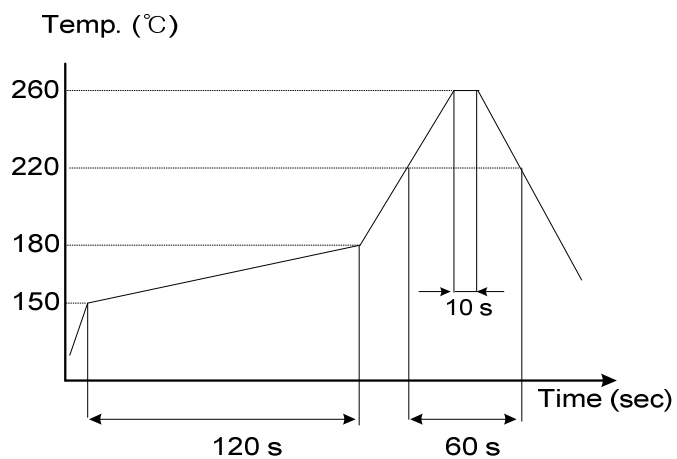
The following figure shows the oscillator timing during normal operation . Note that when the device is in standby, the oscillator stops. When standby is released, the oscillator starts and stable oscillator output occurs after a short delay.

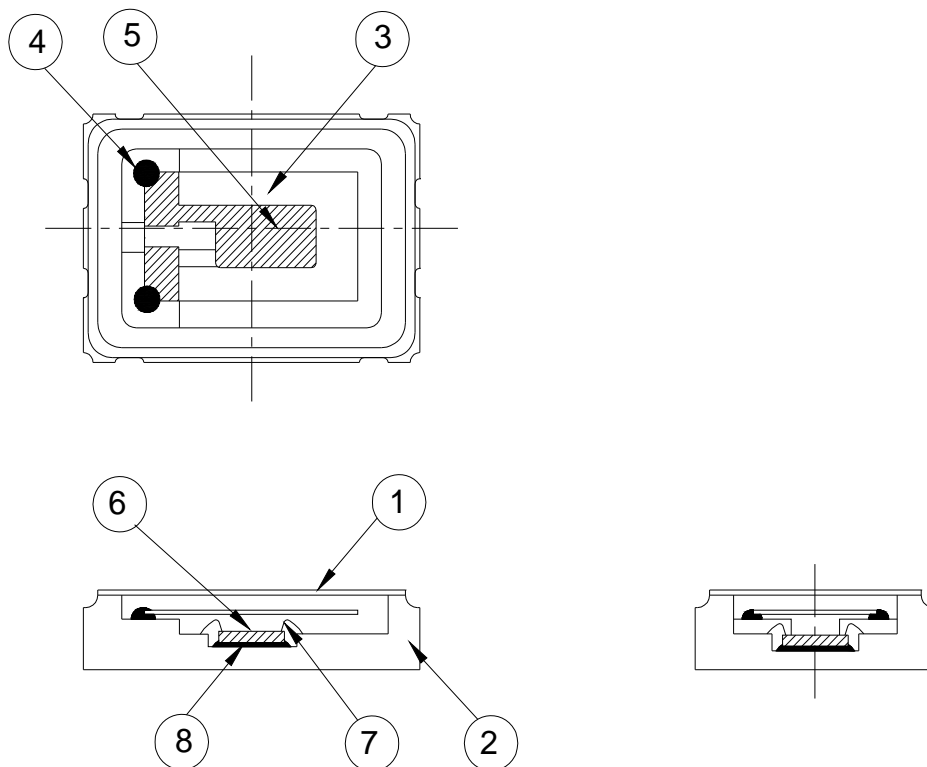


■ SUGGESTED REFLOW PROFILE

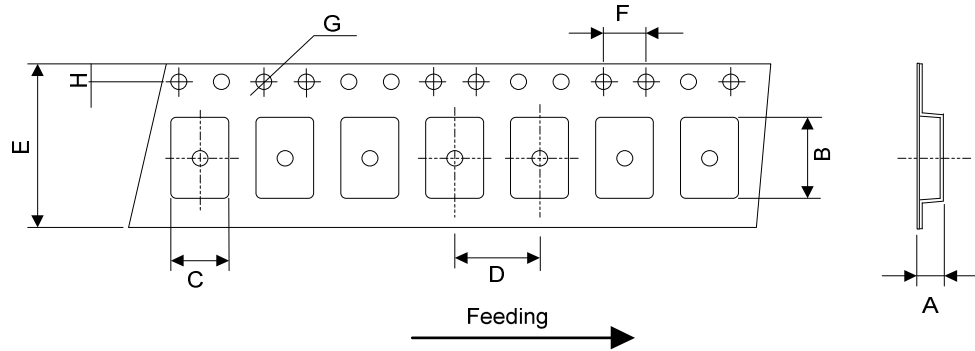
Total time : 200 sec. Max.

Solder melting point : 220 °C



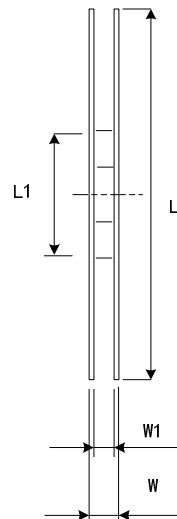
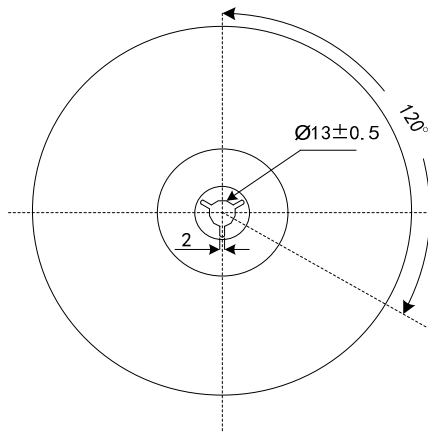
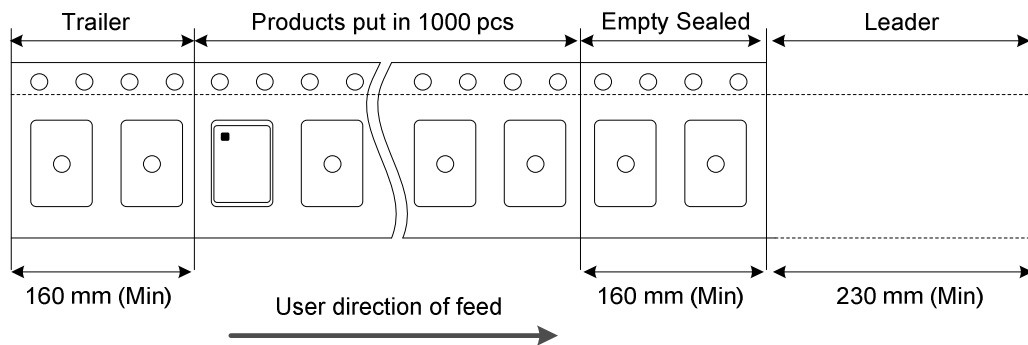
■ STRUCTURE ILLUSTRATION


| NO | COMPONENTS | MATERIALS | FINISH/SPECIFICATIONS |
|----|---------------------|---|---|
| 1 | LID | Kovar (Fe/Co/Ni) | - |
| 2 | Base(Package) | Ceramic (Al ₂ O ₃) + Kovar (Fe/Co/Ni)+Pad (Au) | Color black |
| 3 | Crystal blank | SiO ₂ | - |
| 4 | Conductive adhesive | Ag | Silicon resin |
| 5 | Electrode | Noble Metal | - |
| 6 | IC chip | - | - |
| 7 | Bonding wire | Au | Pad 1 options : NC is 5 wires , EN is 6 wires. |
| 8 | Die attached | Conductive (Ag) | Epoxy resin |

TAPE & REEL


| DIMENSIONS | A | B | C | D | E | F | G | H | (UNIT:mm) |
|------------|---------------|---------------|---------------|---------------|----------------|---------------|----------------|---------------|-----------|
| | 2.00 ±0.10 | 7.90 ±0.10 | 5.45 ±0.10 | 8.00 ±0.10 | 16.00 ±0.30 | 4.00 ±0.10 | 1.50 +0.1/0 | 1.75 ±0.10 | |

Remark:



| DIMENSIONS | L | L1 | W | W1 | Standard Reel Quantity is 1,000 pcs per reel (UNIT:mm) |
|------------|--------------|-------------|--------------|-------------|---|
| | 180 ±1.00 | 62 ±0.50 | 20.5 ±0.2 | 16 +1/-0 | |

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