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| NO. | ECAB1905045 |
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Acknowledgement Book

Customer : _____

Production name: SMD SEAM SEALING X'TAL 5.0*3.2

Nominal Freq. : 8.000000MHz

Customer P/N : 030110000501

ECEC P/N : K08000J008

| |
|---|
| Receiver |
| |
| Please return one after acknowledgement |

JinHua East Crystal Electronic Co.,Ltd.

| Approved By | MFG | QA | PE/RD |
|-------------|-----------|-----------|-----------|
| | | | |
| 总经理: 骆红利 | 副总: 林土全 | 副总: 黄文俊 | 部长: 辜批林 |
| 2019/5/24 | 2019/5/24 | 2019/5/24 | 2019/5/24 |

公司名称: **东晶电子金华有限公司**

Corporation: JinHua East Crystal Electronic Co.,Ltd.

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BOOK OF MODIFICATION

| No. | DATE | CONTENT OF MODIFICATION | REASON OF MODIFICATION | PAGE | ITEM | APPROVE |
|-----|-----------|-------------------------|------------------------|------|-----------|---------|
| 0 | 2019/5/24 | INITIAL RELEASED | | | | |
| 1 | 2021/8/17 | PKG材料变更 | | 3/9 | DIMENSION | 王晓东 |
| 2 | | | | | | |
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ECEC P/N: **K08000J008**

No:

ECAB1905045

Date:

2019/5/24**SPECIFICATION OF QUARTZ CRYSTAL UNITS**

1.HOLDER TYPE: **SMD SEAM SEALING X'TAL 5.0*3.2**
8.000000MHz

2. ELECTRICAL SPECIFICATIONS

Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement

Ambient temperature : 25±3℃

Relative humidity : 40% ~ 70%

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

Ambient temperature : 25±3℃

Relative humidity : 40% ~ 70%

Electrical characteristics measured by S&A250B or equivalent .

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

3.ELECTRICAL CHARACTERISTICS

| | Parameters | SYM | Electrical Spec | | | | Notes |
|----|---------------------------|-----|-----------------|-----|-----|-------|--|
| | | | MIN | TYP | MAX | UNITS | |
| 1 | Nominal Frequency | FL | 8.000000 | | | MHz | |
| 2 | Oscillation mode | - | Fundamental | | | - | |
| 3 | Load Capacitance | CL | 20 | | | pF | |
| 4 | Frequency Tolerance | - | ±10 | | | ppm | at 25±3℃ |
| 5 | Frequency Stability | - | ±30 | | | ppm | Over Operating Temp.Range(Reference 25℃) |
| 6 | Operating Temperature | - | -40 | ~ | 85 | ℃ | |
| 8 | Equivalent Resistance Rr | Rr | - | - | 100 | Ω | |
| 7 | Drive Level | DL | - | 100 | 300 | uW | |
| 9 | Shunt Capacitance C0 | C0 | - | - | 2 | pF | |
| 10 | Insulation Resistance | - | 500 | - | - | MΩ | at DC 100V |
| 11 | Aging | - | ±2 | | | ppm | 1st Year |
| 12 | Storage Temperature Range | - | -55 | ~ | 125 | ℃ | |

■ FACTORY LOCATION

ECEC CORPORATION

No 555,Sec 2,Binghong Road Jinhua Zhejiang , P.R.C

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No:

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Date:

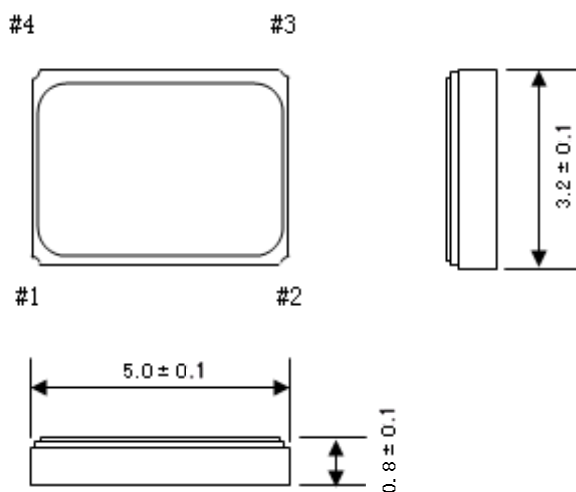
2019/5/24

4.DIMENSIONS AND MARKING

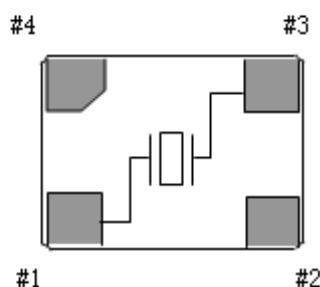
4-1 HOLDER TYPE

SMD SEAM SEALING X'TAL 5.0*3.2
8.000000MHz

4-2 DIMENSION (mm)

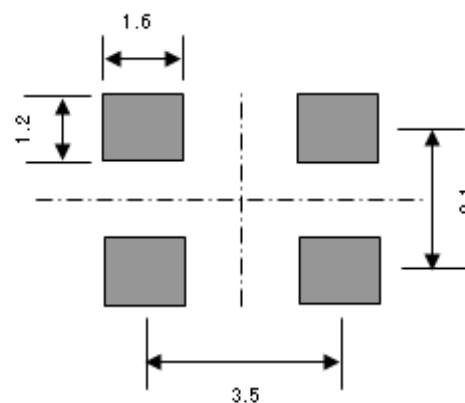
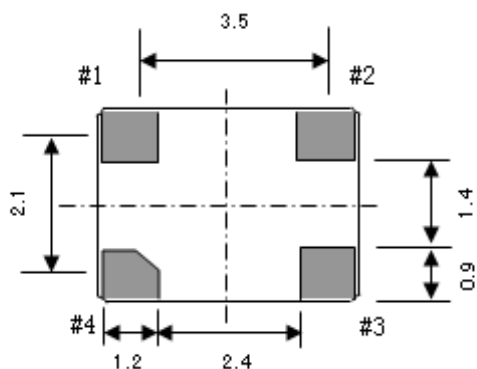


*Internal Connections(Top View)



#1,#3 connected to quartz element
#2,#4 connected to the cover

*Suggested solder pad layout



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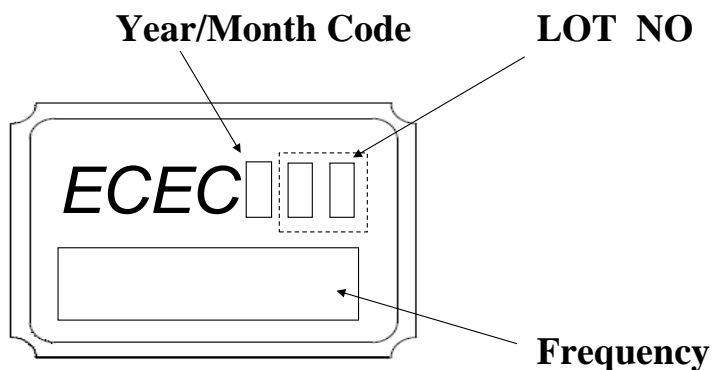
No:

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Date:

2019/5/24

4-3 MARKING



Frequency: as shown in the table

EX)

| | | | |
|----------------|----------|------------|-----------|
| Frequency | 4.000MHz | 16.9344MHz | 40.000MHz |
| Frequency Code | 4000 | 16934 | 40000 |

Year/Month code:as shown in the table

EX) December of 2020 shall be marked as"z"

Four year 1 cycle

| Year | | | | | | | | | | Month | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|-----|------|
| | | | | | | | | | | Jan. | Feb. | Mar. | Apr. | May. | Jun. | Jul. | Aug. | Sep. | Oct. | Nov | Dec. |
| 2001 | 2009 | 2017 | 2025 | 2033 | 2041 | 2049 | 2057 | 2065 | 2073 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2002 | 2010 | 2018 | 2026 | 2034 | 2042 | 2050 | 2058 | 2066 | 2074 | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2003 | 2011 | 2019 | 2027 | 2035 | 2043 | 2051 | 2059 | 2067 | 2075 | a | b | c | d | e | f | g | h | j | k | l | m |
| 2004 | 2012 | 2020 | 2028 | 2036 | 2044 | 2052 | 2060 | 2068 | 2076 | n | p | q | r | s | t | u | v | w | x | y | z |
| 2005 | 2013 | 2021 | 2029 | 2037 | 2045 | 2053 | 2061 | 2069 | 2077 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2006 | 2014 | 2022 | 2030 | 2038 | 2046 | 2054 | 2062 | 2070 | 2078 | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2007 | 2015 | 2023 | 2031 | 2039 | 2047 | 2055 | 2063 | 2071 | 2079 | a | b | c | d | e | f | g | h | j | k | l | m |
| 2008 | 2016 | 2024 | 2032 | 2040 | 2048 | 2056 | 2064 | 2072 | 2080 | n | p | q | r | s | t | u | v | w | x | y | z |

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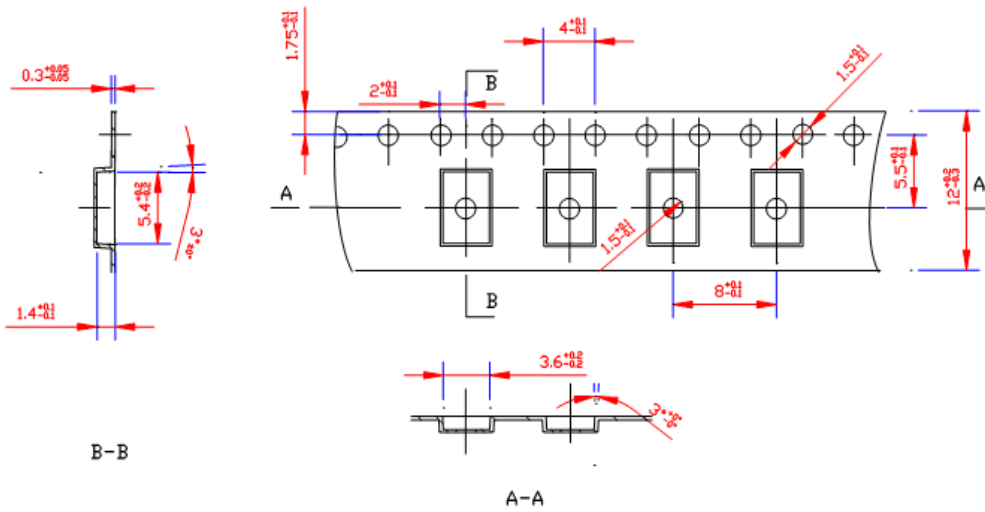
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Date:

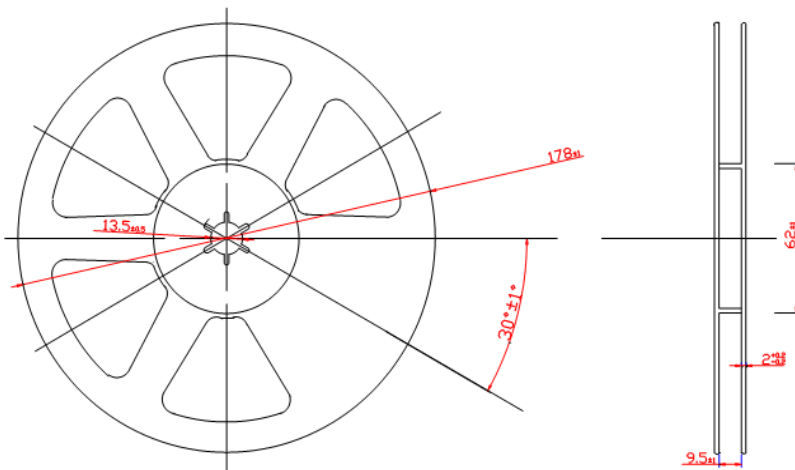
2019/5/24

4-4 PACKING

4-4-1 Dimensions of the tape

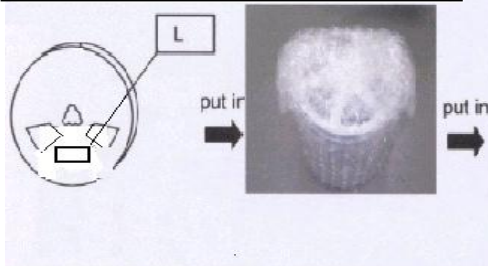


4-4-2 Dimensions of the reel



4-4-3 Packing and Label

| QUARTZ CRYSTAL UNITS | |
|----------------------|------|
| P/O | |
| P/N | |
| HOLD | |
| FREQ. | MHz |
| Q'TY | Kpcs |



1 Reel=1000pcs

| Box type(Reel quantity) | Box size(L×W×H) mm |
|----------------------------|--------------------|
| Atype (Reel x 5pcs max) | 200×200×140 |
| Btype (Reel x 6~15pcs) | 200×200×255 |
| Ctype (Reel x 16~30pcs) | 395×200×255 |
| Dtype (Reel x 31~60pcs) | 395×400×255 |

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5.RELIABLITY TEST

Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.(Test SPEC as list 1)

5-1.SHOCK

Electrical charateristics shall be satisfied after dropping three times from the height of 75cm onto the board of the 3cm thickness.

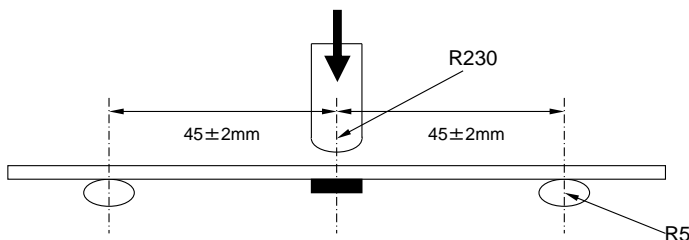
5-2.VIBRATION

Electrical charateristics shall be satisfied after supplying following vibration.

- a).ENTIRE FREQUENCY RANGE 10~55Hz
- b).REPEATED PERIOD 1~2min
- c).AMPLITUDE 1.5mm
- d).DIRECTION X.Y.Z
- e).PERIOD 2hours/Each Direction

5-3.SUBSTRATE BENDING TEST

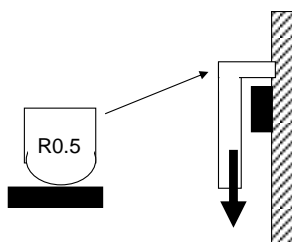
Resonator is soldered into the ceater of PCB which is laid on the 2 small supporters spaced 90cm. PCB deflected to 3mm below from horizontal level by the pressing force with stick. The force is supplied for 10 second by 0.5mm/s speed. After above test there is no observation of any visual damages on specimen and the electical characteristic shall be satisfied.



5-4.ADHESION TEST

A static load of 5N using a R0.5 scrach tool shall be applied on the center at long direction side of the component and for 10sec.

After above test a),there is no observation of any visual damages on the specimen.



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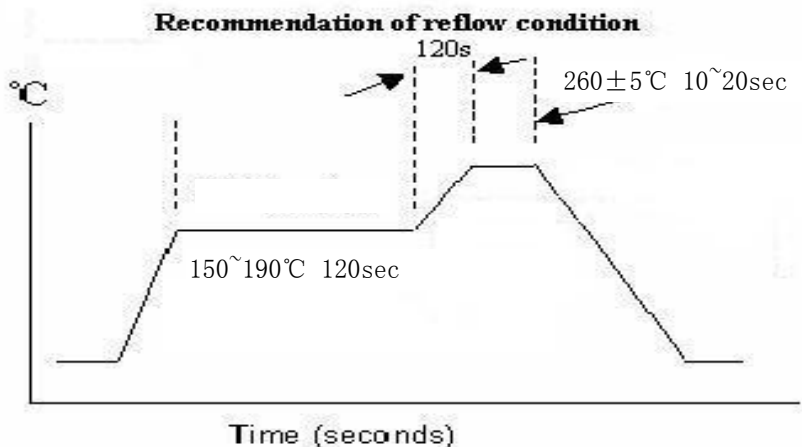
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2019/5/24

5-5.REFLOW(WAVE)SOLDERING

Following profile of heat stress is applied to resonator,then being place in the natural condition for 1 hour,resonator shall be measured.



5-6.SOLDERING DIP

Terminals/lead-wires of specimen shall be dipped into solder melter tank at +260°C ±5°C for 3 sec.

Dipping depth shall be 2mm from the bottom of specimens body.(After applying ROSIN FLUX) soldering portion shall be covered in over 95% of Terminals/lead-wires dipped.

5-7.HUMIDITY

Electrical characteristics shall be satisfied after letting it alone at 65 ±2°C in humidity of 90~95% for 500 hours.

5-8.STORAGE IN LOW TEMPRATURE

Electrical characteristics shall be satisfied after letting it alone at -40 ±2°C for 500 hours.

5-9.STORAGE IN HIGH TEMPRATURE

Electrical characteristics shall be satisfied after letting it alone at 85 ±2°C for 500 hours.

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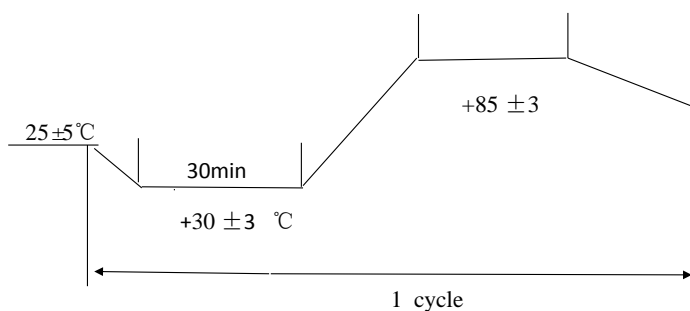
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5-10.TEMPERATURE CYCLE

Electrical characteristics shall be satisfied after supplying the following temperature cycle(30cycle).Temperature shift from low to high, high to low shall be done in 1°C/sec.



Spec of the reliability test

List 1

| Item | ΔF | ΔCI |
|------|--------------------------|-----------------------------|
| 5-1 | $\pm 5\text{PPM}$ MAX | $\pm 5\Omega$ or 20% MAX |
| 5-2 | | |
| 5-5 | | |
| 5-7 | | |
| 5-8 | | |
| 5-9 | | |
| 5-10 | | |

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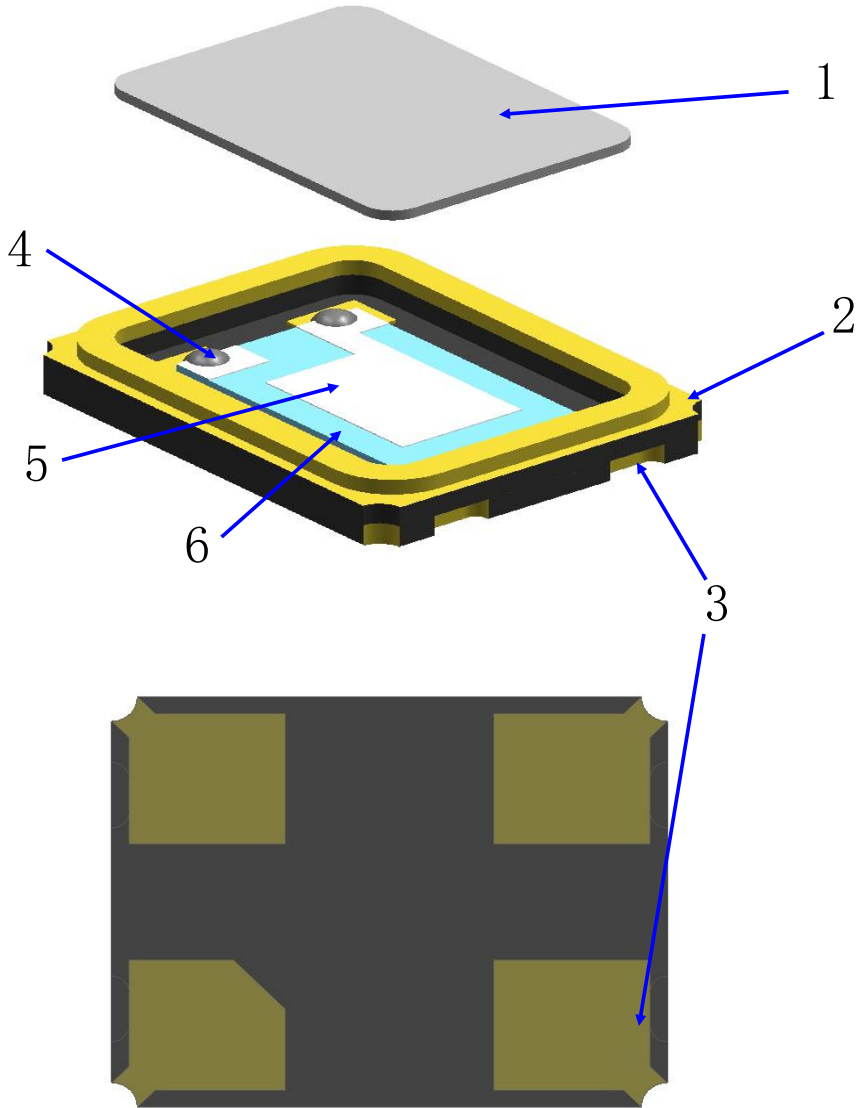
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6. Structure Illustration



| No. | Items | Materials |
|-----|---------------------|--------------------|
| 1 | LID(Cap) | Fe ALLOY |
| 2 | PKG(Base) | CERAMIC+Au PLATING |
| 3 | External Electrode | Au PLATING |
| 4 | Conductive Adhesive | Ag+Slicon |
| 5 | Internal Electrode | Ag |
| 6 | Element(Blank) | SiO2 |

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