



NO.

ECAB1904038

Acknowledgement Book

Customer : _____

Production name : SMD SEAM SEALING X'TAL 3.2*2.5Nominal Freq. : 12.000000 MHz

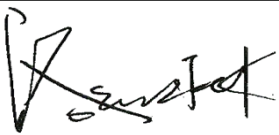



Customer P/N : _____

ECEC P/N : M12000J194

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
2019-4-15	2019-4-15	2019-4-15	2019-4-15

公司名称： **东晶电子金华有限公司**

Corporation: JinHua East Crystal Electronic Co.,Ltd.

地址： 浙江省金华市宾虹路二段555号

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FAX: 0086-579-89186677 <http://www.ecec.com.cn>

BOOK OF MODIFICATION

No.	DATE	CONTENT OF MODIFICATION	REASON OF MODIFICATION	PAGE	ITEM	APPROVE
0	2019-4-15	INTIAL RELEASED				
1						
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SPECIFICATION OF QUARTZ CRYSTAL UNITS**1.HOLDER TYPE:****SMD SEAM SEALING X'TAL 3.2*2.5**

12.000000 MHz

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	12.000000			MHz	
2	Oscillation mode	-	Fundamental			-	
3	Load Capacitance	CL	20			pF	
4	Frequency Tolerance	-	±10			ppm	at 25±3℃
5	Operating Temperature	-	-20	~	70	℃	
6	Temperature drift (TC)	-	±20			ppm	-20℃ ~ +70℃
7	Equivalent Resistance Rr	Rr	-	-	80	Ω	
8	Drive Level	DL	-	100	300	uW	
9	Shunt Capacitance C0	C0	-	-	2.00	pF	
10	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
11	Aging	-	±1			ppm	First 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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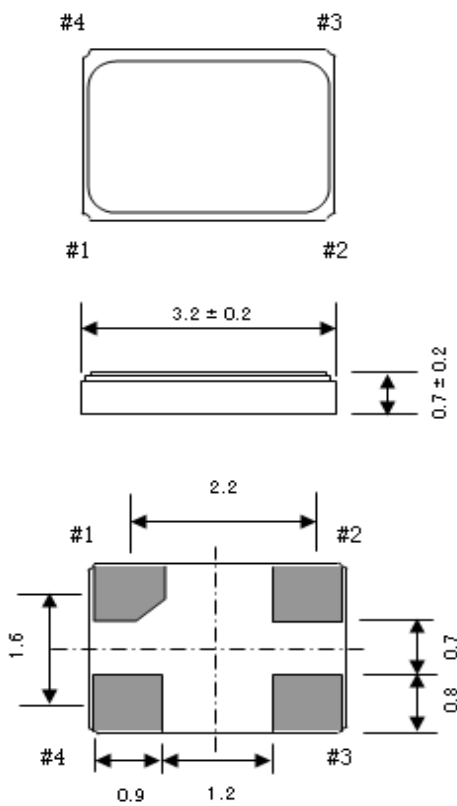
4.DIMENSIONS AND MARKING

4-1 HOLDER TYPE

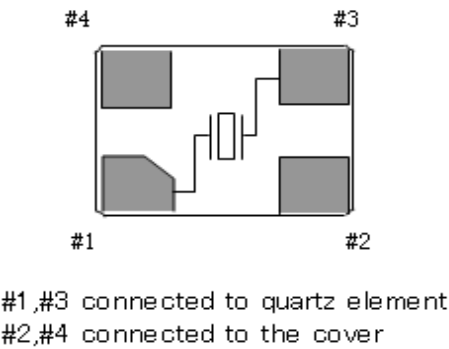
SMD SEAM SEALING X'TAL 3.2*2.5

12.000000 MHz

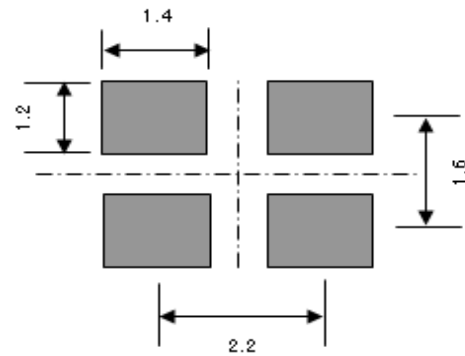
4-2 DIMENSION (mm)



*Internal Connections(Top View)



*Suggested solder pad layout



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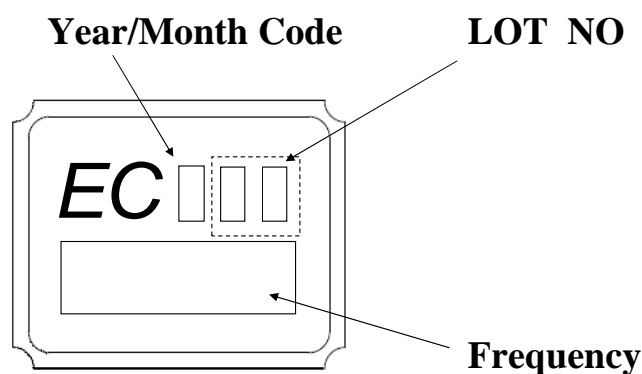
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4-3 MARKING



Frequency:as shown in the table

EX)

Frequency	4.000MHz	16.9344MHz	20.000MHz
Frequency Code	4000	16934	20000

Year/Month code:as shown in the table

EX) December of 2009 shall be marked as "M"

Month Year					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

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ECEC**ECEC P/N: M12000J194****No:****ECAB1904038****Date:****2019-4-15****5.RELIABILITY 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 characteristics shall be satisfied after dropping three times from the height of 75cm onto the board of the 3cm thickness.

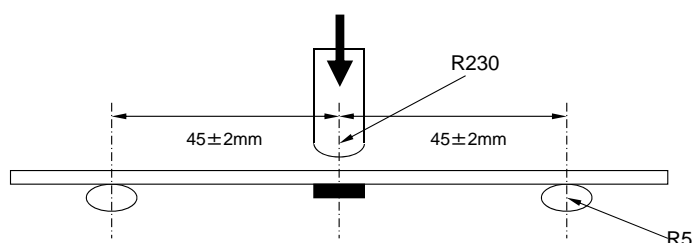
5-2.VIBRATION

Electrical characteristics 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 |

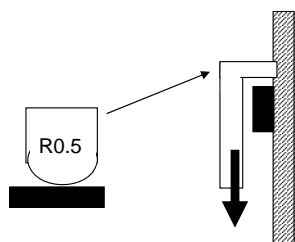
5-3.SUBSTRATE BENDING TEST

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 electrical 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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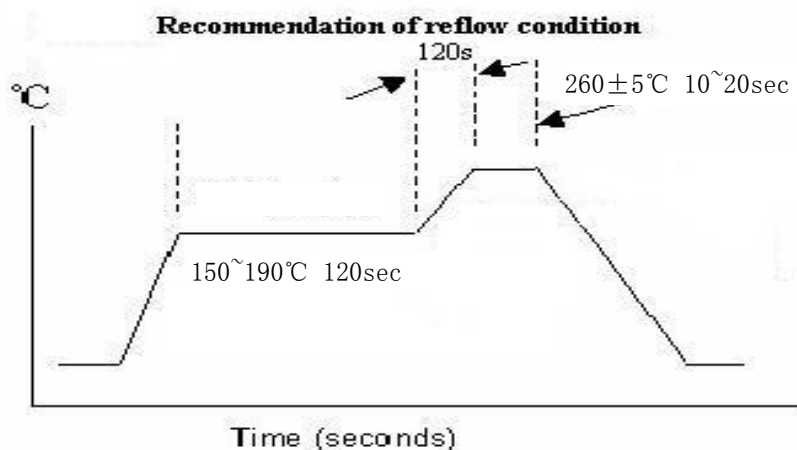
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5-5.REFLOW(WAVE)SOLDERING

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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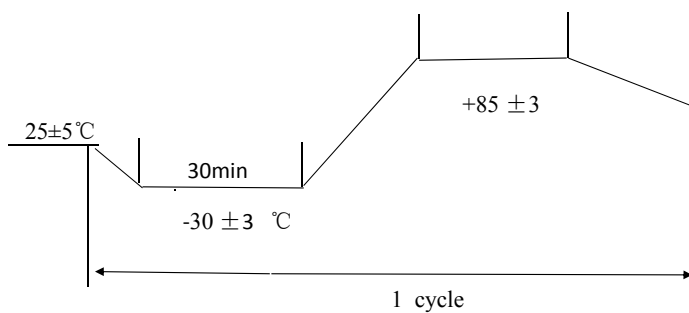
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5-10.TEMPERATURE CYCLE

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℃/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		

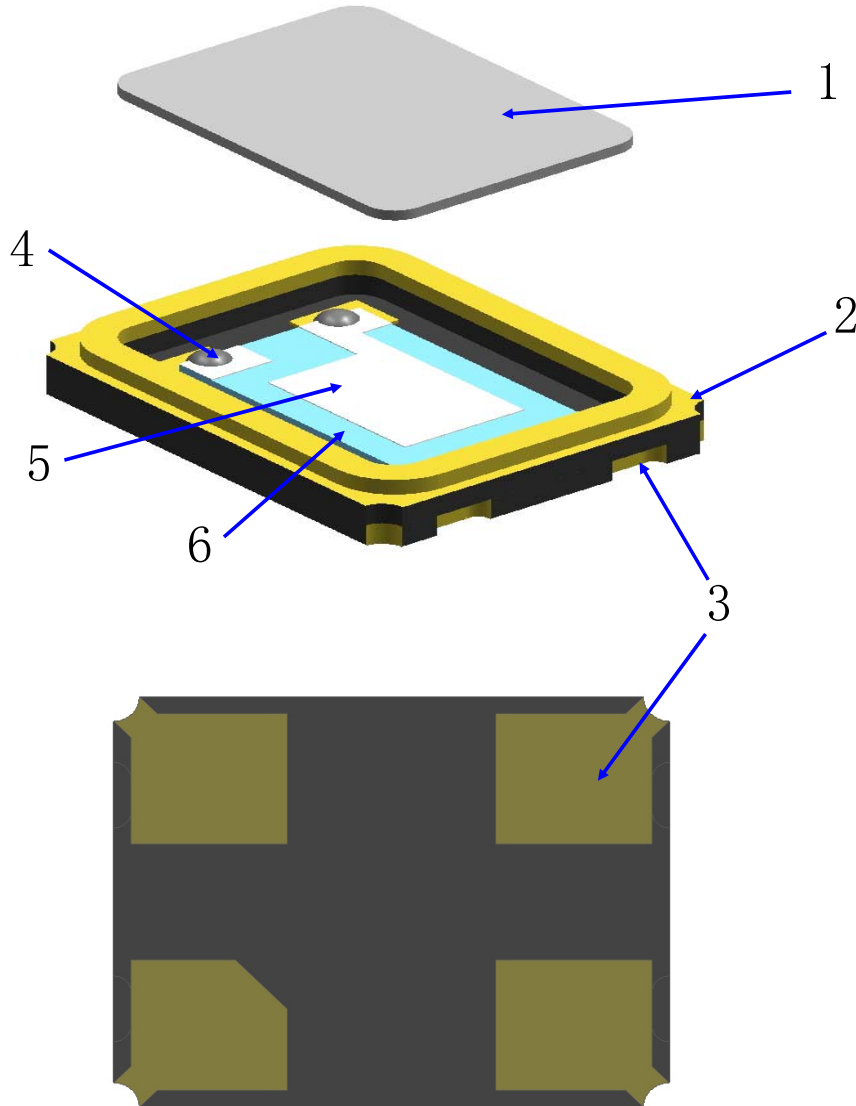
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6. Structure Illustration

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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