



NO.

ECAB2102037

Acknowledgement Book

Customer : _____

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

Customer P/N : _____

ECEC P/N : M12000E350

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: 王晓东
2021/2/23	2021/2/23	2021/2/23	2021/2/23

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	2021/2/23	INITIAL RELEASED				
1						
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ECEC P/N: M12000E350

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Date:

2021/2/23

SPECIFICATION OF QUARTZ CRYSTAL UNITS

1.HOLDER TYPE:

SMD SEAM SEALING X'TAL 3.2*2.5
12.000000MHz

2. ELECTRICAL SPECIFICATIONS

Standard atmospheric conditions

Unless otherwise spcified, 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	12			pF	
4	Frequency Tolerance	-	±10			ppm	at 25±3℃
5	Operating Temperature	-	-40	~	85	℃	
6	Temperature drift (TC)	-	±20			ppm	-40℃~85℃
	Temperature drift (TC)	-					
	Temperature drift (TC)	-					
7	Equivalent Resistance Rr	Rr	-	-	80	Ω	
8	Drive Level	DL	0.01	100	200	uW	
9	Shunt Capacitance C0	C0	-	-	3.00	pF	
10	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
11	Aging	-	±2			ppm	Year
12	Storage Temperature Range	-	-55	~	125	℃	

■ FACTORY LOCATION

ECEC CORPOTATION

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

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INSPECTION

JinHua East Crystal Electronic Co.,Ltd.

郑紫薇

王晓东



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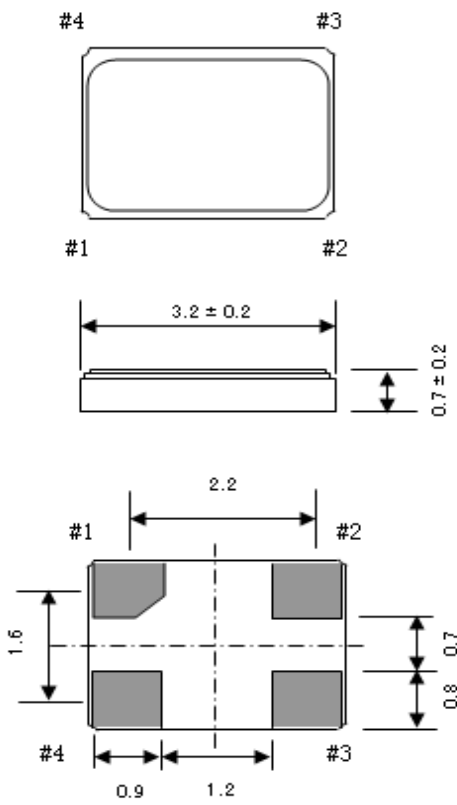
2021/2/23

4.DIMENSIONS AND MARKING

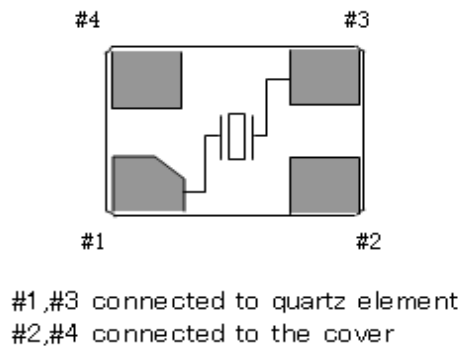
4-1 HOLDER TYPE

SMD SEAM SEALING X'TAL 3.2*2.5
12.000000MHz

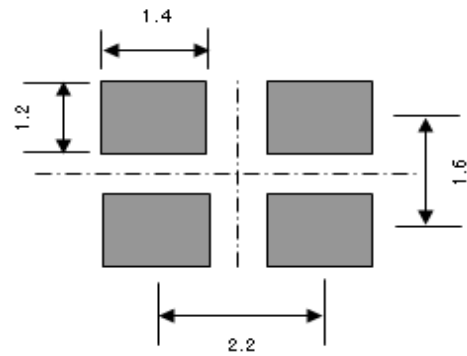
4-2 DIMENSION (mm)



*Internal Connections(Top View)



*Suggested solder pad layout



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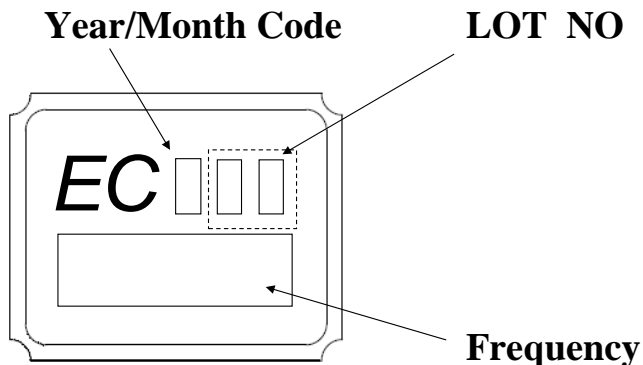


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4-3 MARKING



Frequency: as shown in the table

EX)

Frequency	4.000MHz	16.9344MHz	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.
										A	B	C	D	E	F	G	H	J	K	L	M
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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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.

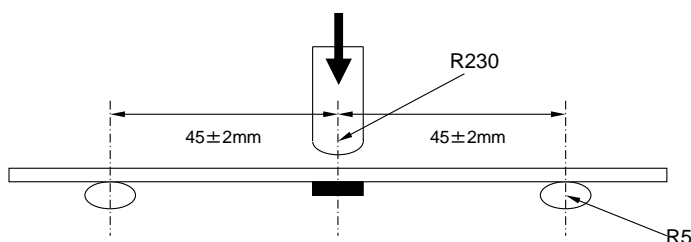
5-2.VIBRATION

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

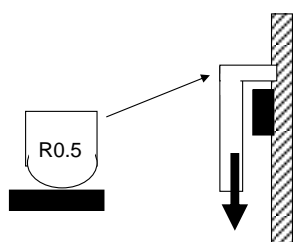
Resonator is soldered into the ceater of PCB which is laid on the 2 small supporters spaced 90cm. PCB deflected to 3mm below from horizontal level by the pressing force with stick. The force is supplied for 10 second by 0.5mm/s speed. After above test there is no observation of any visual damages on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



5-4.ADHESION TEST

A static load of 5N using a R0.5 scratch 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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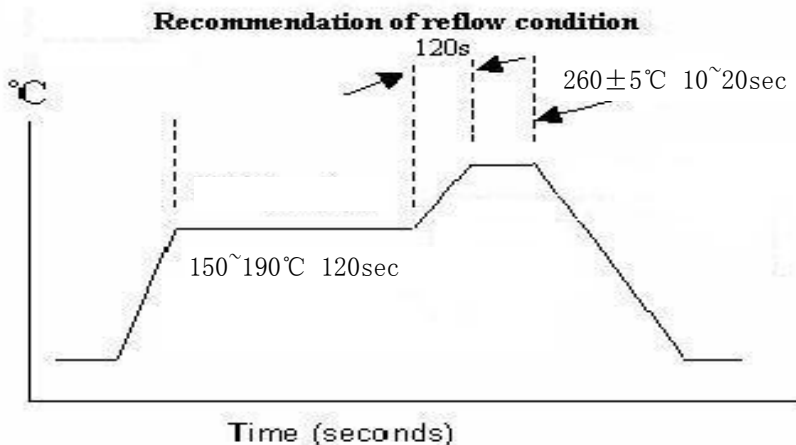
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5-5.REFLOW(WAVE)SOLDERING

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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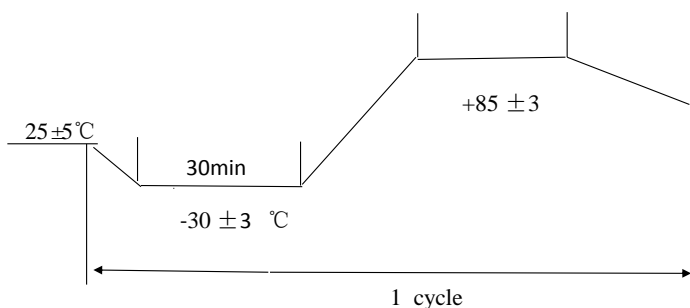
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5-10.TEMPERATURE CYCLE

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°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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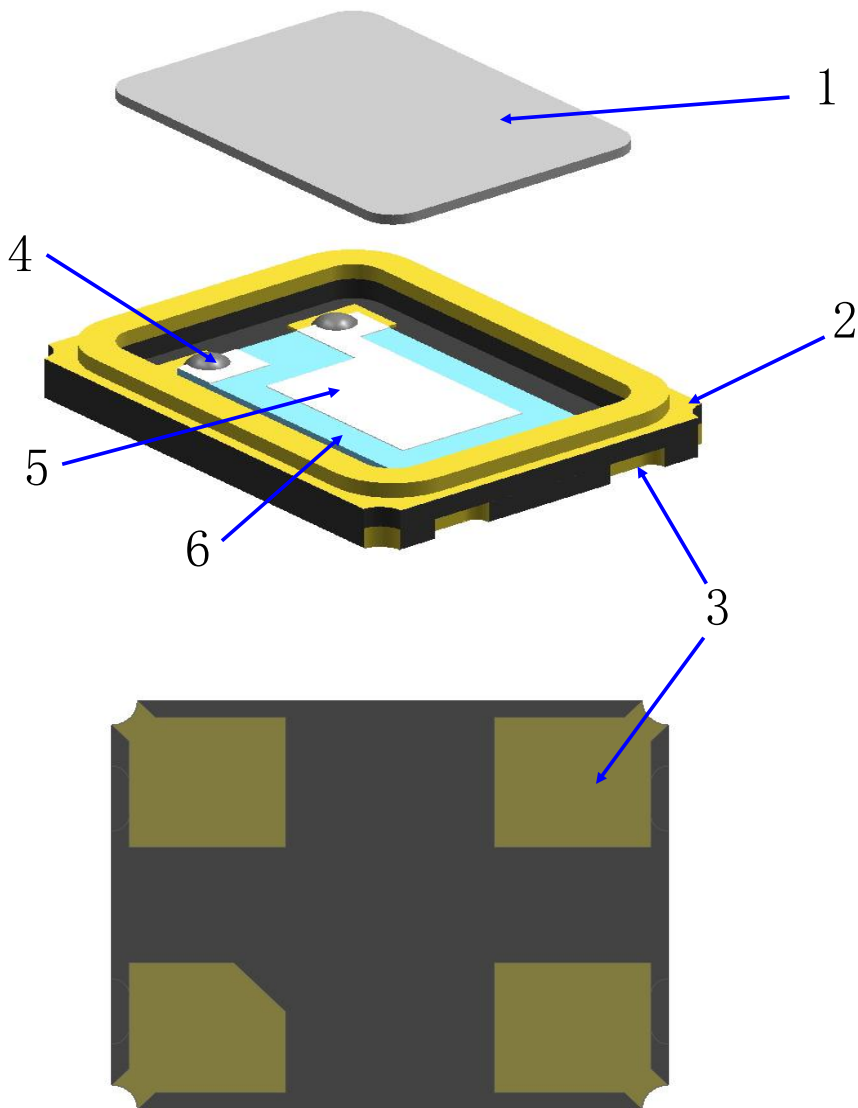


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6. Structure Illustration



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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