

ECEC

NO.

ECAB2402003

Acknowledgement Book

Customer : _____

Production name: SMD SEAM SEALING X'TAL 3.2*2.5Nominal Freq. : 16.000000 MHz

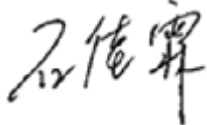
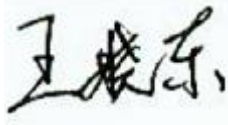
Customer P/N : _____

ECEC P/N : M16000E321

Receiver

Please return one after acknowledgement

JinHua East Crystal Electronic Co.,Ltd.

Approved By	MFG	QA	PE/RD
			
总经理: 石佳霖	副总: 郭雄伟	副总: 郭雄伟	部长: 王晓东
2024/2/1	2024/2/1	2024/2/1	2024/2/1

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

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

电话(TEL): 0086-0579-89186666 0086-579-89186777

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

BOOK OF MODIFICATION

No.	DATE	CONTENT OF MODIFICATION	REASON OF MODIFICATION	PAGE	ITEM	APPROVE
0	2024/2/1	INITIAL RELEASED				
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
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No:

Date:

2024/2/1

1.HOLDER TYPE:

16.000000 MHz

Standard atmospheric conditions

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

Ambient temperature : 25±3°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%

Electrical characteristics measured by S&A250B or equivalent .

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

	Parameters	SYM	Electrical Spec				Notes
			MIN	TYP	MAX	UNITS	
1	Nominal Frequency	FL	16.000000			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)	-					
7	Equivalent Resistance Rr	Rr	-	-	50	Ω	
8	Drive Level	DL	0.01	100	200	uW	
9	Shunt Capacitance C0	C0	-	-	2.00	pF	
10	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
11	Aging	-	±2			ppm	Year
12	Storage Temperature Range	-	-55	~	125	℃	

ECEC CORPOTATION

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

DESIGN

INSPECTION

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郑紫薇

王晓东

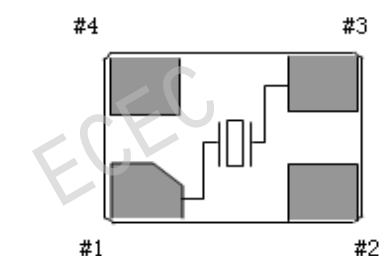
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2024/2/1

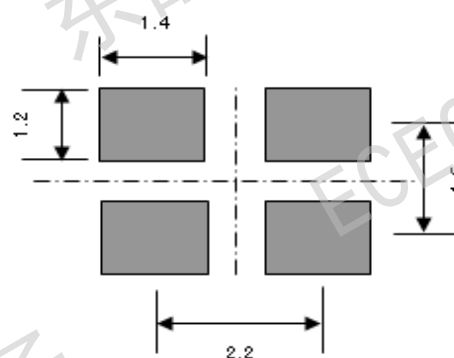
4-1 HOLDER TYPE

4-2 DIMENSION (mm)



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

***Suggested solder pad layout**



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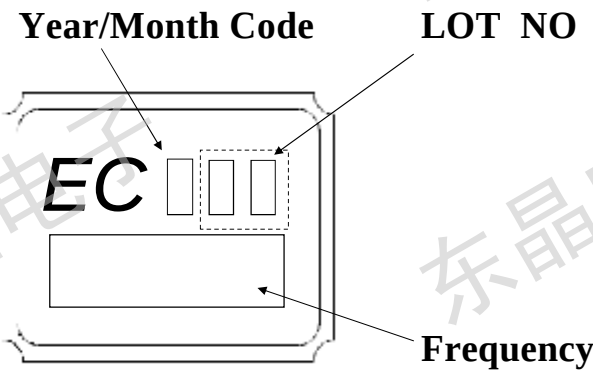
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		Date:	2024/2/1

4-3 MARKING



Frequeecy: as shown in the table
EX)

Frequeecy	4.000MHz	16.9344MHz	40.000MHz
Frequeecy 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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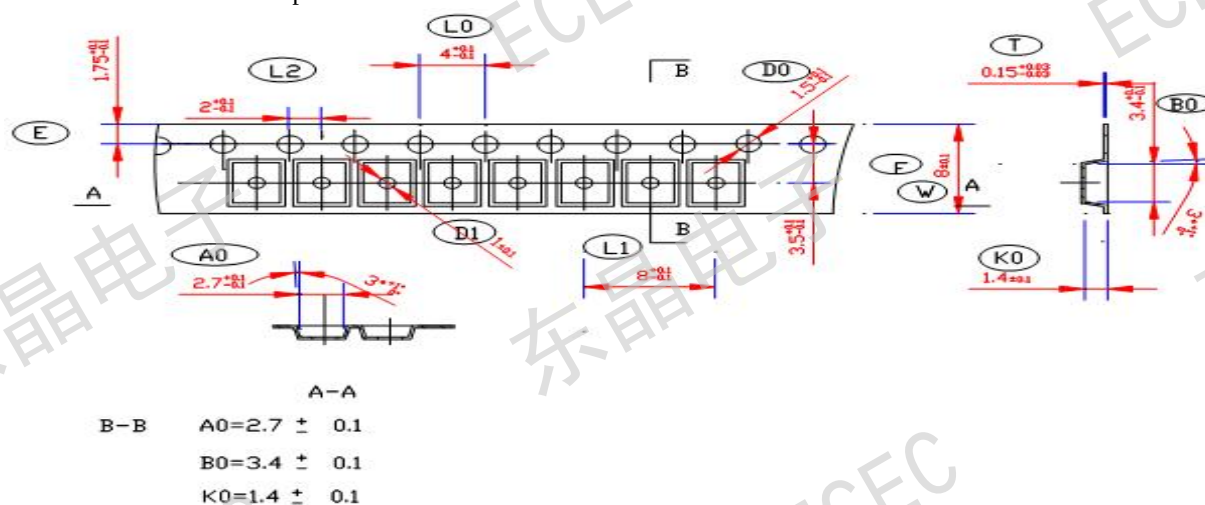
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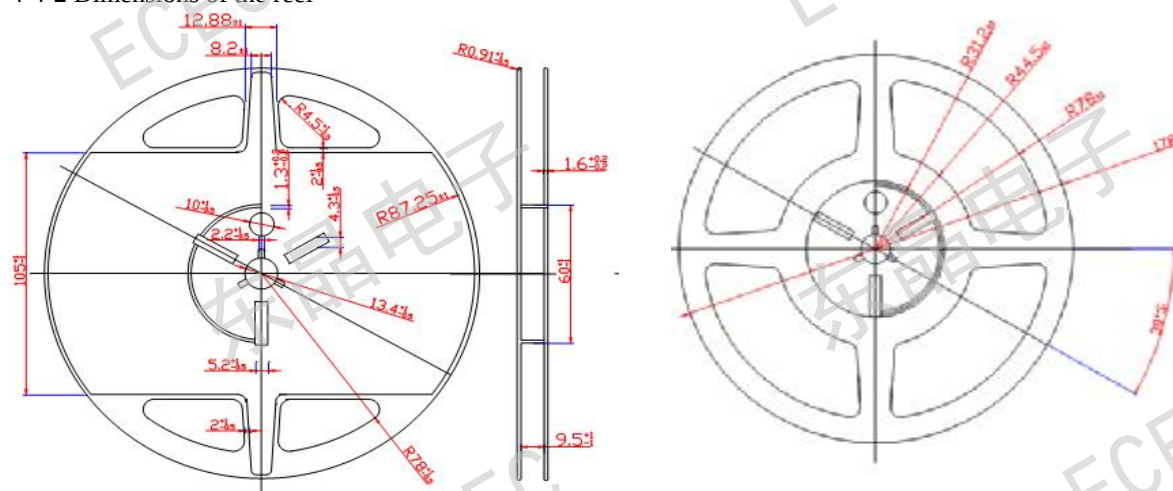
2024/2/1

4-4 PACKING

4-4-1 Dimensions of the tape

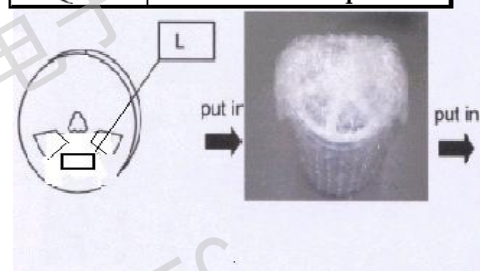


4-4-2 Dimensions of the reel



4-4-3 Packing and Label

QUARTZ CRYSTAL UNITS	
P/O	
P/N	
HOLD	
FREQ.	MHz
QTY	Kpcs



1 Reel=3000pcs

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.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.

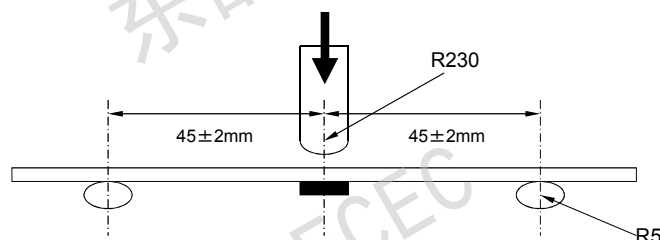
5-2.VIBRATION

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 |

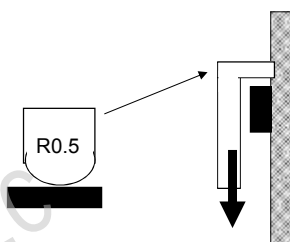
5-3.SUBSTRATE BENDING TEST

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 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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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. Recommendation of reflow condition °C 120s 260±5°C 10~20sec 150~190°C 120sec Time (seconds) 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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ECEC P/N: M16000E321

No:

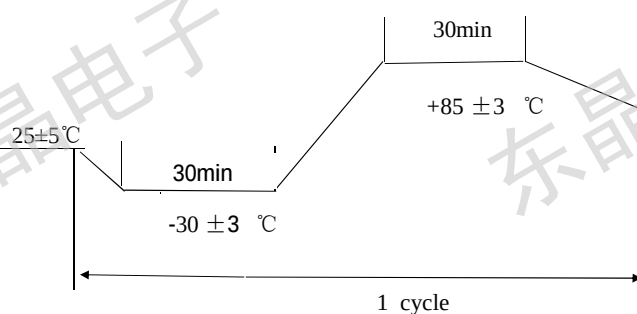
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2024/2/1

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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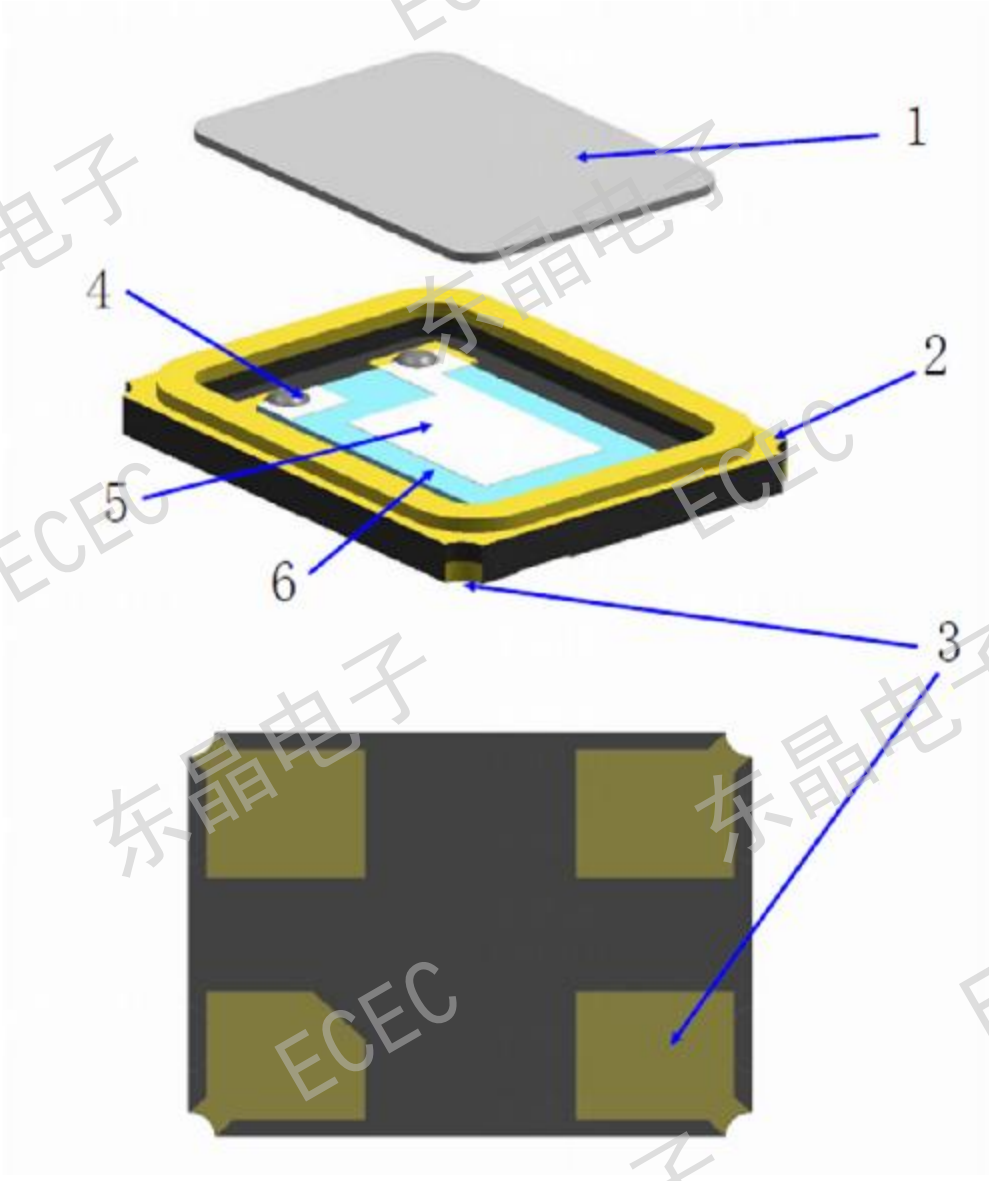
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6.Structure Illustration



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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