ECEC

NO.	ECAB1808035

Acknowledgement Book

Customer :

Production name : **HC-49S/SMD X'TAL 12.50×4.80×3.80**

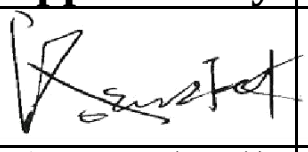
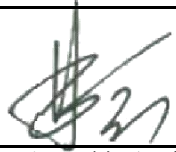
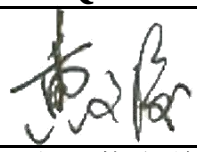
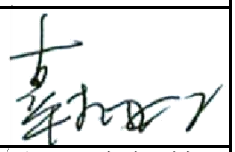
Nominal Freq. : **27.000000MHz**

Customer P/N :

ECEC P/N : **C27000H125**

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
2018/1/4	2018/1/4	2018/1/4	2018/1/4

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

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BOOK OF MODIFICATION

No.	DATE	CONTENT OF MODIFICATION	REASON OF MODIFICATION	PAGE	ITEM	APPROVE
0	2018/8/16	INTIAL RELEASED				
1						
2						
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QUARTZ CRYSTAL UNITS	No:	ECAB1808035
	Date:	2018/8/16

SPECIFICATION OF QUARTZ CRYSTAL UNITS

1.HOLDER TYPE HC-49S/SMD X'TAL 12.50×4.80×3.80

2.GENERAL

2-1 FREQUENCY (F0)	27.000000MHz
2-2 MODE OF OSCILLATION (Mn)	FUNDAMENTAL
2-3 OPERATION TEMPERATURE RANGE (T_0)	-20℃ ~ +75℃
2-4 STORAGE TEMPERATURE RANGE (Ts)	-55℃ ~ +125℃
2-5 TEST SET	S&A 250B ANALYSIS SYSTEM
2-6 DRIVE LEVEL (DL)	10μw TYP
2-7 LOADING CAPACITANCE (CL)	16pF

3.ELECTRICAL CHARACTERISTICS

(This test shall be performed under the condition of temperature at 25±3℃.)

3-1 FREQUENCY TOLERANCE (△f)	±20ppm Max
3-2 EQUIVALENT RESISTANCE (Rr)	40ΩMax/Series
3-3 TEMPERATURE DRIFT (T_C)	±20ppm (-20℃ ~ +75℃)
TEMPERATURE DRIFT (T_C)	NA
TEMPERATURE DRIFT (T_C)	NA
3-4 SHUNT CAPACITANCE (C_0)	<5.0pF
3-5 INSULATION RESISTANCE	500MΩmin/DC 100V±15V (Lead to lead ,case to lead)
3-6 AGING	±3ppm /Year
3-7 REFERENCE WEIGHT(g)	0.55g
3-8 SPURIOUS * SEARCH RANGE（f0 ±500kHz）	3db or more

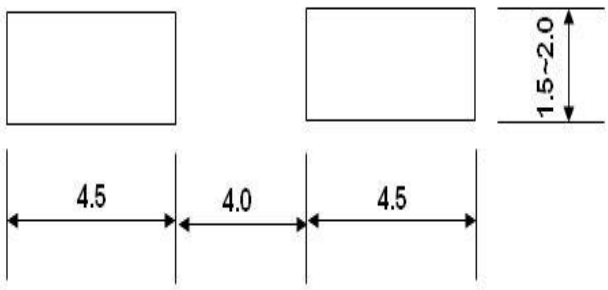
***Standard Atmospheric conditions.**

Ambient temperature	: 15 ℃ to 35 ℃
Relative humidity	: 25 % to 85 %
Air pressure	: 860 hPa to 1060hPa

4.DIMENSIONS AND MARKING

4-1 HOLDER TYPE **HC-49S/SMD X'TAL 12.50×4.80×3.80**

4-2 LAND DIMENSION(mm)



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	劳宏景	潘春琴

QUARTZ CRYSTAL UNITS	No:	ECAB1808035
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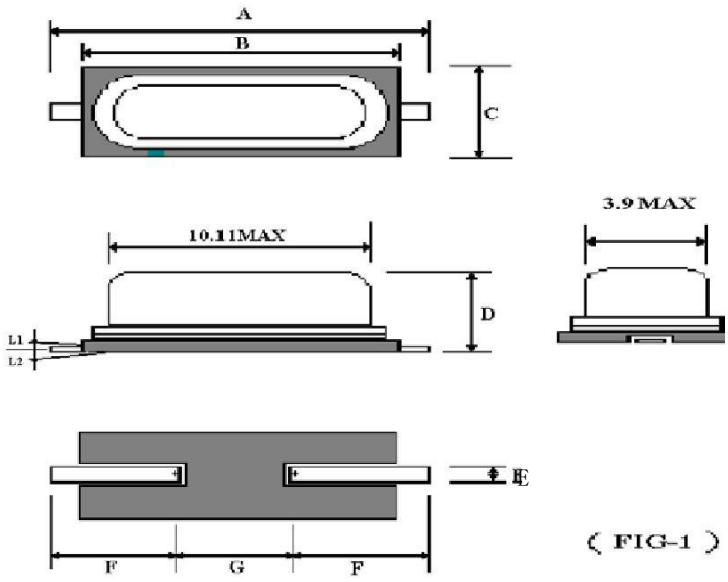
4-3 DIMENSION (mm)

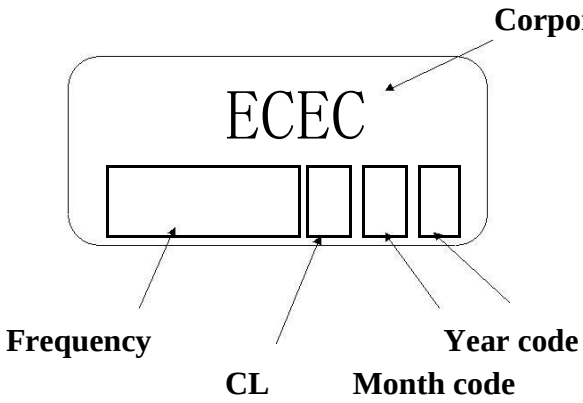


(FIG-1)

Items	Size(mm)
A	12.5±0.4
B	11.4±0.3
C	4.8±0.1
D	3.8±0.3
E	0.75±0.3
F	4.5 MAX
G	4.88±0.2
L1	0.1 MAX
L2	0.1 MAX

4-4 MARKING

HC-49S/SMD



Frequency: as shown in the table

EX)

Frequency	4.000MHz	16.9344MHz	20.000MHz
Frequency Code	4.000	16.934	20.000

Month code: as shown in the table

EX) December shall be marked as "M"

Month	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Symbol	A	B	C	D	E	F	G	H	J	K	L	M

Year code: as shown in the table

EX) 2010 shall be marked as "0"

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	------
Symbol	0	1	2	3	4	5	6	7	8	9	0	------

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QUARTZ CRYSTAL UNITS	No:	ECAB1808035
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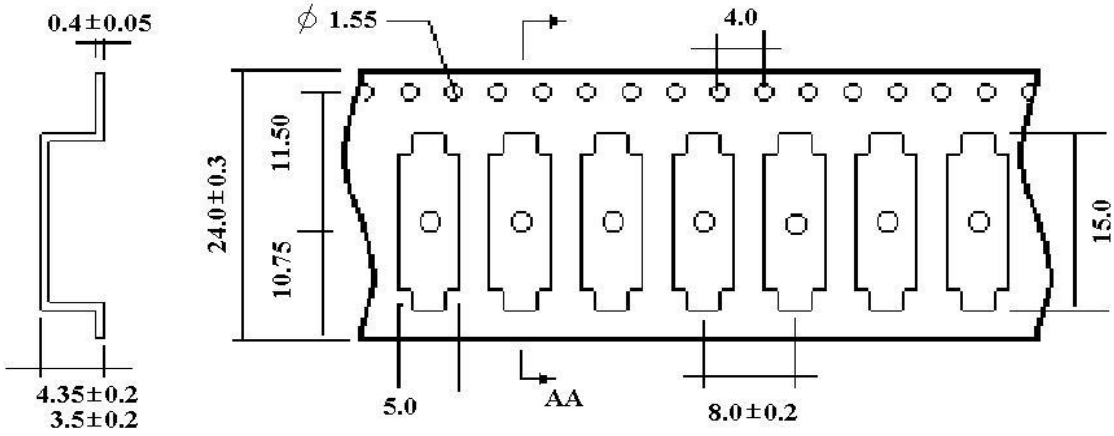
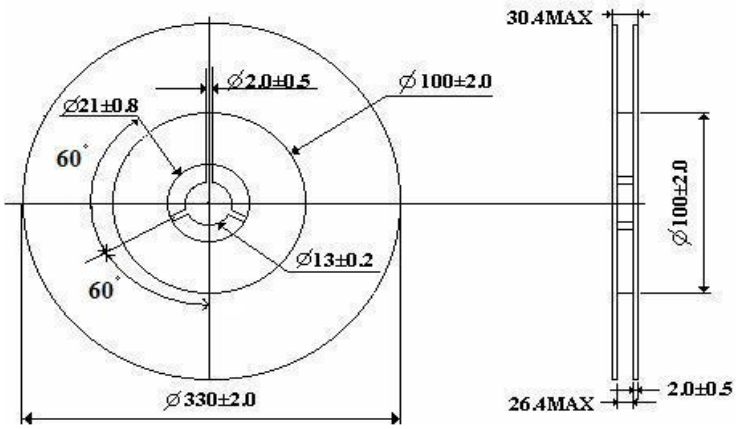
4-5 PACKING

4-5-1 Dimensions of the tape

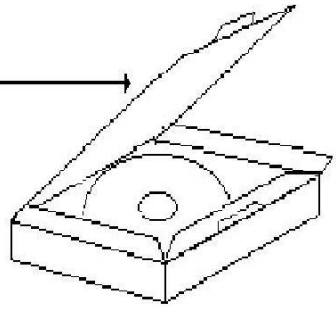


4-5-2 Dimensions of the reel



4-5-3 Packing and Label

CRYSTAL UNITS	
CUST P/N	
ECEC P/N	
P/O	
FREQUNCY	
QTY	
MARKING	
MADE IN CHINA	



1 Reel=1000pcs

Box type(Reel quantity)	Box size(L×W×H) mm
1Reel x 1000pcs	335*335*38
5Reel max	355*355*220

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	劳宏景	潘春琴

5.MECHANICAL ENDURANCE

Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.

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.STRENGTH OF TERMINALS/LEAD-WIRES

①**TENSILE**

a).Body of specimen shall be fixed,and 900g of tension weight shall be supplied gradually to axial direction of terminals/lead-wires for 30 sec.

b).After above test a),there is no distinct damage or damage to sealing.

②**BENDING**

a).Body of specimen shall be fixed,and 90 degree bending shall be given,being supplied 225g tension weight.After that,terminals/lead-wires shall be straightened gradually. Then the same bending and straightening shall be supplied to the opposite direction in the same axial.

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

5-4.SEALING TIGHTNESS

Put the specimens in C_2H_5OH,raise pressure it with 0.5Mpa for 10 min, test the insulation resistance at DC.100V,the result shall be over 500M Ω .

Electrical characteristics shall be satisfied and no sealing damage.

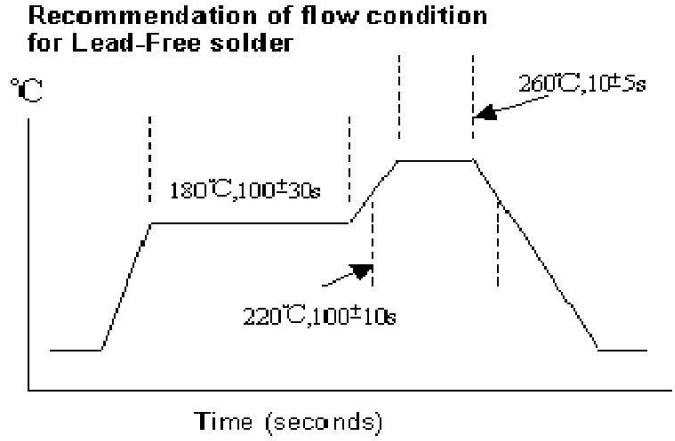
QUARTZ CRYSTAL UNITS	No:	ECAB1808035
	Date:	2018/8/16

5-5.SOLDERING HEAT RESISTANCE

Electrical characteristics shall be satisfied .Without distinct looseness of terminals.

①.FLOW(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.



Peak temperature	260°C
Dipping time	10±5 sec
Soldering	1 time
Dipping to the lead joint of component	

②.SOLDERING DIP

Terminals/lead-wires of specimen shall be dipped into solder melter tank at +230℃±5℃ 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.

5-6.BEND STRENGTH PCB

①.Resonator is soldered into the ceater of PCB which is laid on the 2 small supporters spaced 90cm. PCB deflected to 1mm below from horizontal level by the pressing force with 20 x10.R10 stick.
The force is supplied for 1 second,5 times repeatedly.

②.After above test ①.there is no observation of any visual damages on specimen and the electical characteristic shall be satisfied.

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5-7.ENVIRONMENTAL ENDURANCE

Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.

①**HUMIDITY**

Electrical characteristics shall be satisfied after letting it alone at 65±2℃ in humidity of 90~95% for 250 hours.

②**.STORAGE IN LOW TEMPRATURE**

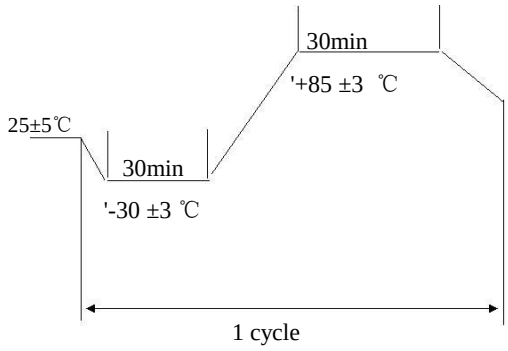
Electrical characteristics shall be satisfied after letting it alone at -45±2℃ for 250 hours.

③**.STORAGE IN HIGH TEMPRATURE**

Electrical characteristics shall be satisfied after letting it alone at 85±2℃ for 250 hours.

④**.TEMPERATURE CYCLE**

Electrical characteristics shall be satisfied after supplying the following temperature cycle(3cycle).Temperature shift from low to high, high to low shall be done in 1℃/sec.
(refer to Fig-3)



(Fig-3)

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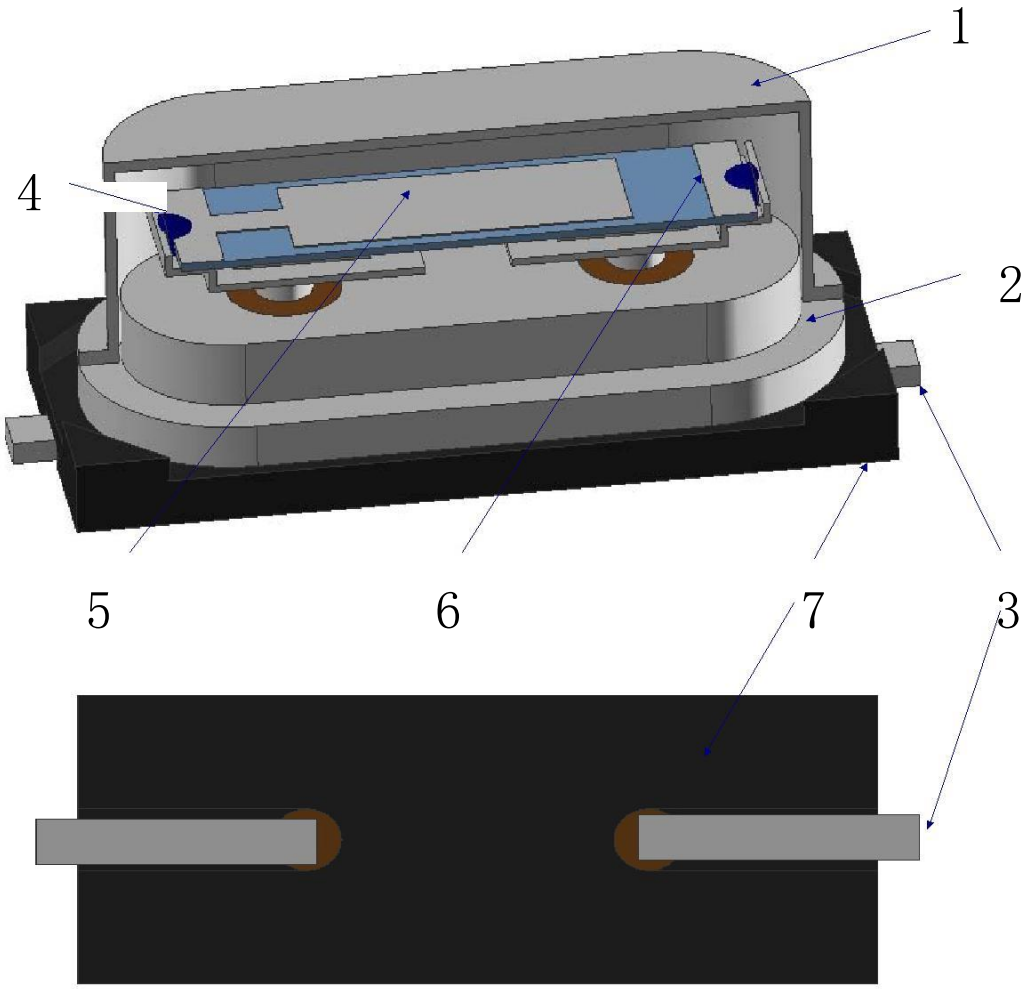
6. Structure Illustration



(BOTTOM VIEW)

No.	Items	Materials
1	Metal Can(Cap)	Ni Alloy
2	Substrate(Base)	Fe Alloy
3	External Electrode	Kovar (Pb free)
4	Conductive Adhesive	Ag+Epoxy Resin
5	Internal Electrode	Ag
6	Element(Blank)	SiO_2
7	Insulation spacer	PPA