04DA3-345

RoHS Compliance

Document No. : TM-5289
Date : 2014/5/15

SPECIFICATIONS

Messrs.

Approved by

Product	CRYSTAL UNIT
Type of Holder	CFS-206
Nominal Frequency	32.768 kHz
Customer's Parts Number	
Our Parts Number	CFS-20632768EZFB

Sales CITIZEN FINETECH MIYOTA Co.,LTD. Crystal Devices Department.
Manufacturer 4107-5,MIYOTA,MIYOTA-MACHI,KITASAKU-GUN,NAGANO,389-0295,JAPAN
TEL : +81-267-31-1111
FAX : +81-267-31-1129

Revision History

Document No. : TM-5289
Date : 2014/5/15

Record		Page	Section	Changes	Prepared
Revision number	Date				
1 st	2014/5/15				

1. Scope

This document contains specifications for the crystal unit to be supplied by CITIZEN FINETECH MIYOTA Co.,LTD.

1.1 If something defined ambiguously or undefined in document happened, the customer and CITIZEN FINETECH MIYOTA would discuss and take necessary steps by mutual consent.

1.2 Product test data can't be attached to this document.
The contents except Electrical Specifications in specifiations are subject the change without notice.

1.3 This product is not authorized for use as a critical component in life support devices or systems.

2. Electrical Specifications

2.1	Nominal Frequency	32.768 kHz
2.2	Operating Temperature Range	-20～+70℃
2.3	Storage Temperature Range	-40～+85℃
2.4	Frequency Tolerance	±10ppm Max. at 25℃
2.5	Frequency Tolerance over Operating Temperature Range	Turnover Temp.;25±5℃ Temp.Coefficient:-0.034±0.006ppm／℃^{2}
2.6	Equivalent Series Resistance	35kΩ Max.at 25℃
2.7	Insulation Resistance	500MΩ Min./DC100V±15V
2.8	Shunt Capacitance	1.20pF Typ.

3. Test Conditions

3.1	Load Capacitance	12.5pF This Load Capacitance has been fixed on customer's request.
3.2	Level of Drive	1μW Max.

4. Mechanical and Environmental Tests

Test Name		Test Conditions	Criteria No.
1.Mechanical Tests			
1-1	Shock	Drop 3 times from the height of 75 ㎝ onto hard wooden board with thickness of 3 ㎝.	A
1-2	Vibration	Vibration Frequency : 10～500 Hz, 1.5mm, full wave, or acceleration 10G, Cycle : 1.5 minutes, Direction : X.Y.Z. Time : 2 hours in each direction, for 6 hours in total.	A
1-3	Lead Pull	Weight : 1.0kg , Time : 30±5 seconds.	A･C
1-4	Bending strength	Weight : 0.5kg , Bending Angle : 90 degrees, Bending Count : 2 times. (See Fig.1)	A･C
1-5	Solderability	After applying RMA flux, dip in solder. Dipping Time : 5±0.5seconds. Soldering Temperature : 230±5 ℃. Dipping Depth : 2 mm from the edge of terminals of samples.	D
1-6	Resistance to Soldering Heat	Dip in solder. Dipping Time : 10±0.5 seconds. Soldering Temperature : 260±5 ℃. Dipping Depth : 2mm from the edge of lead-wires of samples	B
1-7	Sealing Tightness	Leak rate shall be measured by using Helium Leak Detector.	E
2. Environmental Tests			
2-1	Storage In Low Temperature	Expose the sample in an inoperative mode to 240 hours at -40℃.	A
2-2	Storage In High Temperature	Expose the sample in an inoperative mode to 240 hours at +85℃.	B
2-3	Humidity	Expose the sample in an inoperative mode to 240 hours at +65℃, and 95%RH.	B
2-4	Thermal Shock	Subject the sample to 5 temperature variation cycles at -40℃ for 30 minutes and +100℃ for the next 30 minutes in each cycle.	A

Criteria

Criteria No.	Criteria
A	Any variation between the pre- and post-test frequencies shall remain within ±5ppm. The equivalent series resistance shall remain within its specified tolerance range after the post-test.
B	Any variation between the pre- and post-test frequencies shall remain within ±10ppm. The equivalent series resistance shall remain within its specified tolerance range,after the post-test.
C	After each test, no visible damage, nor the hermetic seal break down.
D	At least 90% of each dipped area shall be covered by fresh solder.
E	$1\times10^{-2}\mu Pa\cdot m^3/s$ Max.

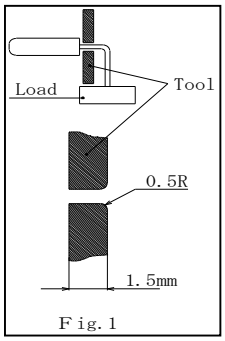
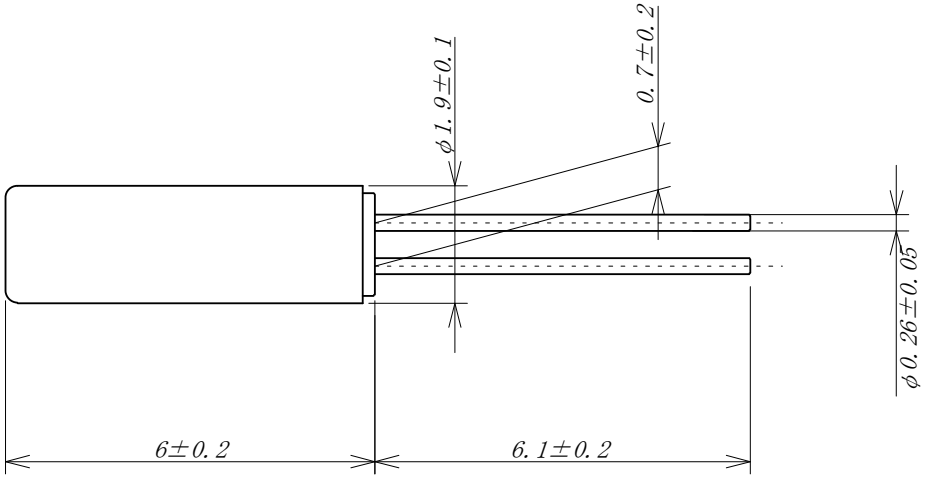


Fig.1

※ Measurements should be taken place at 25±2℃ after each test, the samples shall be left at 25℃ for one to two hours.

5. Dimensions

(unit:mm)



6. Marking Standards

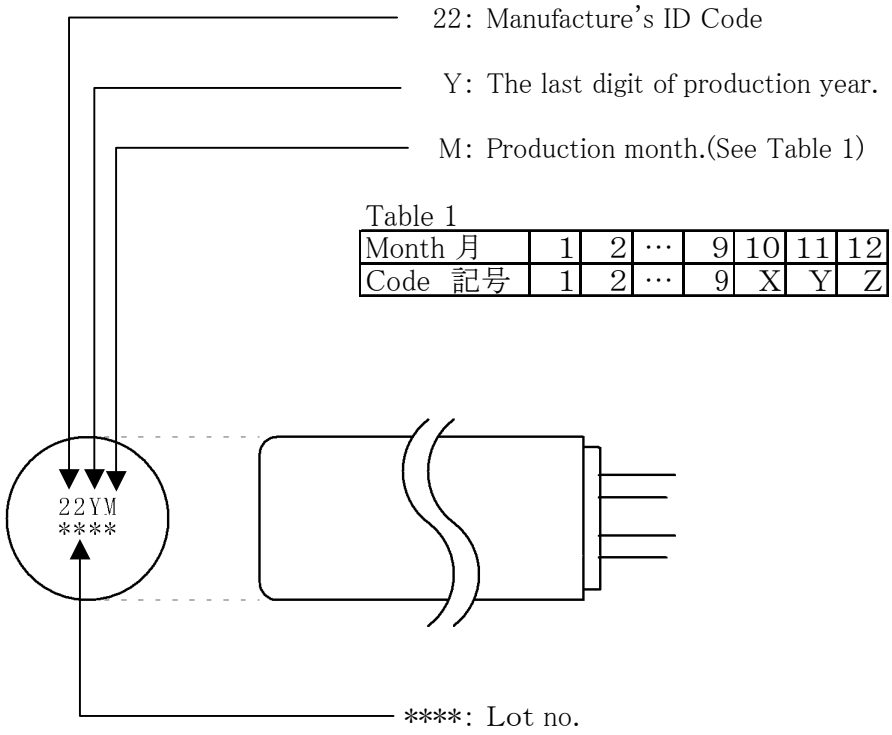


Table 1

Month 月	1	2	…	9	10	11	12
Code 記号	1	2	…	9	X	Y	Z

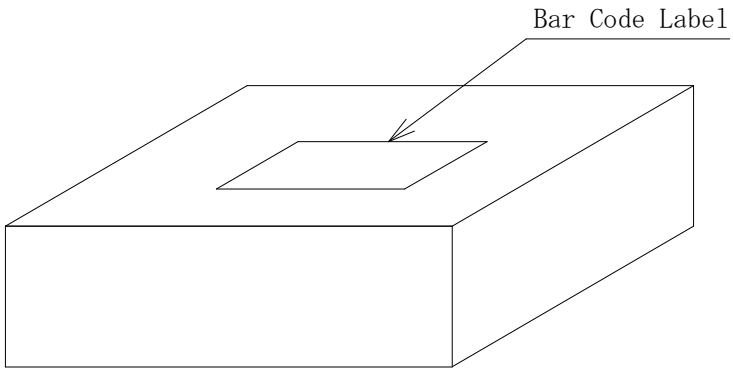
7. Packing

(1)Inner Carton

【Bar Code Label Item】

* Customer P/N
* Lot.No.
* CITIZEN P/N
* Ctl No
* Date Code yy : The last 2 digits of shipment year
  ww : Week Code
* Quantity
* Country Code CN=China

【Inner Carton for 10000pcs】



(2)Quantity

1000pcs/bag at max. 10000pcs/carton (10 bags)

8. Storage Condition

8.1 Storage Condition	Temperature	5～35℃
	Humidity	45～75%
8.2 A period of guarantee	Twelve months	

9. Manufacturer

MASTER CROWN ELECTRONICS (WUZHOU) LIMITED.
No3 BUILDING 137.XINXING ER ROAD, WUZHOU, GUANGXI, CHINA
TEL：+86-774-3863148

Country of Origin：CHINA

* This manufacture is under the control of CITIZEN FINETECH MIYOTA CO.,LTD.

10. Ozone Depleting Substance （ODS）

This Product doesn't use the class Ⅰ ODS at any of production processes, and component parts.

11. Precautionary Statement

11-1 When dropped by mistake

The crystal products are designed and manufactured to resist physical shocks. However,in the event the crystal is subjected to excessive impact such as being dropped onto the floor or giving shocks during mounting. Need to make sure its satisfactory performance before using it.

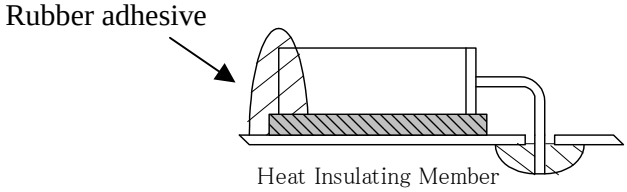
11-2 Soldering and Mounting

(1) Lead wires should be soldered within 3 seconds with the iron heated to a temperature no higher than 380degC.

(2) In solder-dip mounting ,it should be within 10 seconds with a temperature no higher than 260degC.
And beware not to heat the whole crystal unit in the dip mounting process.
Mounting in upright bearing is recommendable (prevent heat conduction directly to the body of a crystal unit.)
(Such as by isolating the unit body from the board with a heat insulating member, see Fig.2.)

(3) Soldering on the body of the cylinder type crystal unit must be strictly avoided due to deteriorate the characteristics or damage the products.
Rubber adhesive is recommended. (See Fig.-2)

Fig.-2

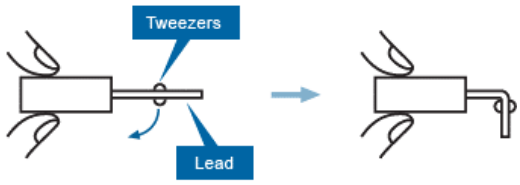


(4) Heating the whole crystal unit,for example,in a reflow oven may deterioration of the performance. Because the holder is quite small and it is sealed by solder material with press sealing so that such reflow process not allowed to be proceeded.

(5) Please (3.0mm recommendation) separate, and bend it as much as possible with a treatment device when it lays in the substrate of the crystal oscillator and it installs it. Please avoid bending it directly from the lead wire root.

(6) Please do not shave off the solder plating of the lead wire when you bend the lead wire of the crystal oscillator.

(7) Lead forming by hand when you do the following please
* Hand with a sealed tube
* With fine forceps and bending.
0.5mm position is bending over, bent by hand and if you get into that work, with minimal possible that the 3.0mm hermetically recommended that bend over the place.
* 90 degree bend while holding the lead with tweezers.
At this time, please note that you do not have enough pull to lead.



11-3 Cleaning

(1) Crystal products may be affected and destroyed at worst by ultrasonic cleaning.Please be sure to check if your cleaning process affects any damage to crystal products prior to use.

(2) Some kind of cleaning fluid may cause any damage to crystal products .
Please be sure to check suitability of the cleaning fluid in advance.

11-4 Storage

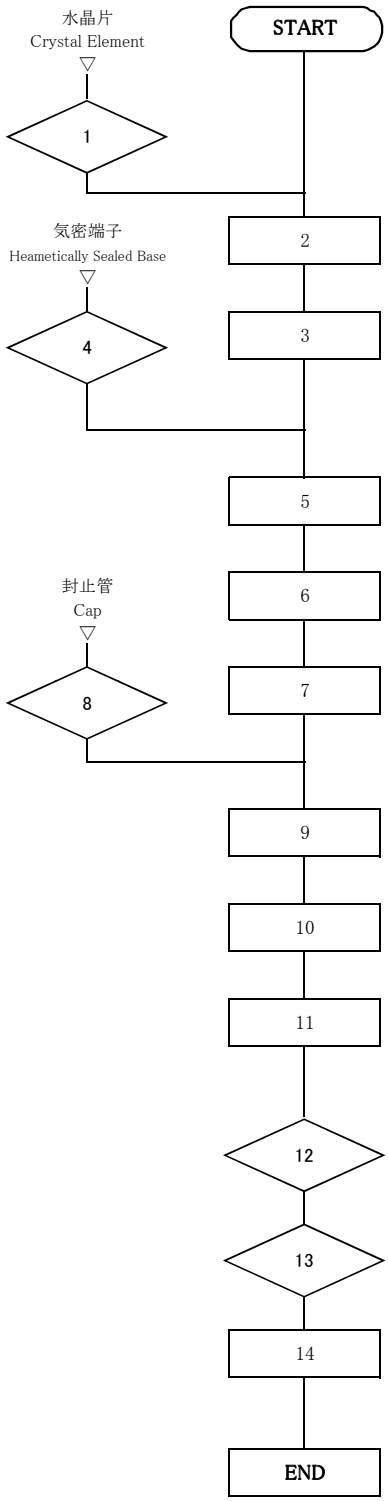
Storage of Crystal products under higher temperature or high humidity for a long term may affect frequency stability or solderability. Please store the Crystal products under the normal temperature and humidity without exposing to direct sunlight and dew condensation,and avoid the storage of Crystal products for more than 6 months, and mount them as soon as possible after unpacking.

11-5 Replacement

If the defect is caused by our company within one year from the delivery time, we provide the replacements with free of charge.

QC工程図 QC Chart	水晶振動子 CFS-206/CFV-206 Quartz Crystal Unit	2013年11月11日 November-11-2013 水晶部 技術課 Crystal Devices Div. Production Dept. Product Engineering Section	承認 Approved	審査 Checked	担当 Prepared

工程図
Flowchart



	工程名 Process Name	管理仕様 Control Specifications 管理項目 Control Item	管理規格 Control Criteria	抜取 Sampling	記録 Record
1	受入検査 (水晶片) Acceptance Inspection (Crystal Element)	仕様 Specification	納入仕様書 Specifications	品質受入検査基準書 Quality Acceptance Inspection Standard	検査表 (水晶片) Inspection Sheets (Crystal Element)
2	蒸着 Evaporation	湿度 Humidity 真空度 Pressure トータル膜厚 Total Thickness	作業指示書 Manufacturing Process Instruction	— — —	記録紙 Printed Data 稼動表 Operating Sheets 推移グラフ Change Graph
3	周波数粗調整 Frequency Rough Tuning	周波数 Frequency 外観 Appearance	作業指示書 Manufacturing Process Instruction	抜取 Sampling 抜取 Sampling	チェックシート Check Sheets 送品検査表 Process Inspection Sheets
4	受入検査 (気密端子) Acceptance Inspection (Heametically Sealed Base)	仕様 Specification	納入仕様書 Specifications	品質受入検査基準書 Quality Acceptance Inspection Standard	検査表 Inspection Sheets
5	組立 Assembly	外観 Appearance	作業指示書 Manufacturing Process Instruction	全数 100%	チェックシート Check sheets
6	周波数微調整 Fine Tuning	周波数 Frequency	作業指示書 Manufacturing Process Instruction	抜取 Sampling	分布図 Distribution Chart
7	アニール (半完成品) Annealing	真空度 Pressure 温度 Temperature 時間 Time	作業指示書 Manufacturing Process	— — —	チェックシート Check Sheets チェックシート Check Sheets チェックシート Check Sheets
8	受入検査 (封止管) Acceptance Inspection (Cap)	仕様 Specification	納入仕様書 Specifications	品質受入検査基準書 Quality Acceptance Inspection Standard	検査表 Inspection Sheets
9	封止 Sealing	真空度 Pressure 寸法 Dimension	作業指示書 Manufacturing Process	— 抜取 Sampling	チェックシート Check Sheets Xbar-R管理図 Xbar-R Control Chart
10	印刷 Marking	印刷外観 Marking Appearance	作業指示書 Manufacturing Process	抜取 Sampling	チェックシート Check Sheets
11	ベーキング Baking	温度 Temperature 時間 Time	作業指示書 Manufacturing Process Instruction	— —	チェックシート Check Sheets 作業履歴票 Manufacturing Record
12	電気特性検査 Electrical Characteristics Inspection	電気的特性 Electrical Characteristics	作業指示書 Manufacturing Process Instruction	全数 100%	チェックシート Check Sheets
13	出荷判定 Delivery Judgment	電気的特性 Electrical Characteristics	出荷判定基準書 Delivery Judgment Standard	抜取 Sampling	出荷判定成績表 Delivery Judgment Sheets
14	梱包 Packing	個数 Quantity	梱包仕様書 Packing Specification	—	—