

Revision History

Document No. : K-0700
Date : 2018/2/1
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Record		Page	Section	Changes	Prepared
Revision number	Date				
1 st	2018/2/1				

1. Scope

This document contains specifications for the crystal unit to be supplied by CITIZEN FINEDEVICE CO.,LTD.

- 1.1 If something defined ambiguously or undefined in document happened, the customer and CITIZEN FINEDEVICE 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 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	-40 ~ +85°C
2.3 Storage Temperature Range	-55 ~ +125°C
2.4 Frequency Tolerance	±20ppm Max. at 25°C
2.5 Frequency Tolerance over Operating Temperature Range	Turnover Temp.; 25±5°C Temp.Coefficient: -0.034±0.006ppm/°C ²
2.6 Equivalent Series Resistance	50kΩ Max. at 25°C
2.7 Insulation Resistance	500MΩ Min./DC100V±15V

3. Test Conditions

3.1 Load Capacitance	6.0pF 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 cm onto hard wooden board with thickness of 3 cm.	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 : 0.5kg , Time : 30±5 seconds.	A•C
1-4	Solderability	After applying RMA flux, dip in solder. Dipping Time : 5±0.5seconds. Soldering Temperature : 230±5 °C.	D
1-5	Reflow Soldering Heat Resistance	See Fig.1 reflow condition.	B
1-6	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 500 hours at -40°C.	A
2-2	Storage In High Temperature	Expose the sample in an inoperative mode to 500 hours at +85°C.	B
2-3	Humidity	Expose the sample in an inoperative mode to 500 hours at +65°C, and 95%RH.	B
2-4	Thermal Shock	Subject the sample to 5 temperature variation cycles at -40°C for 30 minutes and +100°C 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	$1 \times 10^{-2} \mu\text{Pa} \cdot \text{m}^3/\text{s}$ Max.

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

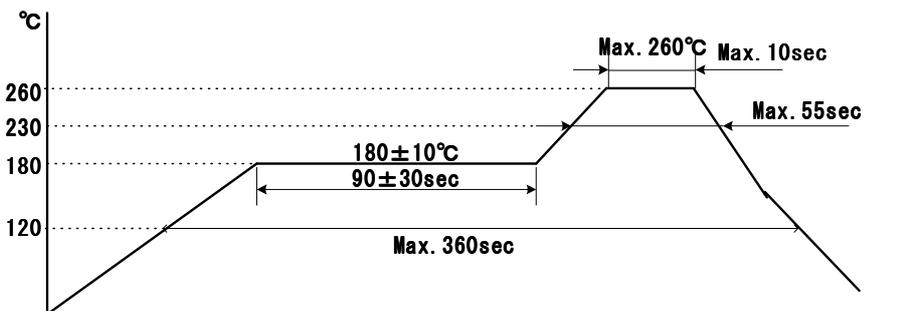
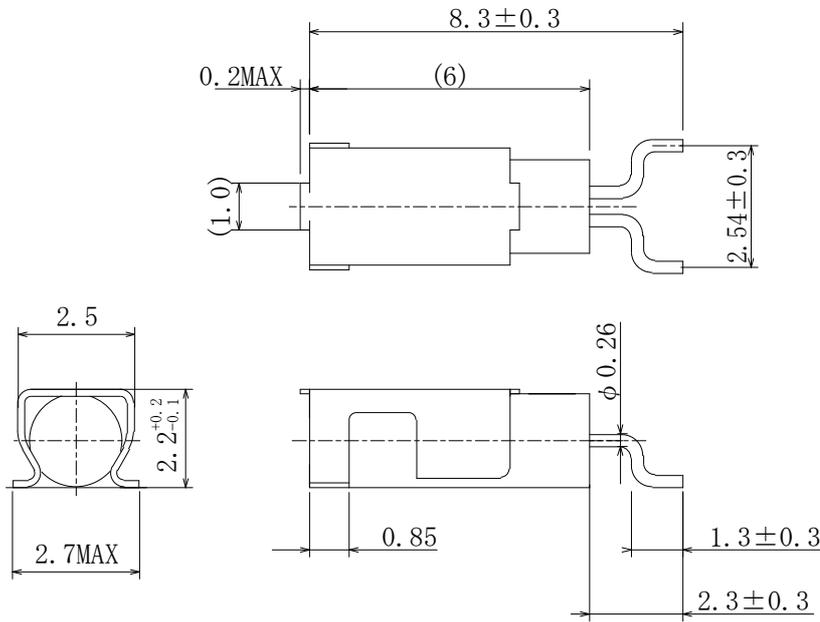


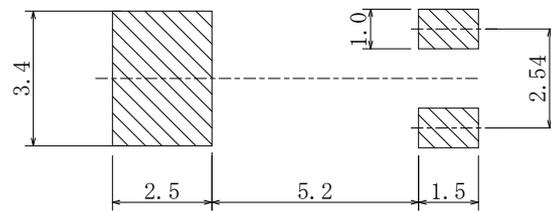
Fig. 1

5. Dimensions

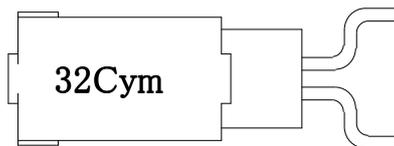
(unit:mm)



6. Solder Pad Layout



7. Marking Standards



32C: Manufacture's ID Code
 y: The last digit of production year.
 m: Production month.(See Table 1)

Table 1

Month	1	2	...	9	10	11	12
Code	1	2	...	9	X	Y	Z

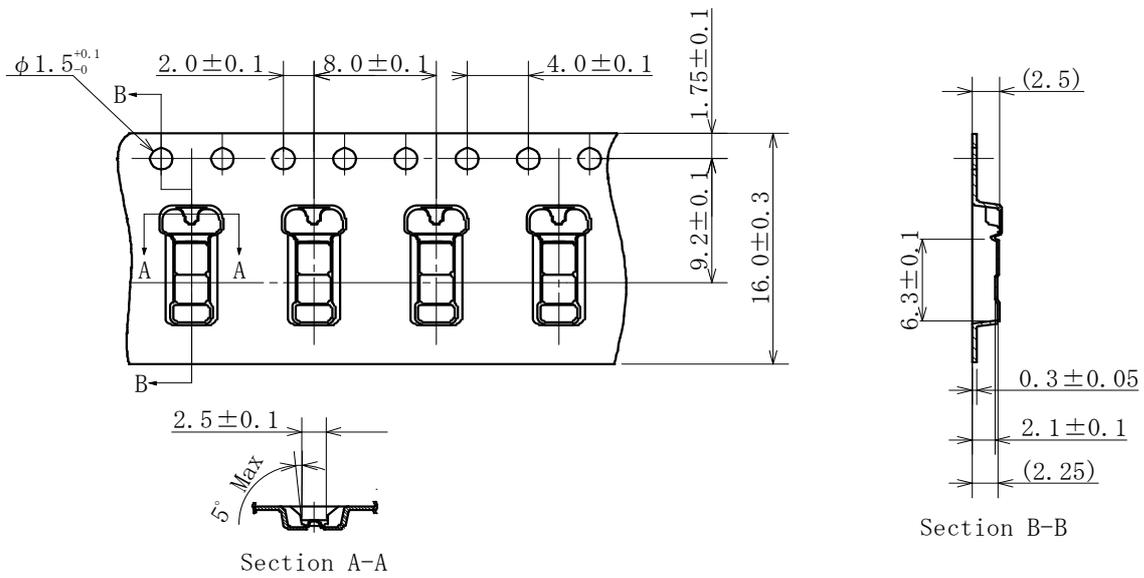
8. Packing

(1) Taping Specification

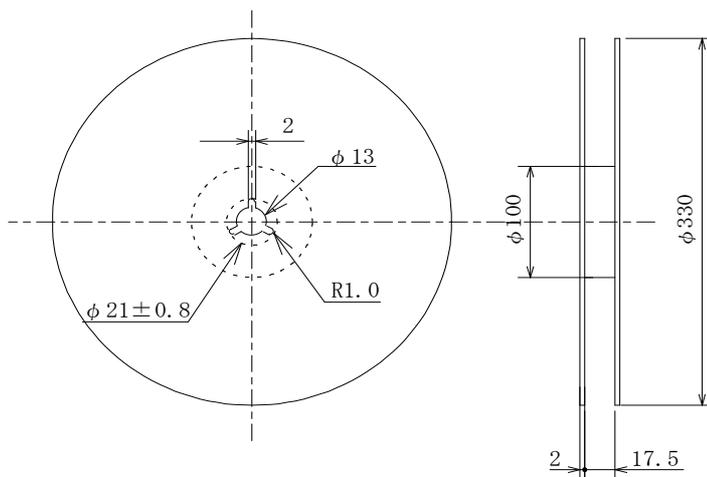
Conforming to JIS C 0806-3

【Tape Dimensions】

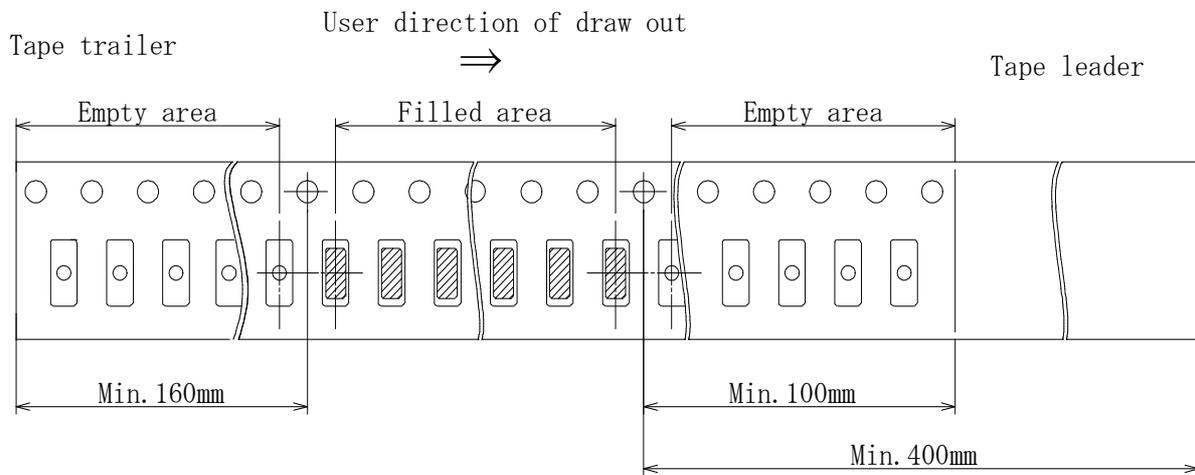
(unit:mm)



【Reel Dimensions】



【Packing】

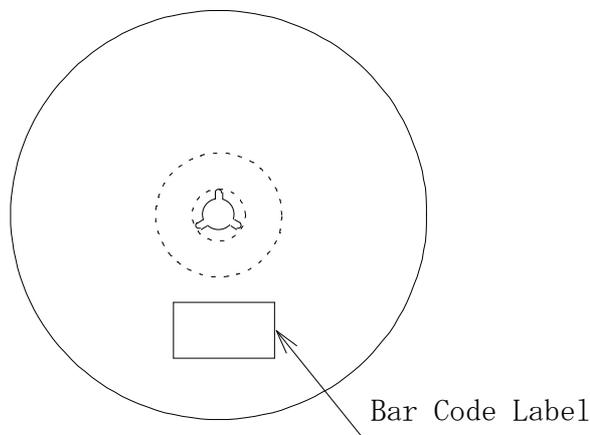


(2) Inner Carton

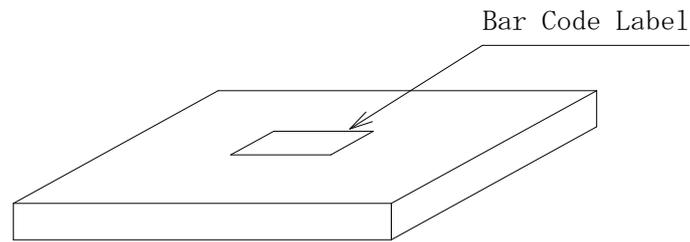
【Bar Code Label Item】

- a : Customer P/N
 - b : Lot.No.
 - c : CITIZEN P/N
 - d : Ctl No
 - e : Date Code
 - f : Quantity
 - g : Country Code
- yy : The last 2 digits of shipment year
 ww : Week Code
- CN=China/JP=Japan

【Reel】



【Inner Carton for 1reel】



(3) Quantity

3000pcs/reel

9. Storage Condition

9.1 Storage Condition	Temperature	5 ~ 35°C
	Humidity	45 ~ 75%
9.2 A period of guarantee	Twelve months	

10. Manufacturer

(Domestic) CITIZEN FINEDEVICE CO., LTD. Miyota Works.
4107-5, MIYOTA, MIYOTA-MACHI, KITASAKU-GUN, NAGANO, 389-0295, JAPAN
TEL : +81-267-31-1111

Country of Origin :JAPAN

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

Country of Origin :CHINA

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

11. Ozone Depleting Substance (ODS)

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

12. Precautionary Statement

12-1 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.

12-2 Mounting of quartz crystal units onto circuit board

When using an automatic loading machine, test and confirm to cause on the crystal products before mounting.
Bending the circuit board in the process of cleaving boards after mounting and soldering crystal products may cause peeling off the soldering or package cracks by mechanical stress. Please be sure that the layout of crystal products position is on the less stressed and the cleaving process is under less stressed for crystal products.

12-3 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.

12-4 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.

12-5 Replacement

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

13. Note

- 13-1 CITIZEN FINEDEVICE CO., LTD. absolutely does not assume any liability for the occurrence of any defectives recalls and etc. caused by inadequate use beyond the specifications.
- 13-2 CITIZEN FINEDEVICE CO., LTD. absolutely does not assume any liability for the occurrence of any losses caused by customers products used it in this specifications or infringement of any rights, which is industrial property, intellectual property and other rights of third party.
- 13-3 The product in this specifications are designed to be used for general electronic equipment. It is absolutely recommended to consult with our sales representative in advance if you plan to use it for medical equipment,safety control device and others that are requiring extremely high quality and reliability.
CITIZEN FINEDEVICE CO., LTD. does not assume any liability for using it for the applications as above may cause any losses.

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