RoHS Compliance

Document №. : K-0304
Date : 2022/3/4
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SPECIFICATIONS

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Approved by

Product	CRYSTAL UNIT
Type of Holder	CM130
Nominal Frequency	32.768 kHz
Customer's Part Number	
Our Part Number	CM13032768DZFT

Sales CITIZEN FINEDEVICE CO., LTD. Miyota Works. Micro Devices Division.
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Revision History

Record		Page	Section	Changes	Prepared
Revision number	Date				
1 st	2022/3/4				

1. Scope

The specifications are applicable to the crystal unit to be supplied by CITIZEN FINEDEVICE CO., LTD.

1.1 Any question arising out of the specifications or any matter undefined shall be settled through mutual consultations between both parties.

1.2 The specifications does not include product testing data. The contents except electrical specifications and dimensions are subject to change without prior notice.

1.3 The product is not intended to be incorporated in any equipment requiring extremely high reliability such as life supporting system.

2. Electrical Specifications

2.1 Nominal Frequency	32.768 kHz
2.2 Operating Temperature Range	-40 ～ +85 ℃
2.3 Storage Temperature Range	-55 ～ +125 ℃
2.4 Frequency Tolerance	±20ppm Max. at 25℃
2.5 Frequency Tolerance over Operating Temperature Range	Turnover Temp.;25±5 ℃ Temp.Coefficient:-0.04ppm/ ℃^{2} Max.
2.6 Equivalent Series Resistance	65k Ω Max.at 25 ℃
2.7 Insulation Resistance	500M Ω Min./DC100V

3. Test Conditions

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

4. Mechanical and Environmental Tests

Test Name		Test Conditions		Specification
1.Mechanical Tests				
1-1	Shock	Measure after 120g dummy 3axis/10times drop from 150cm onto a concrete platform.	*1	Δf/f=±5ppm
1-2	Vibration	Amplitude 0.75mm and 10～55Hz 98m/s^2 and 55~500Hz 10Hz→500Hz→10Hz 15min/cyc Logarithmic frequency sweep rate /6hrs (2hrs x 3axis)	*2	Δf/f=±3ppm
1-3	Solderability	Dipping in the Sn-Ag-Cu solder bath 235±5℃ 5sec.	-	More than 95% coverd by solder
1-4	Reflow Soldering Heat Resistance	Measure after 2 time reflow under Fig.1 reflow condition.	*1	Δf/f=±5ppm
1-5	Solder Joint Durability	10N 10sec. (IEC 60068-2-21)	-	Not broken
1-6	Peeling intesity	10N 10sec. (IEC 60068-2-21)	-	Not broken
1-7	Substrate bending	3mm x 5±1sec x 1times (IEC 60068-2-21)	-	Not broken
1-8	Solvent resistance	(JIS C0052)/(IEC 60068-2-45)	-	Readable
2. Environmental Tests				
2-1	Storage In Low Temperature	After storage under -55℃ for 1000 hrs, measure at room temperature.	*1	Δf/f=±10ppm
2-2	Storage In High Temperature	After storage under 125℃ for 1000 hrs (Measure at room temperature.)	*1	Δf/f=±20ppm
		After storage under 85℃ for 1000 hrs (Measure at room temperature.)	*1	Δf/f=±10ppm
2-3	Humidity	After storage under 85℃,85%RH. for 500 hrs(measure at room temperature).	*1	Δf/f=±10ppm
2-4	Thermal Shock	Measured at room temperature after 100 cycles.-55℃⇔+125℃ for 30 minutes.	*1	Δf/f=±10ppm
2-5	Frequency aging	25±3℃(storage) First year	*2	Δf/f=±3ppm
		25±3℃(operation) First year	*2	Δf/f=±3ppm

Note:
1.The above tests must be conducted independently (not series test).
2.*1:Measure after 24 hours soak at room temperature.
3.*2:Measure after 2 hours soak at room temperature.
4. R1 is 85kΩ max. after the each above tests.

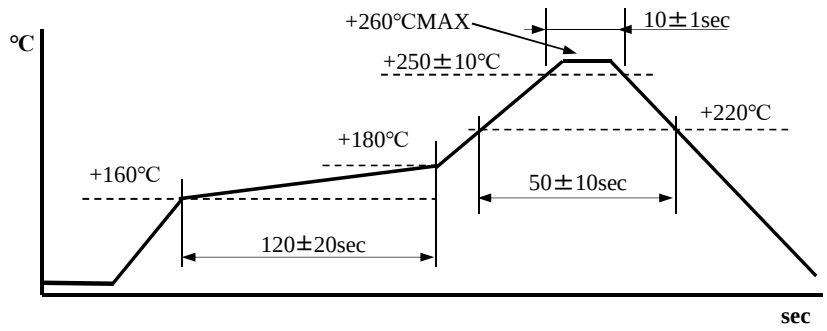
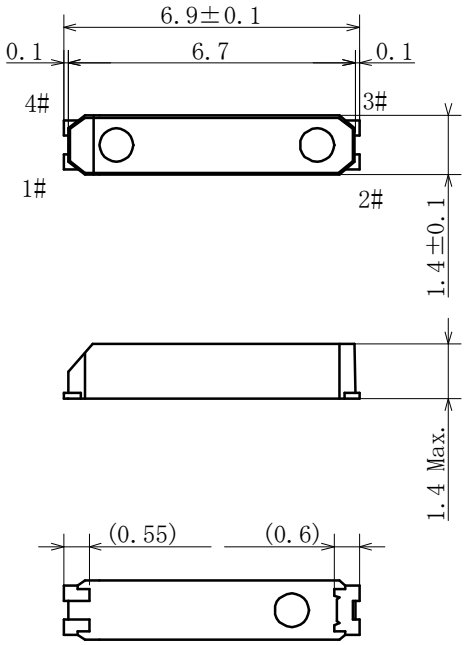


Fig.1

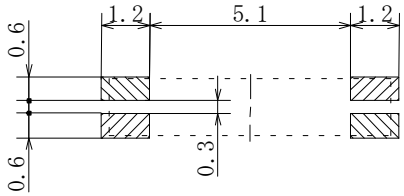
5. Dimensions

(unit:mm)



* The part of the cylinder inside resin mold may be sometimes exposed, however, it does not affect the characteristics of crystal unit.

6. Solder Pad Layout



7. Intermal connection



Do not connect to external with #2 and #3.

8. Marking Standards



32C: Manufacture's ID Code
y: The last digit of production year.
m: Production month.(See Table 1)
※: CL Code C 9.0pF
Y 7.0pF
B 6.0pF

Table 1

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

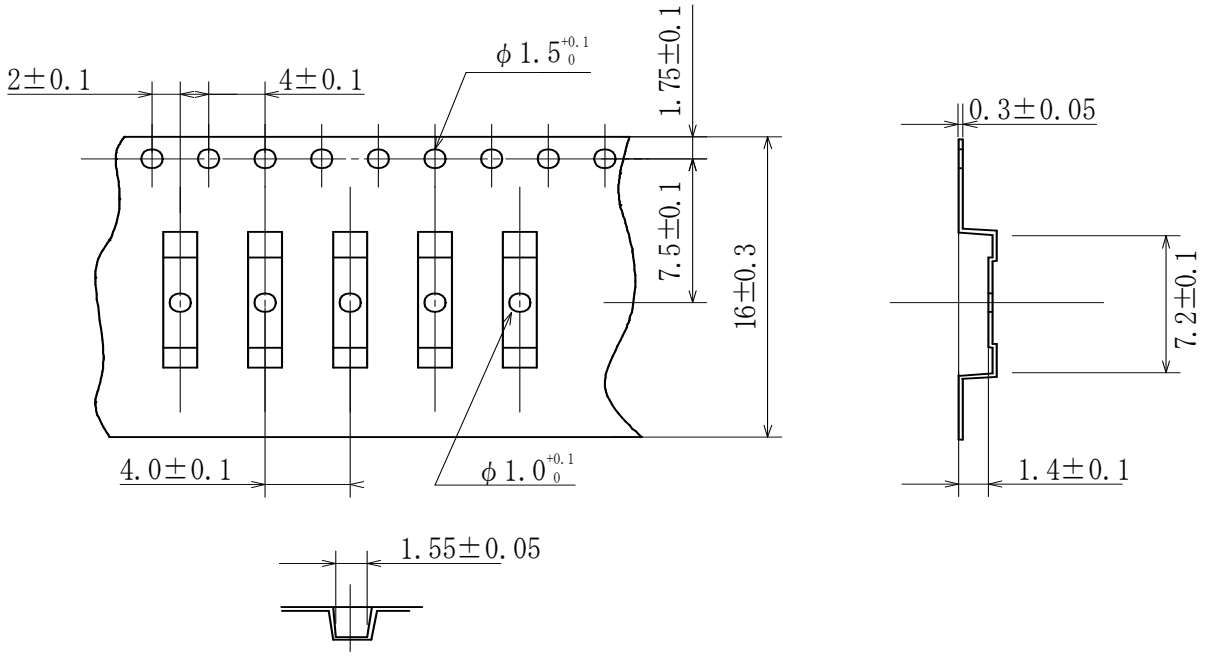
9. Tape and Reel Packaging

(unit:mm)

(1)Taping Specification

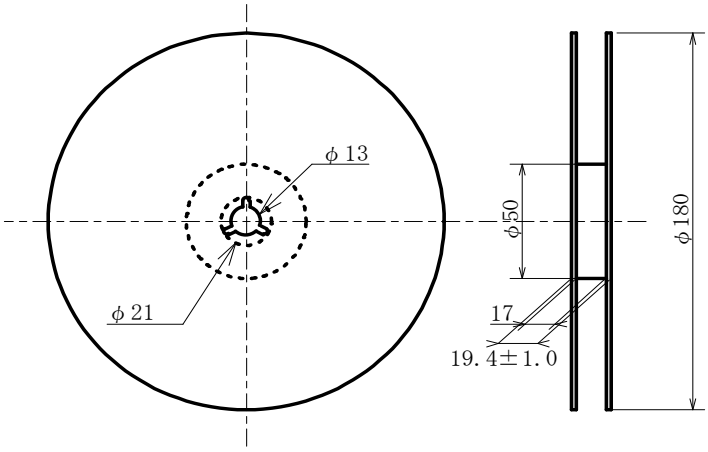
【Tape Dimensions】

Conforming to EIA-481



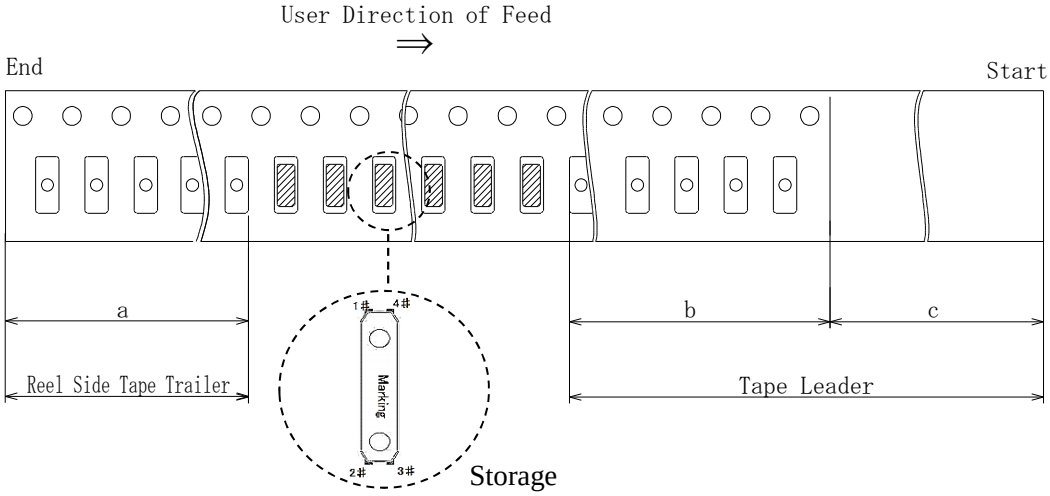
【Reel Dimensions】

Conforming to ET-7200B



Material(Carried tape) : PS
Material (Cover tape) : PET+PE
Material (Reel) : HIPS

【Packing】



Tape Trailer

a. Empty Pockets 40 pcs or more

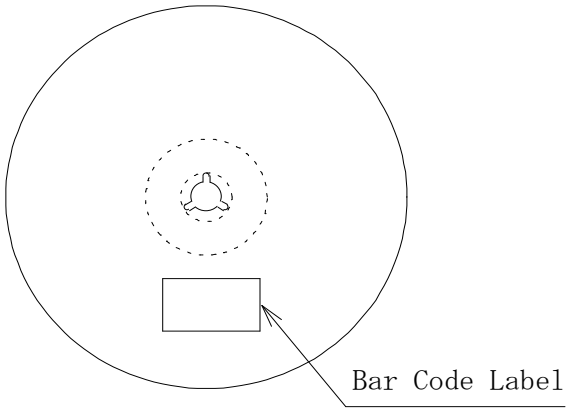
Tape Leader

b. Empty Pockets 40 pcs or more

(2) Inner Carton

【Bar Code Label item】

a. Customer P/N
b. Lot No.
c. Our P/N
d. Control No.
e. Date Code …yyww(y:year/w:week)
f. Quantity



(3)Quantity

3000pcs/reel

10. Storage Condition

10.1 Storage Condition	Temperature	5 ～ 30℃
	Humidity	Max80%RH
10.2 Warranty Period	Twelve months	

11. Sales

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12. Ozone Depleting Substance （ODS）

This Product does not use the classIODS for any of production processes or for component parts.

13. Handling Notes

13-1 When dropped by mistake

The crystal products are designed and manufactured to satisfy the test criteria for shock and vibration. Be sure, however, to check the product's performance before use in the event that they receive excessive shock, for example, by dropping onto the floor.

13-2 Mounting crystal units onto circuit board

When using an automatic loading mounter, test and confirm that no damage has been caused to the characteristics of crystal units before mounting. In case that the boards need to be separated after mounting crystal units, be careful that the bending stress does not affect the product characteristics or solder junction areas.

13-3 Cleaning

(1) Crystal products may be affected and destroyed at worst by ultrasonic cleaning. Be sure that your cleaning process does not affect the functionality of crystal product prior to use.

(2) The use of inappropriate cleaning fluid may cause damages to crystal products. Please be sure to check suitability of the cleaning fluid in advance.

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13-4 Storage

Storage of crystal products under higher temperature or high humidity for a long term may affect frequency stability or solderability. Be sure to store the products under the normal temperature and humidity without exposing to direct sunlight and dew condensation. Storage period should be within 6 months if possible, and mount the products as soon as possible after unpacking.

13-5 Replacement

If the defect is caused by our company within 12 months from the delivery time, we provide the replacement free of charge.

14. Note

14-1 CITIZEN FINEDEVICE CO., LTD. does not assume any liability for any defect arising from improper use of the product beyond the specifications provided.

14-2 CITIZEN FINEDEVICE CO., LTD. does not assume any liability for any damage, loss or infringement of third partys' rights including industrial property rights or other related rights, which may result from the use of the product in this specifications.

14-3 The product in this specifications is designed to be used for general electronic equipment, and not intended to be incorporated in any medical equipment or safety control device requiring high reliability, where product defect may threaten human life and body, or may damage a property. CITIZEN FINEDEVICE CO., LTD. may decline your purchase request if the product is planned to be used for such applications, and does not assume any liability for any damages or loss arising from the use for the applications.

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