RoHS Compliant
Directive 2002/95/EC

SPECIFICATION

Customer:

Item: Crystal Unit

Type: NX3225HA

Nominal Frequency: 30.000 MHz

Customer's Spec. No.:

NDK Spec. No.: EXS00A-CH00002

Receipt

Charge:

Sales	NDK-M AMY LIM Theng Theng	Tel. 60-3-5192-3360
Engineer	Engineering Dept.1 R.Omomo	Tel. (81)-4-2900-6631

Approved H.Kobayashi

Checked N.Yamamoto

Drawn R.Omomo

Revision Record

Rev.	Rev. Date	Items	Contents	Remarks
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1.Customer specifications number :
2.NDK specification number : EXS00A-CH00002
3.Type : NX3225HA
4.Electrical characteristics
4.1 Nominal frequency : 30.000 MHz
4.2 Overtone order : Fundamental
4.3. Adjustment Tolerance : $\pm 50 \times 10^{-6}$ Max. (+ 25 °C)
4.4 Tolerance over the temperature range : $\pm 50 \times 10^{-6}$ Max. (-20 ~ +70°C)
The reference temp. shall be +25 °C
4.5 Equivalent resistance (R1) : 60Ωmax.
4.6 Maximum drive Level : 300μW max.
4.7 Aging : ±10pm max./ 1 year (at + 25 °C)
4.8 Insulation resistance : Terminal to terminal insulation resistance also terminal to cover must be 500MΩ (min) when DC100V ±15V is applied.
4.9 Spurious Resistance : Unwanted response should be more than 4dB for R1 from less than 24 ohms.
Unwanted response should be more than 4.5dB for R1 from 25 ohms to 34 ohms.
Unwanted response should be more than 6.0dB for R1 from 35 ohms to 60 ohms.

5. Measurement circuit
5.1 Frequency measurement
Measuring instrument : IECπ circuit
Load capacitance (CL) : 10pF
Excitation level : 50μW
5.2 Equivalent resistance measurement
Measuring instrument : IECπ circuit
Load capacitance (CL) : Series
Level of drivel : 50μW

6. Other performances
6.1 Storage temperature range : -40~+85°C
6.2 Air-tightness : Without repetitive bubbles in hot water of 90°C or higher, 5min.

7. Examination results document
We guarantee our components will meet the parameters stipulated in this specification document in accordance with Western Digital document 2033-771046-009 rev AB.
Therefore, test data for each lot is not provided unless specifically requested.

8. Application drawing
8.1 External dimension : EXD14B-00469
8.2 Taping and reel figure : EXK17B-00098
8.3 Reel Packing : EEK17B-00028
8.4 Holder marking : EXH11B-00457
8.5 Reflow Condition : EXS30B-00344
8.6 Reliability assurance item : EXS30B-00800

9. Marking direction of unit

Marking direction inside taping is unified.

10. Notice

10.1 Order items are manufactured according to specification. As to conditions, which are not indicated in this specification and unpredictable such as applied condition and oscillation margin, please check them beforehand.

10.2 We guarantee our components to meet Western Digital specifications per document 2033-771046-009 Rev AB. Unless we receive request for modification within 3 weeks from the issue date of this NDK specification sheet, we will supply products according to this specification. Also, if you'd like to modify specification of order, which has been placed with delivery request within 3 weeks from the issue data of this specification sheet, we would like to discuss with you separately.

10.3 In no event shall the company be liable for any product failure resulting from an inappropriate handling or operation of the product beyond the scope of its guarantee.

10.4 Where any change to the process condition is made due to the change(s) in the production line, inform personnel of the specifications.

10.5 Should this specification data give rise to any disputes relating to any intellectual property rights or any other rights of a third person, the company shall not indemnify anyone for any damage. Their disclosure must not be construed as the grant of a license to use any of the intellectual property rights owned by the company.

10.6 If you intend to use products listed on this specification for applications that may result in loss of life or assets (controls relating to safety, medical equipment, aeronautical equipment, space equipment, etc.), please do not fail to advise us of your intention beforehand.

10.7 In the company's production process whatever amount of ozone depleting substances (ODS) as specified in the Montreal protocol is not used.

10.8 Information contained in this specification must not be quoted, reproduced or used for other purposes including processing either in part or in full without obtaining prior approval from the company.

11. Prohibited items

11.1 Washing or Coating to the component is not acceptable. Because it not hermetically sealed.

11.2 Please mount the components on a circuit board by re-flow soldering. Soldering with soldering iron is not acceptable.

11.3 Reuse of the components once mounted a circuit board is not acceptable.

11.4 Be sure to use the product under the following conditions. Otherwise, the characteristics deterioration or destruction of the product may result.

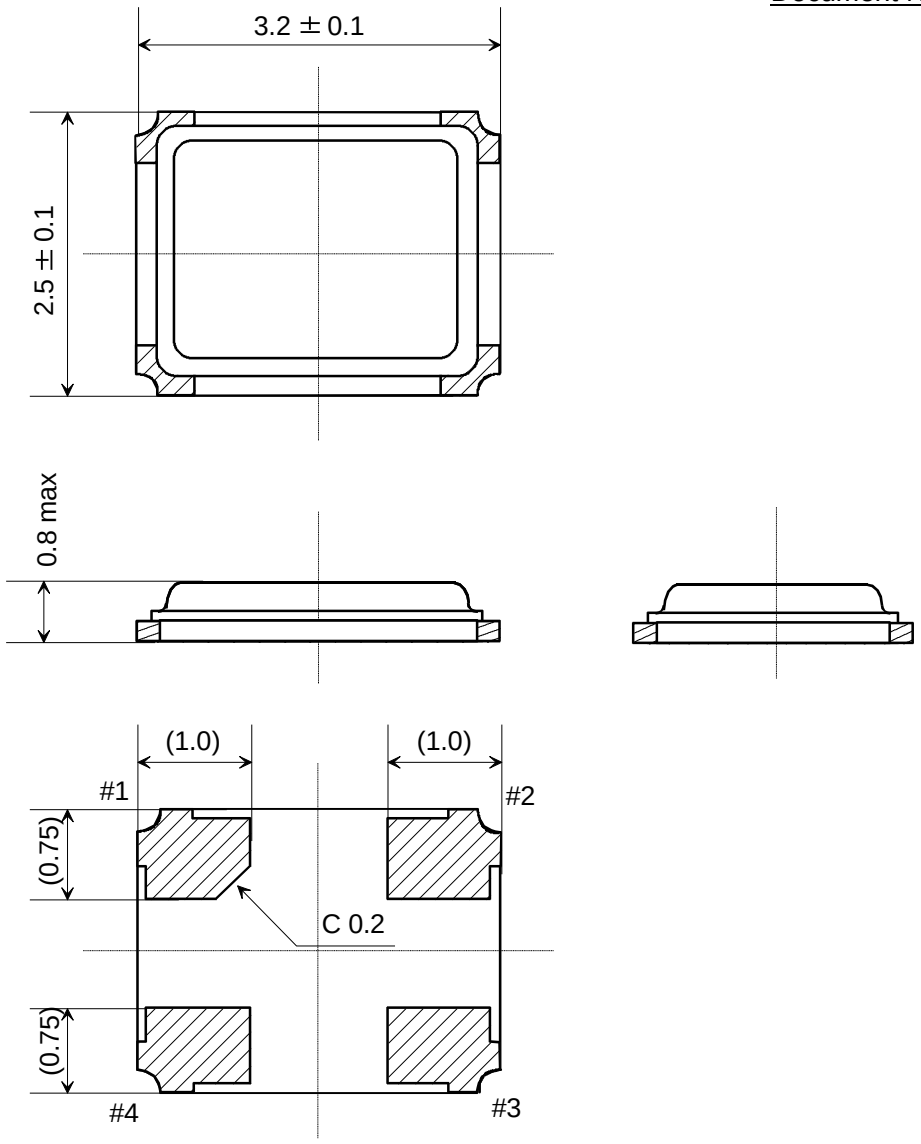
(Reflow soldering heat resistance)

Peak temperature: 265°C, 10 sec

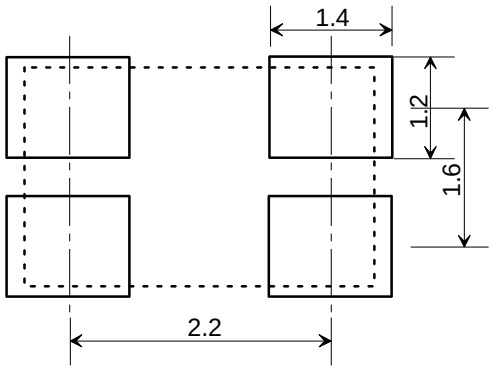
Heating: 230°C or higher, 40 sec

Preheating: 150°C to 180°C, 120 sec

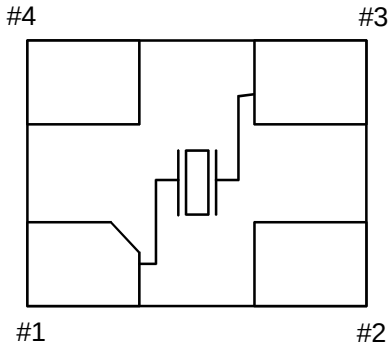
Reflow passage times: twice



LAND PATTERN (TYPICAL)



TOP VIEW
PIN CONNECTION



TERMINAL
#1,#3:X'tal
#2,#4:No Connection

	Date of Revise	Charge	Approved	Reason

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	8.Dec.2009	M.Sato	Dimension:mm	---	- / -
Designed	8.Dec.2009	M.Sato	Title	Drawing No.	Rev.
Checked	8.Dec.2009	---	**NX3225HA Dimension Drawing**	**EXD14B-00469**	
Approved	8.Dec.2009	K.Ueki			

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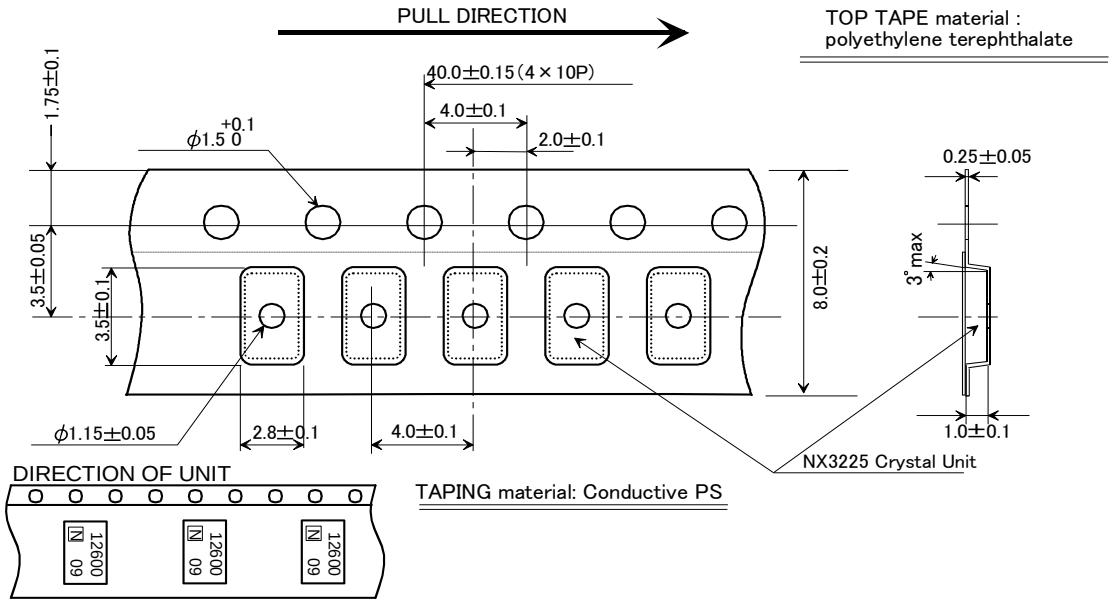

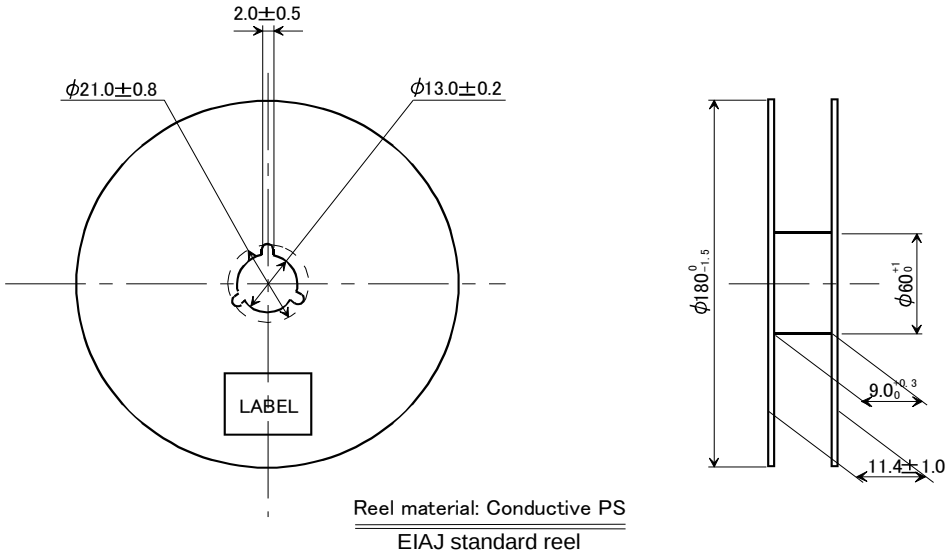

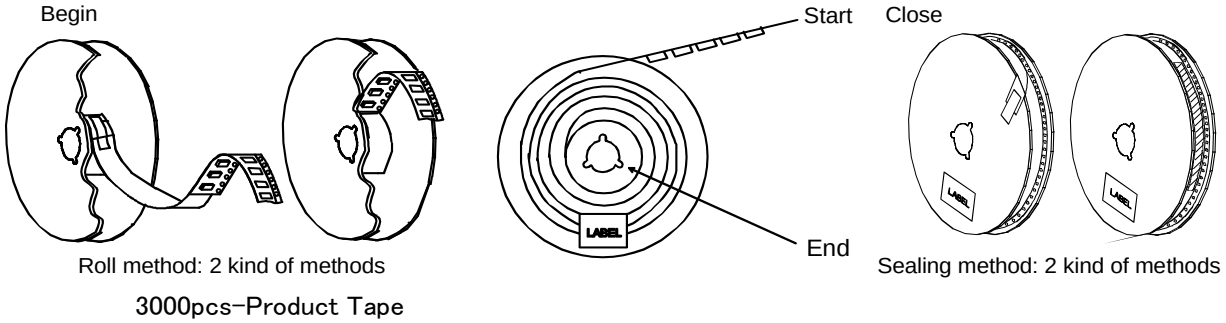

3000pcs-Product Tape

	Date of Revise	Charge	Approved	Reason
I	22 Aug. 2012	T. Shimizu	K. Oguri	Top cover tape leader line was deleted.

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	3.Sep.2001	K.Oguri	Dimension:mm		/
Designed	3.Sep.2001	K.Oguri	Title	Drawing No.	Rev.
Checked			**NX3225 Series Taping and Reel Spec.**	**EXK17B-00098**	I
Approved	3.Sep.2001	K.Miyashita			

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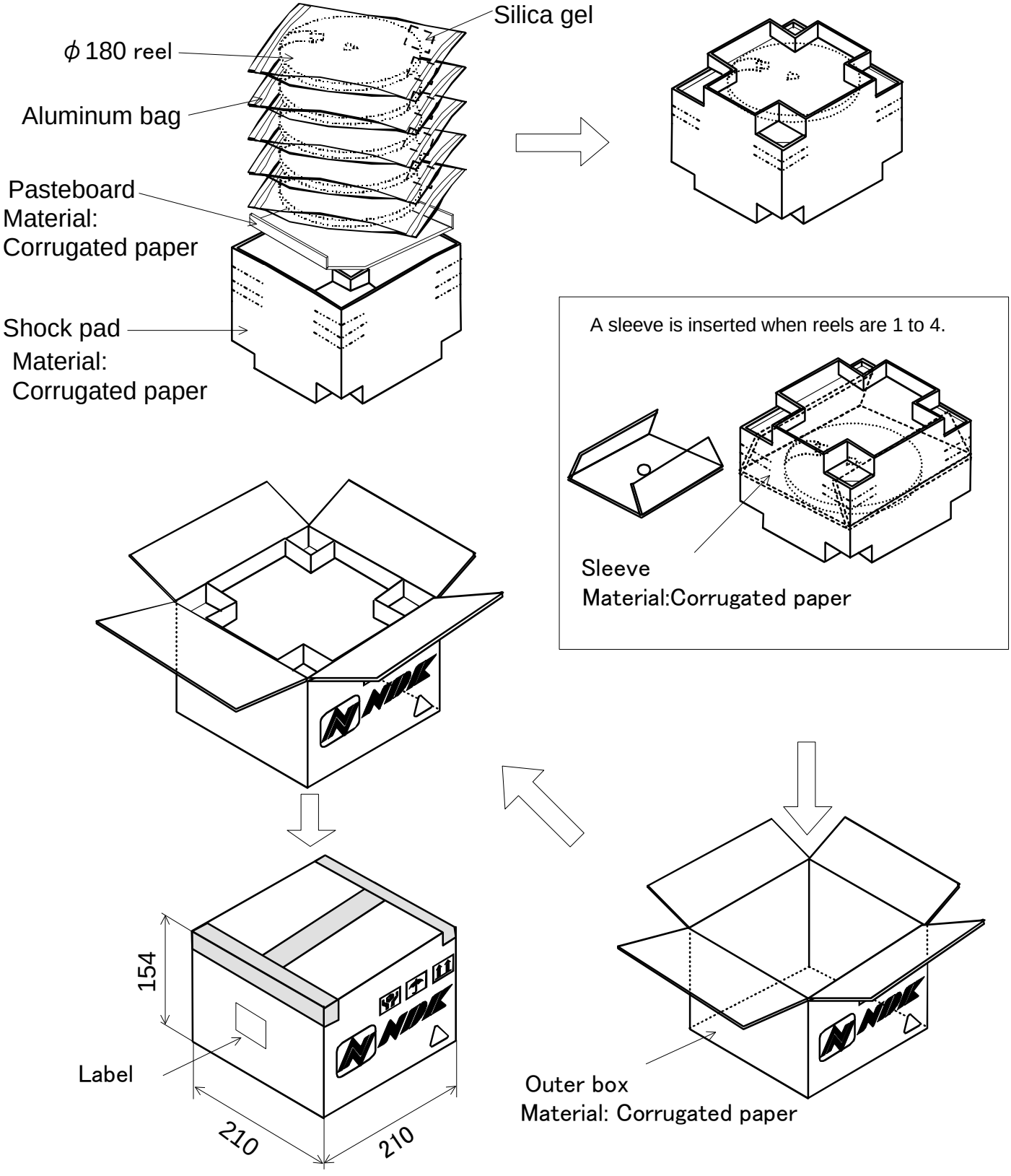
Form M-1



	Date of Revise	Charge	Approved	Reason
A	1 Sep. 2014	H. Ohkubo	K. Oguri	Addition of silica gel.

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	21 Aug. 2014	H. Ohkubo	Dimension:mm	---	---
Designed	21 Aug. 2014	H. Ohkubo	Title	Drawing No.	Rev.
Checked	---	---	**180 dia. Aluminum bag package Reel package**	**EEK17B-00028**	A
Approved	21 Aug. 2014	K. Oguri			

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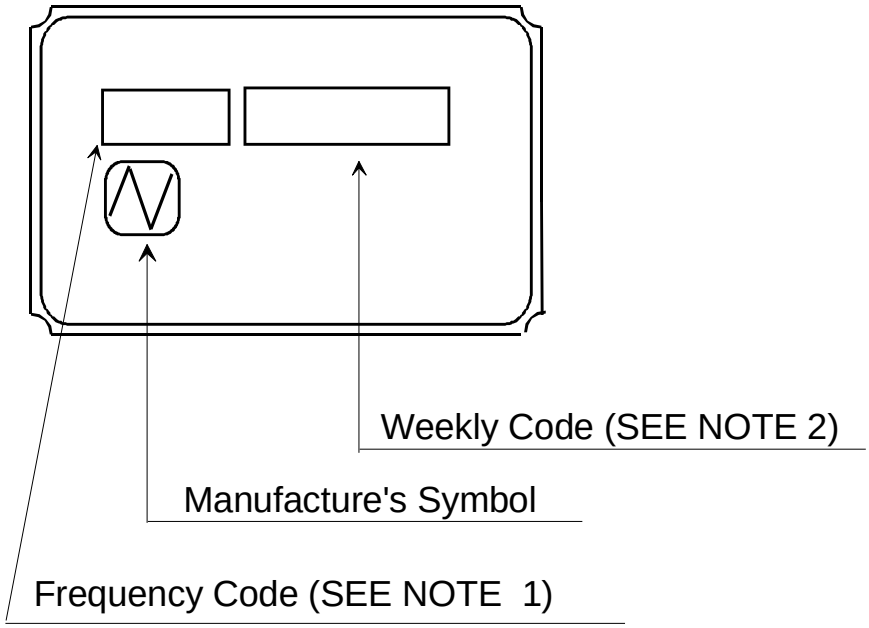

1. Frequency Code

Marking Frequency is consist of two digits, first two digits of Nominal Frequency

Example

Nominal Frequency	28.636363 MHz
Frequency Code	28

2. Weekly Code

Last one digit of Year and Weekly Code (01 to 53)

Example

11.Mar.2011 Production : 110

*Marking digits are not include a decimal point and dot mark.

	Date of Revise	Charge	Approved	Reason

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	10.Mar.2011	Y.Ikeda	Dimension:mm		/
Designed	10.Mar.2011	Y.Ikeda	Title	Drawing No.	Rev.
Checked	10.Mar.2011	M.Sato	**Crystal Holder Marking**	**EXH11B-00457**	
Approved	10.Mar.2011	K.Ueki			

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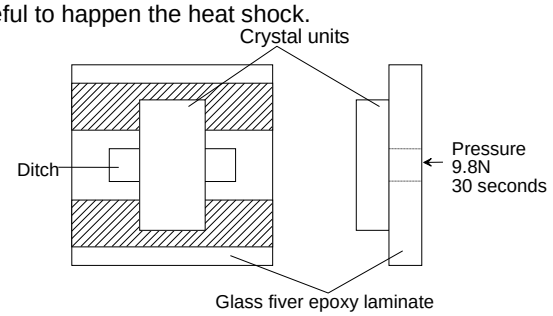
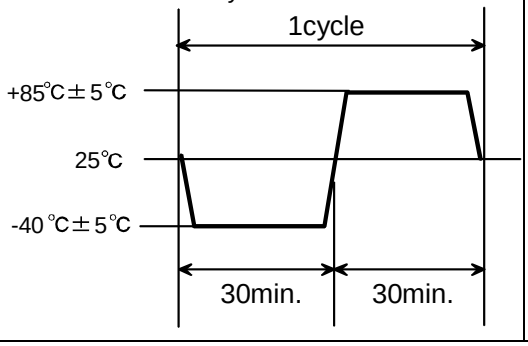
Reliability assurance item

No.	Test Item	Test Methods	Specification Code
1	Drop	Devices are dropped from the height 75cm onto wooden block. (more than 30mm thickness.) Execution 3 times random drops.	A
2	Shock	Devices are shocked to half sine wave (981m/s^2) three mutually perpendicular axis each 3 times.	A
3	Vibration	Frequency Range : 10 to 55 Hz Amplitude : 1.5mm Sweep time : 1 min. Test time : 2.0 hours	A
4	Electrode adherent strength	Reflow soldering shall be used for soldering on test fixture (Glass fiber epoxy laminate : Thickness 1.6mm+/-0.2mm) shown below. (220~240°C) Be careful to happen the heat shock. 	B
5	Solderability	Pre-heat temperature : 150°C Pre-heat Time : 60~120sec. Peek temperature : 240±5°C Solderind temperature : Over 215°C Test time : 10~30 sec.	C
6	Resistance to soldering heat	Pre-heat temperature : 150 °C Pre-heat time : 60 ~ 120sec. Test temperature : 260 ± 5 °C Test time : 10 sec. Max.	A, B
7	Resistance to cold	Leave at -40°C ± 2 °C for 500 hours.	A
8	Resistance to heat	Leave at +85°C ± 2 °C for 500 hours.	A
9	Humidity	Devices are left in temperature at +60°C with relative humidity of 90~95% for 500 hours.	A, D
10	Thermal shock	Devices are left into the following temperature cycle as shown in (Figure 1) for 100 consecutive cycles. 	A, B

Specification code	Specification
A	Frequency tolerance and series resistance should be cleared.
B	After testing unless cracking of materials view of eyes.
C	The leads shall acquire a new solder coat cover at 90% of immersed area.
D	Insulation resistance shall be greater than 500MΩ

Recommendation reflow condition

1.IR reflow condition