

RoHS Compliant
Directive 2011/65/EU

REFERENCE SPECIFICATION

Customer _____

Item	CRYSTAL UNIT
Type	NX2012SA
Nominal Frequency	32.768kHz
Customer's Spec. No.	---
NDK Spec. No.	EXS00A-MU00185

For your reference we submit this specification.
Please study and keep in your related document file.

Charge:

Sales		
Engineer		

Approved

H.Matsudo

Checked

Drawn

Y.Hasuike

Revision Record

Rev.	Rev. Date	Items	Contents	Remarks
---	29.Sep.2011	Issue	---	---

1. Customer specifications number : ---
2. NDK specification number : EXS00A-MU00185
3. Type : NX2012SA
4. Electrical characteristics
- 4.1. Nominal Frequency (F_0) : 32.768 kHz
- 4.2. Overtone Order : Fundamental
- 4.3. Adjustment tolerance : $\pm 20 \times 10^{-6}$ Max. (at +25°C)
- 4.4. Turning Point : +25°C \pm 5°C
- 4.5. Temperature coefficient : $-0.04 \times 10^{-6} / ^\circ\text{C}^2$ Max.
- 4.6. Equivalent Resistance (R_R) : Typ: 60 k Ω
:80 k Ω Max.
- 4.7. Insulation Resistance : Terminal to terminal insulation resistance also
terminal to cover insulation resistance must be
500M Ω (Min.) when DC100V \pm 15V is applied.
5. Measurement circuit
- 5.1. Frequency measurement
- Measuring instrument : Network Analyzer
(CNA-LF made in Transat corp.)
- Load capacitance (C_L) : 9.0pF
- Level of drive : 0.1 μ W
- 5.2. Equivalent resistance measurement
- Measuring instrument : Network Analyzer
(CNA-LF made in Transat corp.)
- Load capacitance (C_L) : Series
- Level of drive : 0.1 μ W
6. Other performances
- 6.1. Operating Temperature range : - 40 to + 85°C
- 6.2. Storage Temperature range : - 40 to + 85°C
- 6.3. Maximum drive level : 0.5 μ W Max.
- 6.4 Aging (at +25 °C) : $\pm 3 \times 10^{-6}$ Max. / 1 year
7. Examination results document
Since a performance is guaranteed, an examination results document does not submit.
8. Application drawing
- 8.1. Dimension drawing : EXD14B-00387
- 8.2. Taping and reel figure : EXK17B-00273
- 8.3. Marking Structure : EXH11B-00366
- 8.4. Taping repair method : EEK17B-00010

9. Notice

- 9.1 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.
- 9.2 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.
- 9.3 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.
- 9.4 Where any change to the process condition is made due to the change(s) in the production line, inform personnel of the specifications.
- 9.5 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.
- 9.6 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.
- 9.7 In the company's production process whatever amount of ozone depleting substances (ODS) as specified in the Montreal protocol is not used.
- 9.8 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.

10. Prohibited items

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

(1)Reflow soldering heat resistance

Peak temperature: 265°C, 10 sec

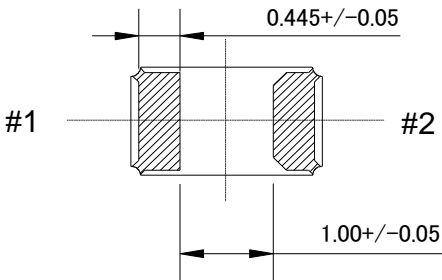
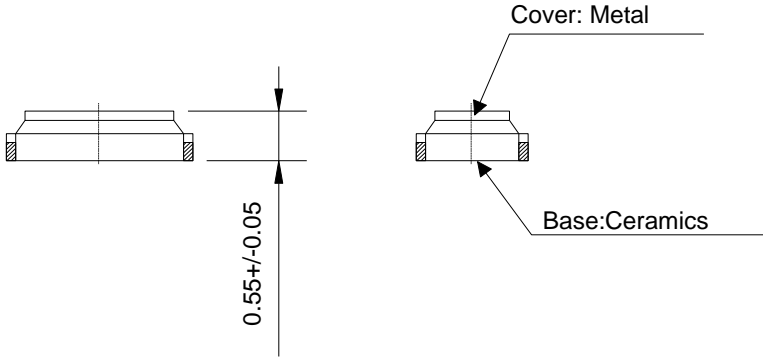
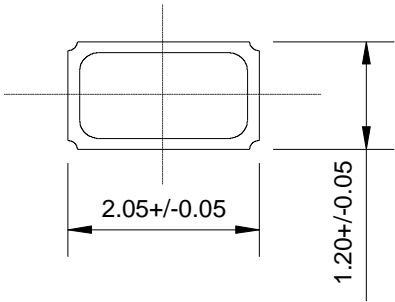
Heating: 230°C or higher, 30 sec

Preheating: 150°C to 180°C, 120 sec

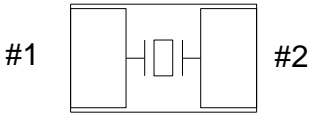
Reflow passage times: Two times

(2)Manual soldering heat resistance

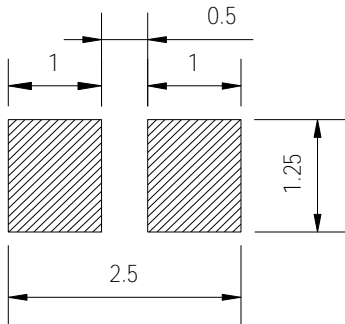
Pressing a soldering iron of 400°C on the terminal electrode for four seconds (twice).



INTERNAL CONNECTION (TOPVIEW)

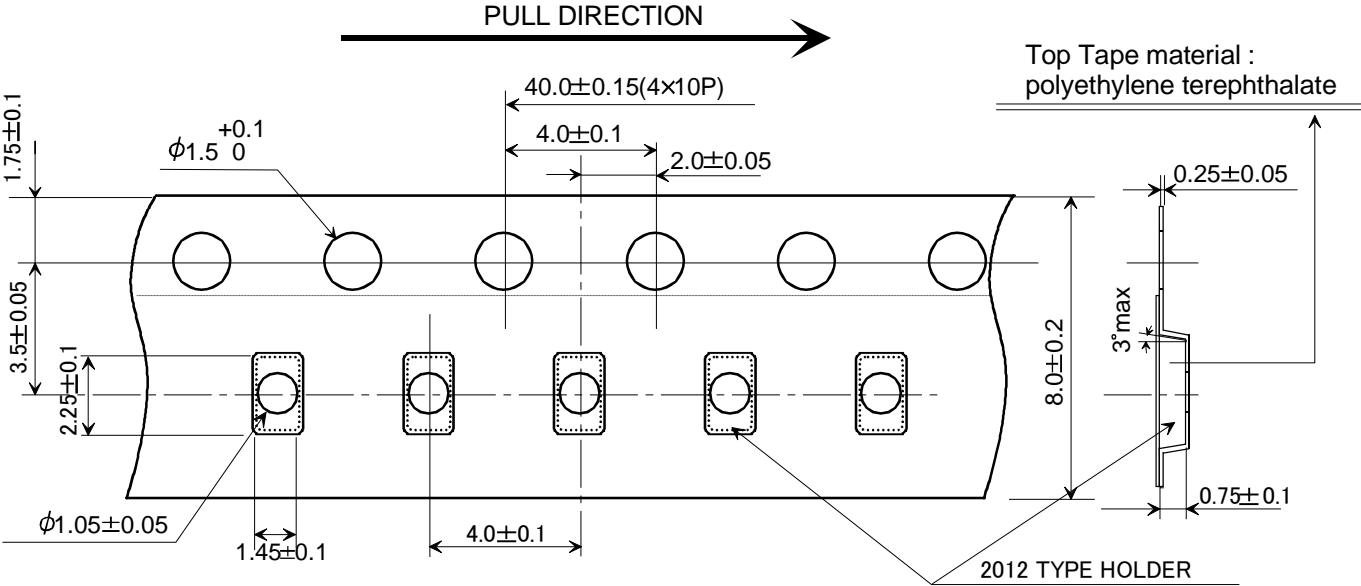


Recommended soldering pattern

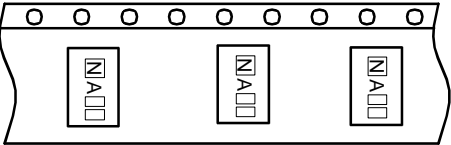


	改訂日/ Date of Revise	担当/ Charge	承認/ Approved	理由/ Reason	
B	7.Jan2011	S. Kawanishi	M. Umeki	全面改訂	
	Date	Name	三角法/ Third Angle Projection	公差/ Tolerance	尺度/ Scale
Drawn	17.July.2007	S.Kawanishi	単位:mm	± 0.2	10 / 1
Designed	17.July.2007	S.Kawanishi	名称/Title	図番/ Drawing No.	改訂/ Rev.
Checked	17.July.2007	M.Yoshimatsu	外観寸法図	EXD14B-00387	B
Approved	17.July.2007	K.Ono			

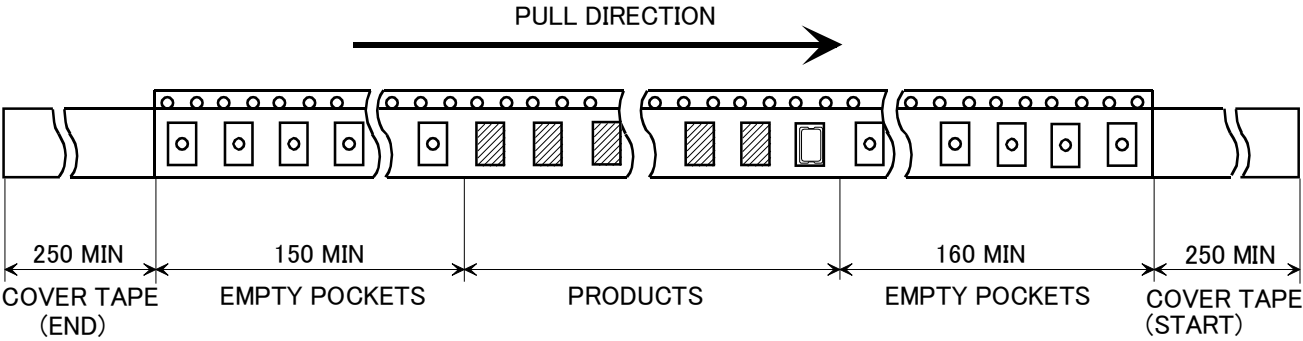
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DIRECTION OF UNIT

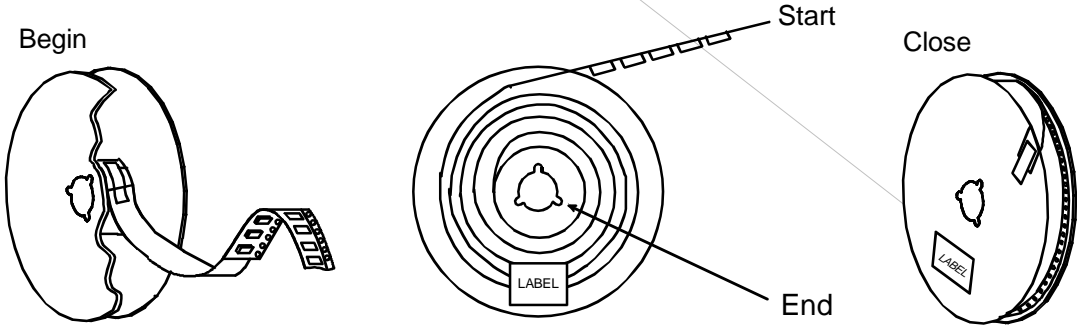
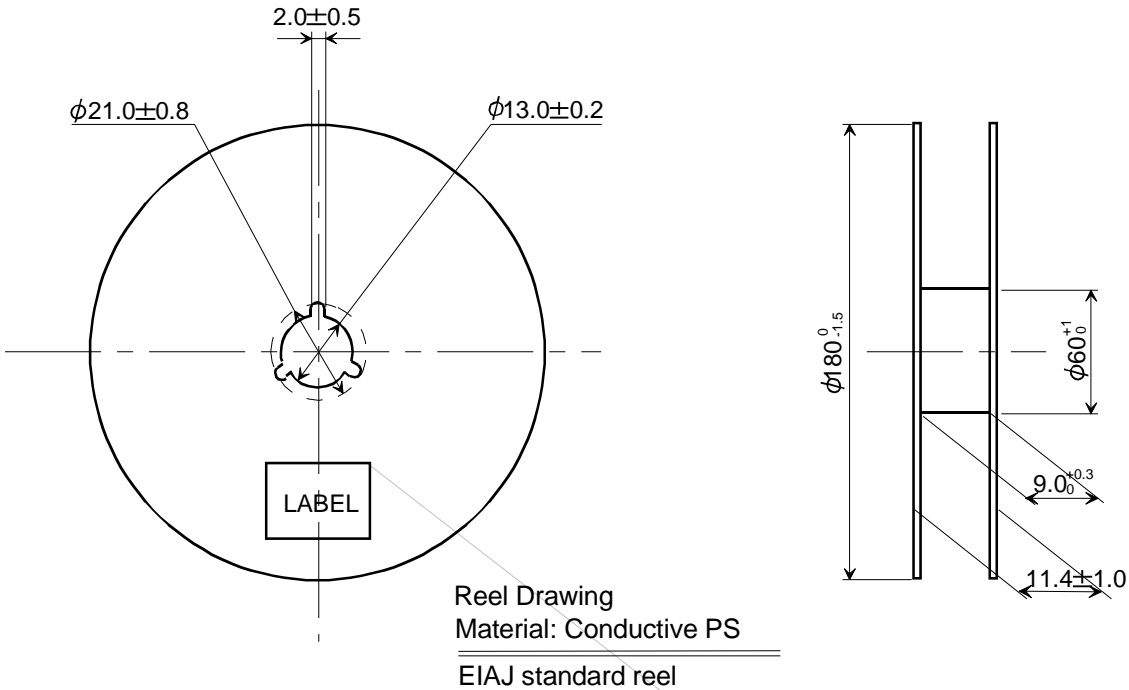


TAPING material: Conductive PS



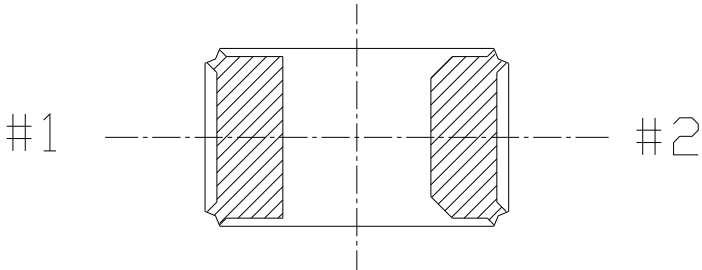
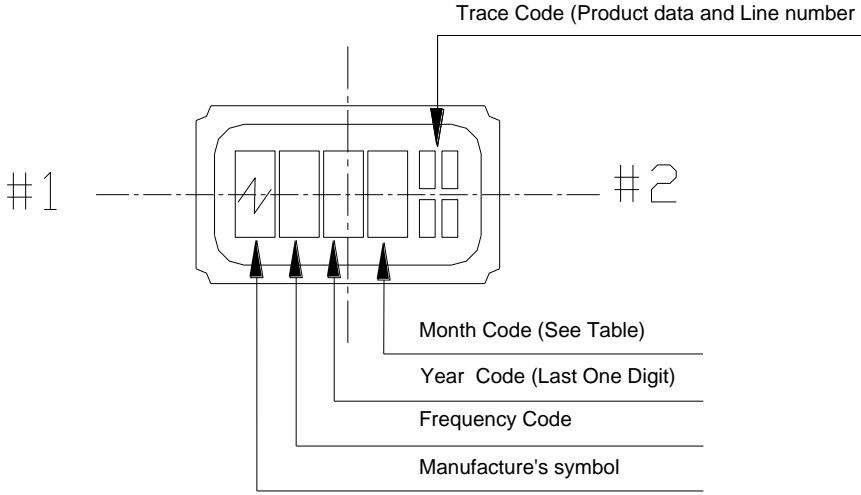
改訂日/ Date of Revise		担当/ Charge		承認/ Approved		理由/ Reason	
Date		Name		三角法/ Third Angle Projection		公差/ Tolerance	
Drawn				単位:mm		尺度/ Scale	
Designed				名称/Title		図番/ Drawing No.	
Checked				2012TYPE テープ・リール図		改訂/ Rev.	
Approved				2012 TYPE Taping and Reel Spec		EXK17B-00273 1/2	

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改訂日/ Date of Revise		担当/ Charge	承認/ Approved	理由/ Reason	
Date		Name	三角法/ Third Angle Projection	公差/ Tolerance	尺度/ Scale
Drawn			単位:mm		/
Designed			名称/Title 2012TYPE テーピング・リール図 2012 TYPE Taping and Reel Spec.	図番/ Drawing No. EXK17B-00273 2/2	改訂/ Rev.
Checked					
Approved					

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NOTE

1. Month Code

Month	1 Jan.	2 Feb.	3 Mar.	4 Apr.	5 May	6 June	7 July	8 Aug.	9 Sep.	10 Oct.	11 Nov.	12 Dec.
Month Code	1	2	3	4	5	6	7	8	9	X	Y	Z

2. Frequency Code

A : 32.768kHz

3. Marking Method

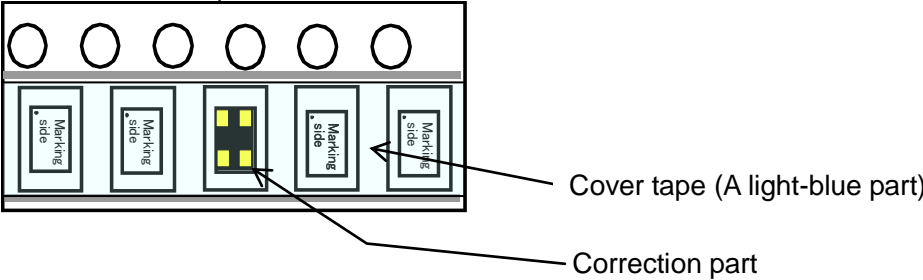
Marking Method is Laser Trimming.

改訂日/ Date of Revise		担当/ Charge		承認/ Approved		理由/ Reason	
Date		Name		三角法/ Third Angle Projection		公差/ Tolerance	
Drawn				単位:mm		尺度/ Scale	
Designed				名称/Title		図番/ Drawing No.	
Checked				Marking Drawing		EXH11B-00366	
Approved							

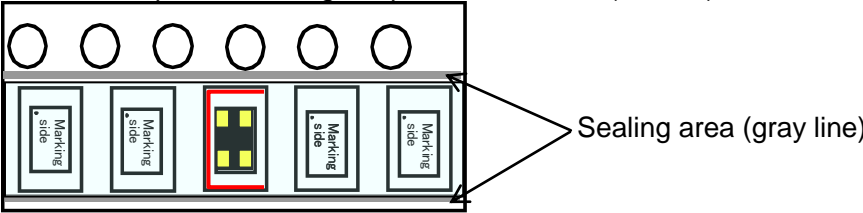
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Taping repair method

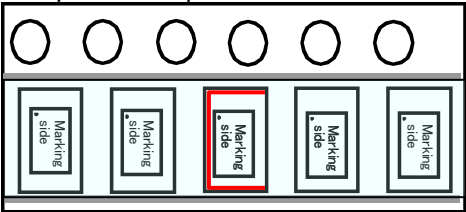
1. Occurrence of product turn-over or other errors.



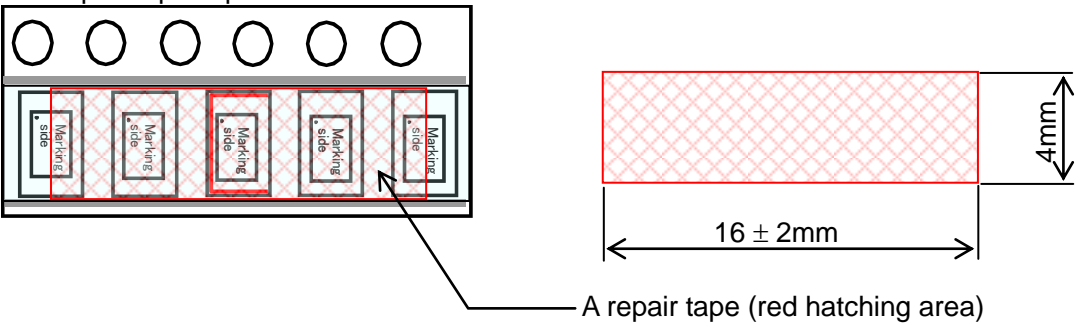
2. A cover tape is cut along the part of a red line. (3 sides)



3. A product is put back in the correct position.



4. A repair tape is pasted on a correction area.



	Date of Revise	Charge	Approved	Reason	
A					
	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	26 Feb. 2010	H. Ohkubo	Dimension:mm	-----	-----
Designed	26 Feb. 2010	K.Oguri	Title Taping repair method	Drawing No. EEK17B-00010	Rev.
Checked	26 Feb. 2010	K.Oguri			
Approved	26 Feb. 2010	J. Nakamura			

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