Crystal Bridge to the Future

RoHS Compliant
Directive 2011/65/EU

REFERENCE SPECIFICATION

Customer:

Item:	Crystal Unit
Type:	NX3225SA
Nominal Frequency:	24.000 MHz
Customer's Spec. No.:	---
NDK Spec. No.:	EXS00A-CS08583

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

Revision Record

Rev.	Date	Items	Contents	Approved	Checked	Drawn
---	4.Aug.2015	Issue	---	Miyahara	--	Tsukumo

NIHON DEMPA KOGYO CO., LTD.

1. Customer Specifications Number : ---

2. NDK Specification Number : EXS00A-CS08583

3. Type : NX3225SA

4. Electrical Characteristics

	Electrical Characteristics Items	Symbol	Electrical Characteristics Spec.				Notes
			MIN	TYP	MAX	Unit	
1	Nominal frequency	fnom		24.000		MHz	
2	Overtone order	-		Fundamental		-	
3	Frequency tolerance	-	-10	-	+10	ppm	at +25°C
4	Frequency versus Temperature Chacteristic	-	-15	-	+15	ppm	at -40 to +85°C
		-	-50	-	+50	ppm	at -40 to +125°C
5	Equivalent resistance	-	-	-	40	ohm	IEC π -network / Series
6	Load capacitance	CL	-	9	-	pF	IEC π -network
7	Level of drive	-	-	10	200	μW	
8	Insulation resistance	-	500	-	-	Mohm	Terminal to terminal insulation resistance also terminal to cover insulation resistance must be 500MΩ (min) when DC100V ±15V is applied.
9	Operating Temperature range	-	-40	-	+125	℃	
10	Storage temperature range	-	-40	-	+125	℃	
11	Aging	-	-1	-	+1	ppm	1year
12	Air-tightness	-	-	-	1.1×10^{-9}	Pa m^3/s	Helium leak detector

5. Examination results document

Since a performance is guaranteed, an examination results document does not submit.

6. Application drawing

6.1 External dimension : EXD14B-00370

6.2 Taping and reel figure : EXK17B-00098

6.3 Holder marking : EXH11B-00317

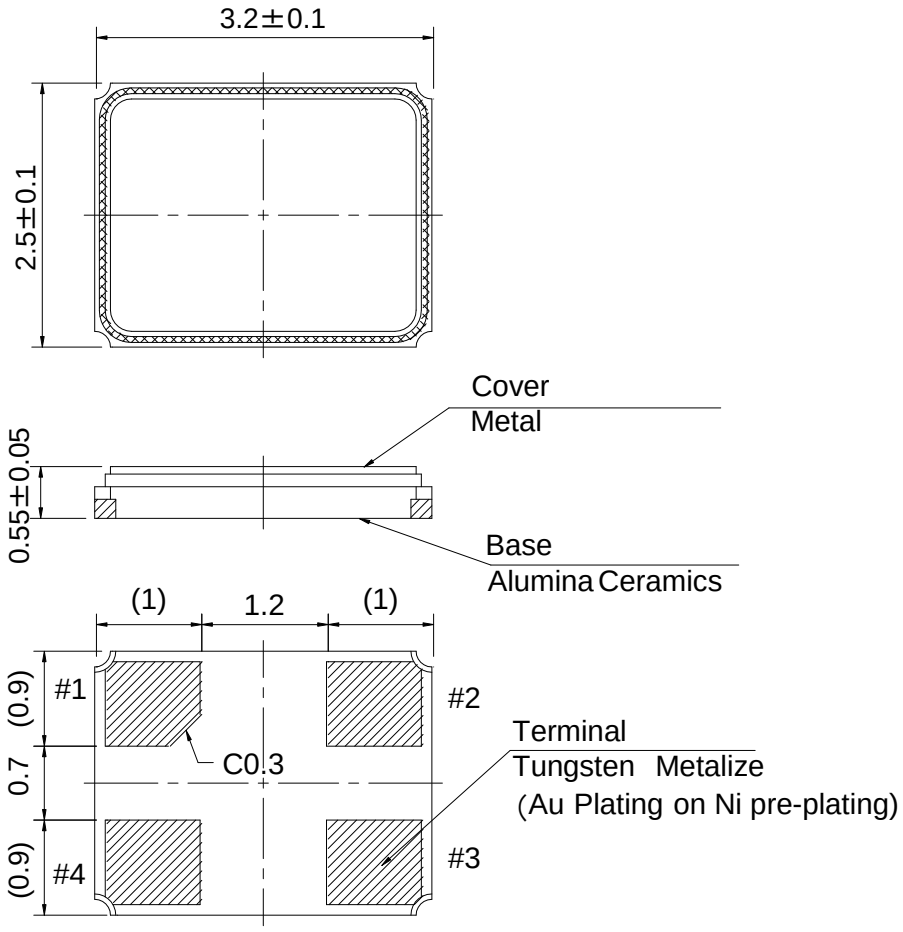
6.4 Reliability assurance Item : EXS30B-00249

7. Notice

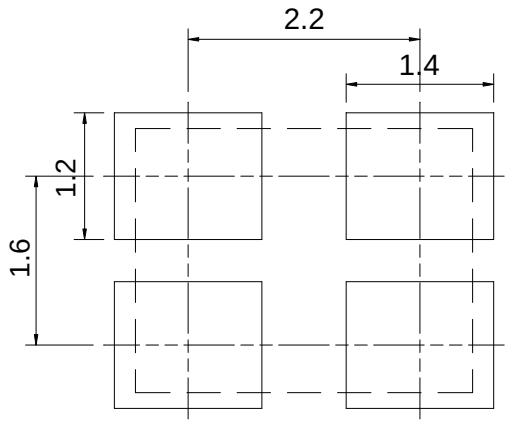
7.1 Order items are manufactured according to specification. As to conditions, which are not indicated in the specification and unpredictable such as applied condition and oscillation margin, please check them beforehand.

7.2 Crystal units will be damaged by ultrasonic welding process due to resonance of crystal wafer itself. NDK does not recommend using ultrasonic welding. If Ultra Sonic welding used, NDK strongly recommend verifying crystal unit damage by ultrasonic weld.

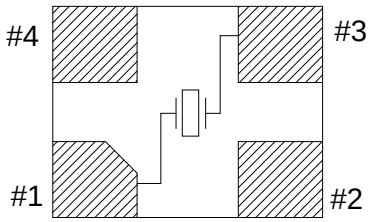
7.3 The appearance color has a different case by purchasing it more than 2 suppliers f the component, but characteristic and reliability are guaranteed.



LAND PATTERN (TYPICAL)



PIN CONNECTION (TOP VIEW)



※ #1,#3 : Xtal
#2,#4 : GND (CONNECTION COVER)

	Date of Revise	Charge	Approved	Reason
A	4.Sep.2007	R.Shariman	K.Kubota	Add Tolerance.

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	25.Oct.2005	S.Mizusawa	Dimension:mm	±0.1	- / -
Designed	25.Oct.2005	S.Mizusawa	Title	Drawing No.	Rev.
Checked			**NX3225SA Dimension Drawing**	**EXD14B-00370**	**A**
Approved	25.Oct.2005	S.Mizusawa			

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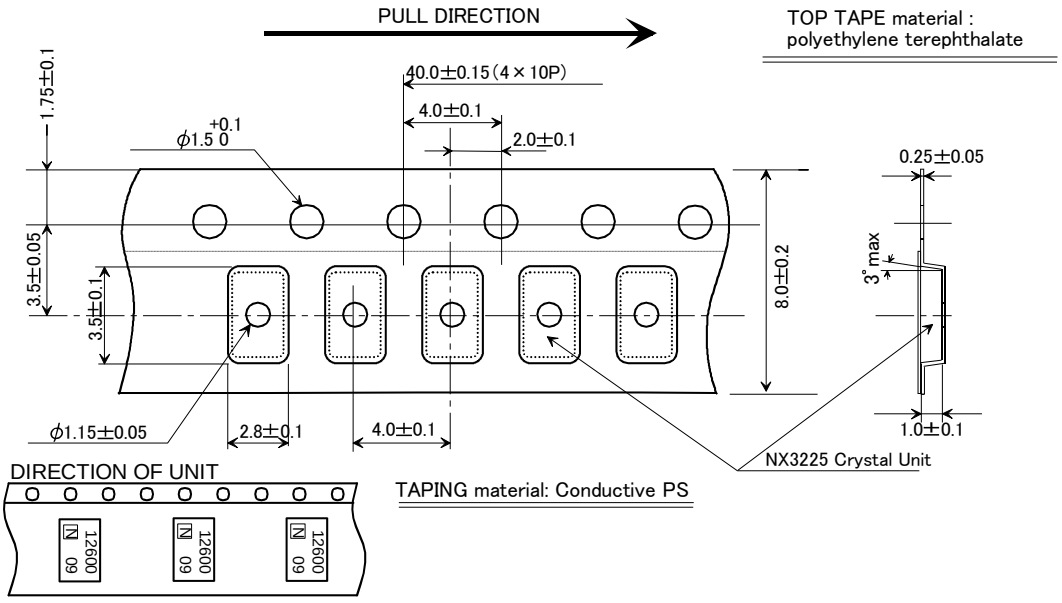

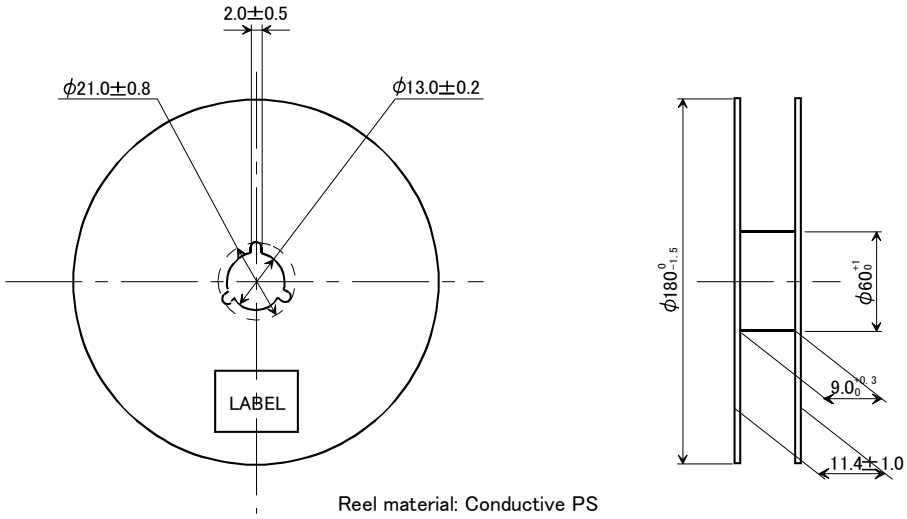

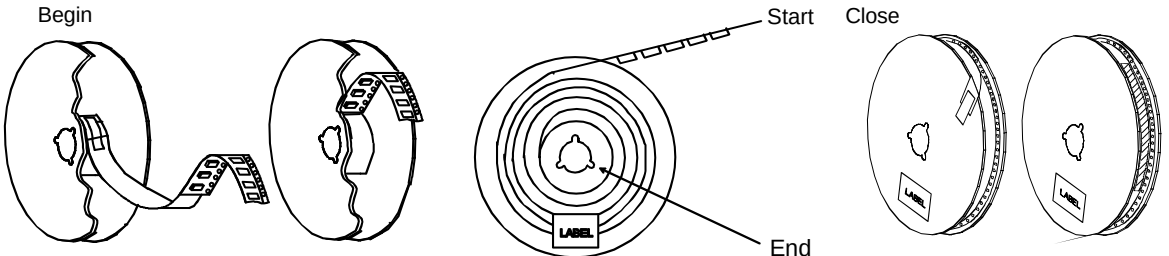

3000pcs-Product Tape

	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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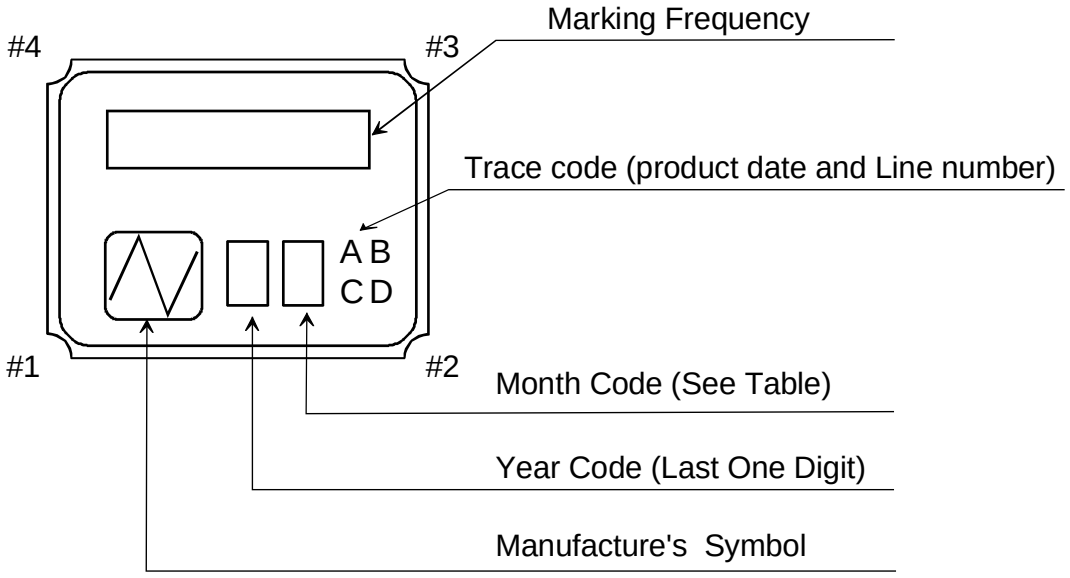

NOTE

1. Frequency Code

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

Example

Nominal Frequency	28.636363 MHz
Frequency Code	28.636

2. Month Code Table

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

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

	Date of Revise	Charge	Approved	Reason
D	19. Jun 2012	H.Ouchi	M. Kubota	Added terminal number information.

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	16.Jan.2006	I.Miyahara	Dimension:mm		/
Designed	16.Jan.2006	I.Miyahara	Title	Drawing No.	Rev.
Checked	16.Jan.2006	---	**Crystal Holder Marking**	**EXH11B-00317**	**D**
Approved	16.Jan.2006	K.Okamoto			

Reliability assurance item

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No.	Test Item	Test Methods	Specification Code
1	High Temperature Storage *1	+85±3°C 720h	A
2	Low Temperature Storage	-40±3°C 500h	A
3	Temperature Humidity	+60±3°C 90~95%RH 500h	A
4	Temperature Cycling *1	-40±3°C / +85±3°C It is 500 cycles using 30 minutes each as 1 cycle.	A
5	Vibration	Frequency Range : 10~55Hz Amplitude : 1.52mm 1 cycle : 1 minutes Test time : Three mutually perpendicular axes each 2 hours.	A
6	Shock	Devices are shocked to half sine wave ($981 m/s^2$) three mutually perpendicular axis each 3 times.	A
7	Drop	Devices are dropped from the height 75cm onto wooden block. (more than 30mm thickness.) Execution 3 times random drops	A
8	Solderability	Pre-heat temperature : +150±10°C Pre-heat time : 60~120s When the temperature of the specimen is reached at +215±3°C, it shall be left for 30±1sec. Peak temperature 240±5°C Material: Pb-free (Sn-3.0Ag-0.5Cu) Flux : Rosin resin methyl alcohol solvent (1 : 4)	B
9	Reflow resistance	Pre-heat temperature : +150~180°C Pre-heat time : 90±30s Heat temperature : more than +230°C Heat time : 30s±10s Peak temperature : +260±5°C Peak time : less than 10s	A

*1. High Temperature Storage and Temperature Cycling

In case of customer spec on High temperature exceed +85°C, Low temperature exceed -40°C, above test according to customer spec high or low temperature will be perform and guarantee.

Specification code	Specification
A	$\Delta f/f \leq \pm 5$ ppm $\Delta CI/CI \leq \pm 15$ % or 5 Ω make use larger value
B	The electrodes should be covered by a new solder at least 90% of immersed area.