RoHS Compliant
Directive 2002/95/EC

SPECIFICATION

Customer:

Item:	CRYSATL UNIT
Type:	NX3225SA-30MHZ
Customer's Spec. No.:	---
NDK Spec. No.:	S1-3085-1510-8

Receipt

Charge:

Sales		Tel. 39-02-96702920
Engineer	Eng. Dept. 1st T.Asamizu	Tel. 81-(0)42-900-6631

Approved	K.Okamoto
Checked	---
Drawn	T.Asamizu

Revision Record

Rev.	Rev. Date	Items	Contents	Remarks
---	01. Jun. 2006	Issue	---	---

1. Customer's Spec. No. :

2. NDK Spec. No. : S1-3085-1510-8

3. Type : NX3225SA

4. Electrical Characteristics

4.1. Nominal Frequency	: 30MHz
4.2. Overtone mode	: Fundamental
4.3. Adjustment tolerance	: +/-10 ppm max (at 25 degC)
4.4. Tolerance Over the Temperature Range	: +/-15 ppm max (at -30 to 85 degC) The reference temperature shall be 25 degC
4.5. Equivalent Series Resistance(Rr)	: 40 ohm max
4.6. Shunt Capacitance (C0)	: 1.22 pF +/- 0.18 pF
4.7. Motional Capacitance (C1)	: 4.92 fF +/- 0.74 fF
4.8. Insulation Resistance	: Terminal to terminal insulation resistance must be 500MΩ min. when DC100V+/-10% is supplied.

5. Measurement Circuit

5.1. Frequency Measurement

Measurement Circuit	: PI Circuit
Load Capacitance (CL)	: 8 pF
Level of Drive	: 10 uW (100μW max.)

5.2. Resistance Measurement

Measurement Circuit	: PI Circuit
Load Capacitance (CL)	: Series
Level of Drive	: 10 uW (100μW max.)

6. Other Characteristics

6.1. Seal Characteristics	: 1.1 x 10-9 Pa × m^3/s max. Helium leak-detector
6.2. Operating Temp. range	: - 30 to + 85 degC
6.3. Storage Temperature Range	: -40 to + 85 degC
6.2. Aging	: +/-1 ppm /year

7. Data Sheet

Data sheets are not presented because above characteristics are guaranteed.

8. Applied Drawing

8.1. Dimension of external	: EXD14B-00370
8.2. Marking Drawing	: EXH11B-00319
8.3. Taping and Reel Drawing	: EXK17B-00098
8.4. Reliability guarantee items	: EXS30B-00310

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.

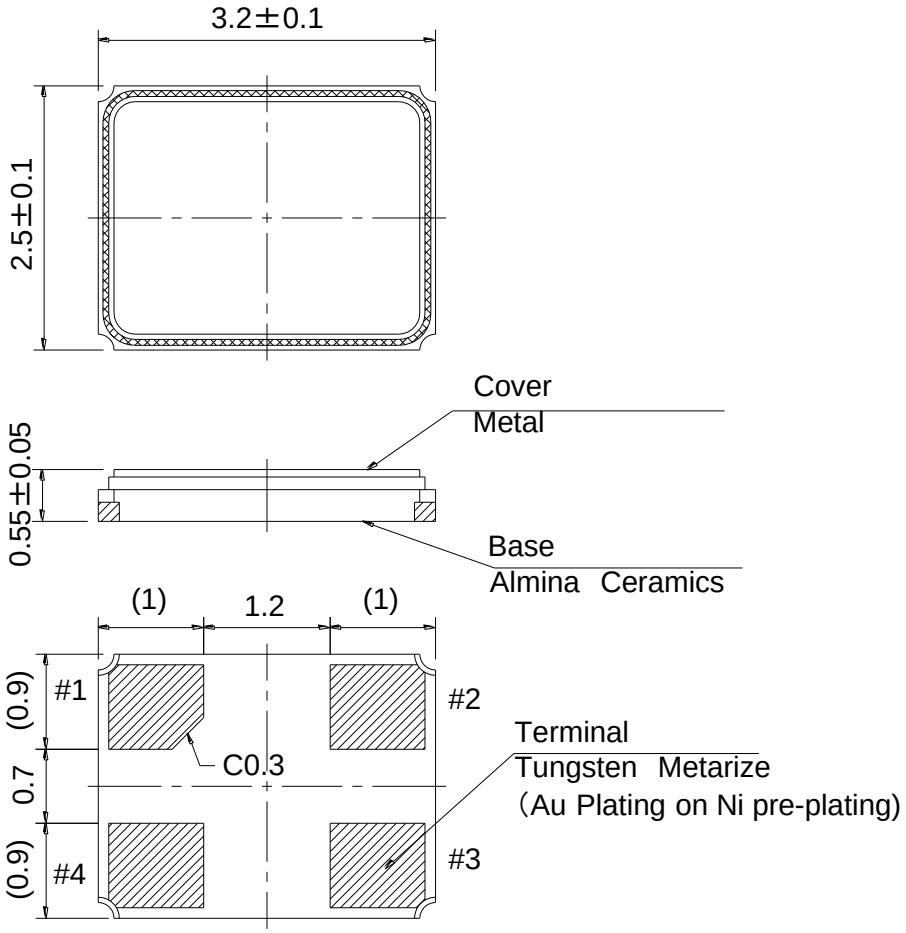
9.8. Information contained in this specification must not be quoted, reproduced or used for other purposes including processing either in part or in full without obtaining prior approval from the company.

10. Prohibited items

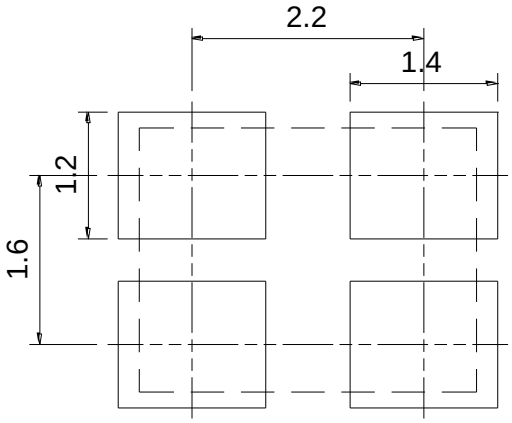
Be sure to use the product under the following conditions. Otherwise, the characteristics deterioration or destruction of the product may result.

(1) Reflow soldering heat resistance
Peak temperature: 265°C, 10 sec
Heating: 230°C or higher, 40 sec
Preheating: 150°C to 180°C, 120 sec
Reflow passage times: twice

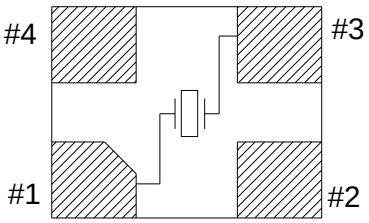
(2) Manual soldering heat resistance
Pressing a soldering iron of 400°C on the terminal electrode for four seconds (twice).



LAND PATTERN (TYPICAL)



PIN CONNECTION（TOP VIEW）



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

	Date of Revise	Charge	Approved	Reason

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

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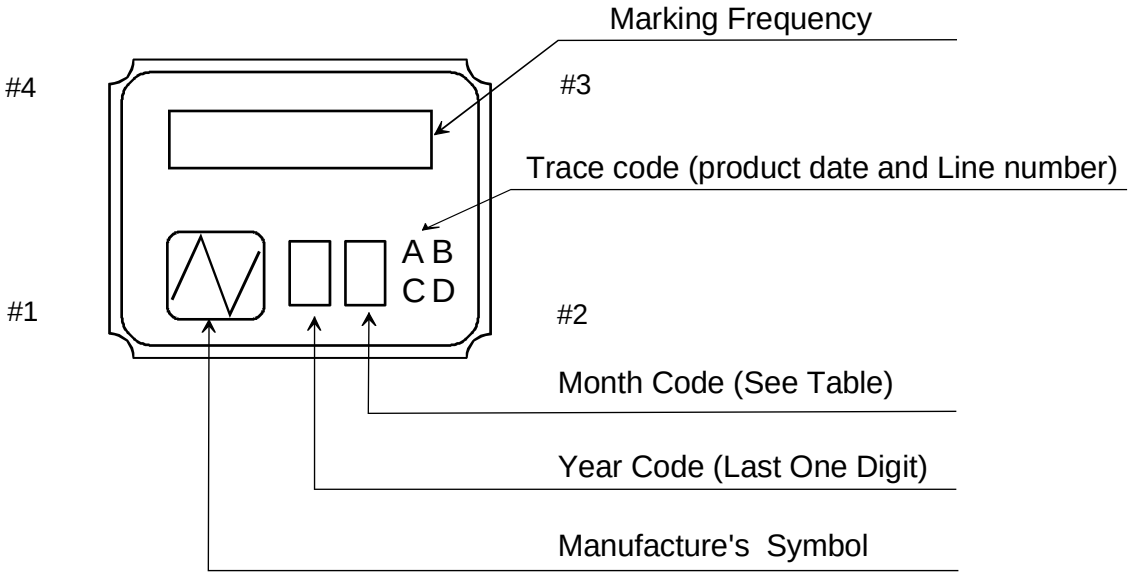
Form M-1



NOTE

1. 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.

We will apply trace code sequentially since Apr. 2006.
But please understand that there is a case without trace code indication in early period of introduction.
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	Date of Revise	Charge	Approved	Reason
A				

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	14. Feb. 2006	T.Asamizu	Dimension:mm		/
Designed	14. Feb. 2006	T.Asamizu	Title	Drawing No.	Rev.
Checked	14. Feb. 2006	I.Miyahara	**Crystal Holder Marking**	**EXH11B-00319**	
Approved	14. Feb. 2006	K.Okamoto			

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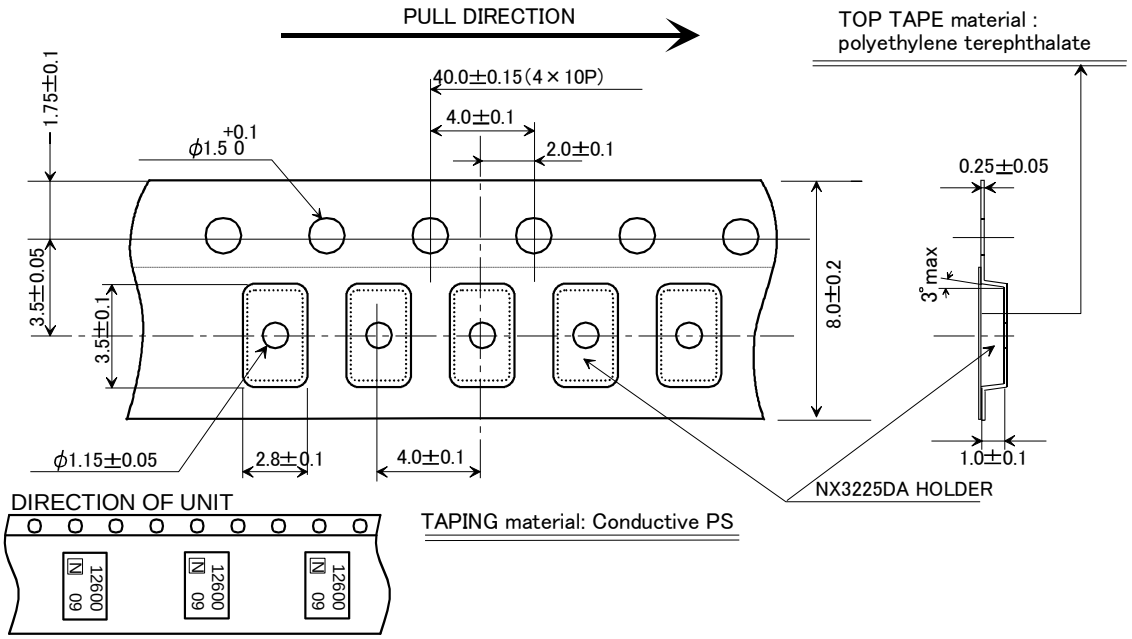

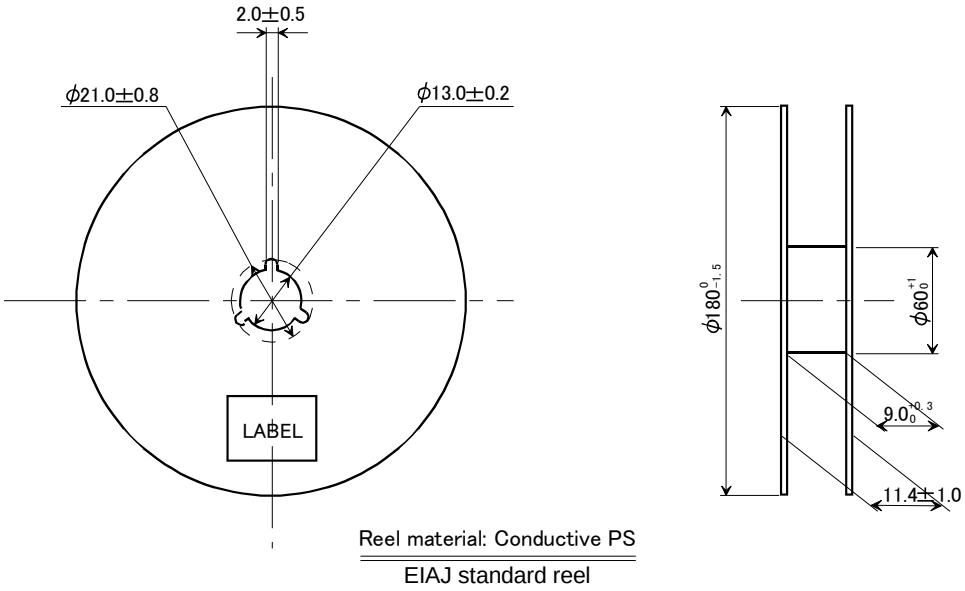

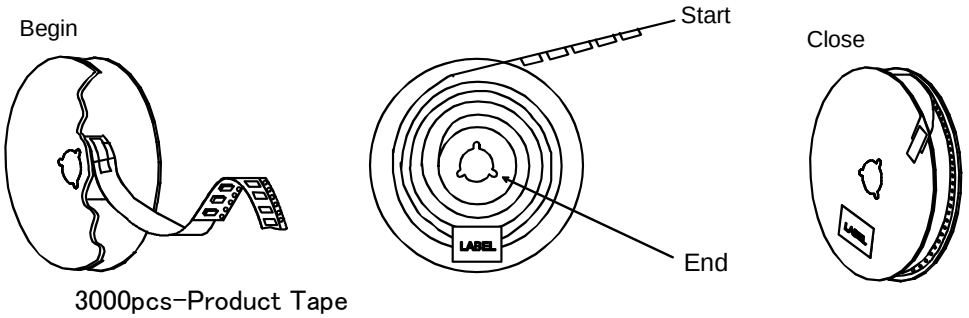

3000pcs-Product Tape

	Date of Revise	Charge	Approved	Reason
D	8.May.2003	S.Sunaba	S.Mizusawa	TOP TAPE peeling strength of cover tape deletion.

	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			**NX3225DA Taping and Reel Spec.**	**EXK17B-00098**	D
Approved	3.Sep.2001	K.Miyashita			

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Reliability assurance item

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No.	Test Item	Test Methods	Specification Code
1	AGING	1 year at 25 °C +/- 3°C	a
2	COLD RESISTANCE	at –40 °C for 500 hours.	a
3	HUMIDITY	at +85 °C with 80 to 85 % RH for 500 hours.	a
4	THERMAL SHOCK	Temperature cycle as shown in (Fig.1) for 100 cycle. +85 °C +/- 3 °C -40 °C +/- 3 °C 30 minutes 30 minutes ONE CYCLE (Fig.1)	a
5	VIBRATION	Frequency Range : 10 to 2000Hz Amplitude or Acceleration : 1.52 mm or 20 G 1 cycle : 20 minutes Test time : Three mutually perpendicular axes each 12 times.	a
6	SHOCK 1	Shock : 3000 Gs 0.3 msec. Test time : Six mutually perpendicular axes each 1 times.	a
7	SHOCK 2	Shock : Device are put on the weight of 200 g and dropped on concrete board. Height : 1.5 m Drop times : Six mutually perpendicular axes each 10 times.	a
8	SOLDERABILITY	Residual heat temperature 150 °C Residual heat time 60 to 120 sec Peak temperature 240°C (more than 215 °C 10 to 30 sec)	b
9	REFLOW RESISTANCE	Temperature cycle as shown in (Fig2.) for 3 cycle.	a

Specification code	Specification
a	dF/F ≤ +/- 1.0ppm dCI ≤ +/- 15% or +/- 2 ohm greater value
b	The electrodes shall acquire a new solder coat over at least 90 % of immersed area.

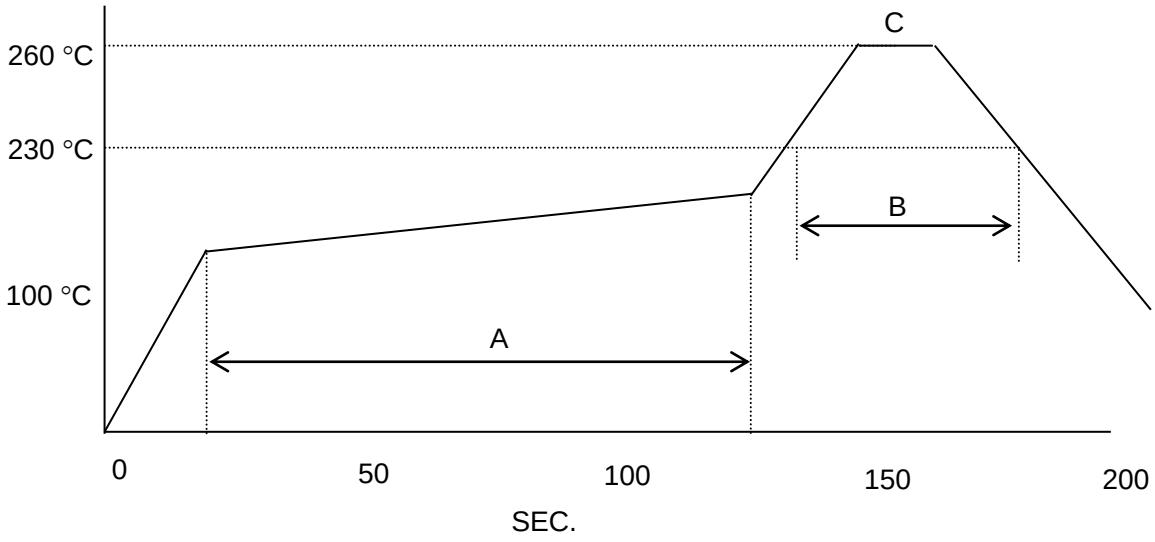

Fig.2 REFLOW

A: 150 to 180 °C (60 to 120 sec.)
B: 230 °C min. (30 sec. max.)
C: PEAK-TEMP. 260 °C +/- 5 °C (10sec. max.)