RoHS Compliant
Directive 2002/95/EC

SPECIFICATION

Customer: INFINEON

Item:	Crystal Unit
Type:	NX3225SA
Nominal Frequency:	See Freq. Table
Customer's Spec. No.:	---
NDK Spec. No.:	See Freq. Table

Receipt

Charge:

Sales	4th Sales Dept. Y.Ikuno	Tel. 81-(3)5453-6790
Engineer	1st Eng. Dept. N.Yamamoto	Tel. 81-(4)2900-6631

Approved	K.Ueki
Checked	---
Drawn	N.Yamamoto

Revision Record

Rev.	Rev. Date	Items	Contents	Remarks
---	23.Feb.2009	Issue	---	---
A	25.Mar.2009	4.4Tolerance over the temperature range 4.9Aging 4.10Overall tolerance 8.5Reliability assurance Item	$\pm 60 \times 10^{-6}$max. (at -40~+105°C) $\pm 80 \times 10^{-6}$max. (at -40~+125°C) ➔ $\pm 50 \times 10^{-6}$max. (at -40~+125°C) Add temp. Add item Add EXS30B-00696	---

[Frequency Table]

Nominal Frequency(MHz)	NDK specification Number	Shunt Capacitance (C_0)	Motional Capacitance (C_1)	Revision
18.080	EXS00A-CS02612	1.1pF typ.	3.4fF typ.	
19.6875	EXS00A-CS02613	1.1pF±15%	3.5fF±15%	

1.Customer specifications number : ---

2.NDK specification number : See Freq. Table

3.Type : NX3225SA

4.Electrical characteristics

4.1 Nominal frequency (F_0) : See Freq. Table

4.2 Overtone order : Fundamental

4.3 Adjustment tolerance : ±10×10^{-6}max. (at +25°C)

4.4Tolerance over the temperature range : ±50×10^{-6}max. (at -40~+125°C)
The reference temperature shall be +25°C

4.5 Equivalent resistance (R_1) : 30Ω max.

4.6 Shunt capacitance (C_0) : See Freq. Table (Not grounded)

4.7 Motional capacitance (C_1) : See Freq. Table (Not grounded)

4.8 Drive level : 0.01μW to 150μW max.

4.9 Aging : ±10×10^{-6}max. / 10years (at +25°C)

4.10 Overall tolerance : ±70×10^{-6}max. / 10years (at -40~+125°C)

4.11 Insulation resistance : Terminal to terminal insulation resistance also terminal to cover insulation resistance must be 500MΩ (min) when DC100V ±15V is applied.

5. Measurement circuit

5.1 Frequency measurement

・Measuring instrument : IEC π-Network

・Load capacitance(C_L) : 12pF

・Level of drive : 10μW

5.2 Equivalent resistance measurement

・Measuring instrument : IEC π-Network

・Load capacitance(C_L) : Series

・Level of drive : 10μW

6. Other performances

6.1 Operating temperature range : -40~+125°C

6.2 Storage temperature range : -40~+125°C

6.3 Air-tightness : Less than 1.1×10^{-9}Pa m^3/s (Helium leak detector)

7. Examination results document

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

8. Application drawing

8.1 External dimension	: EXD14B-00370
8.2 Taping and reel figure	: EXK17B-00098
8.3 Reel packing	: EXK17B-00130
8.4 Holder marking	: EXH11B-00317
8.5 Reliability assurance Item	: EXS30B-00499
	EXS30B-00696
8.6 Recommendation reflow profile	: EXS30B-00344

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

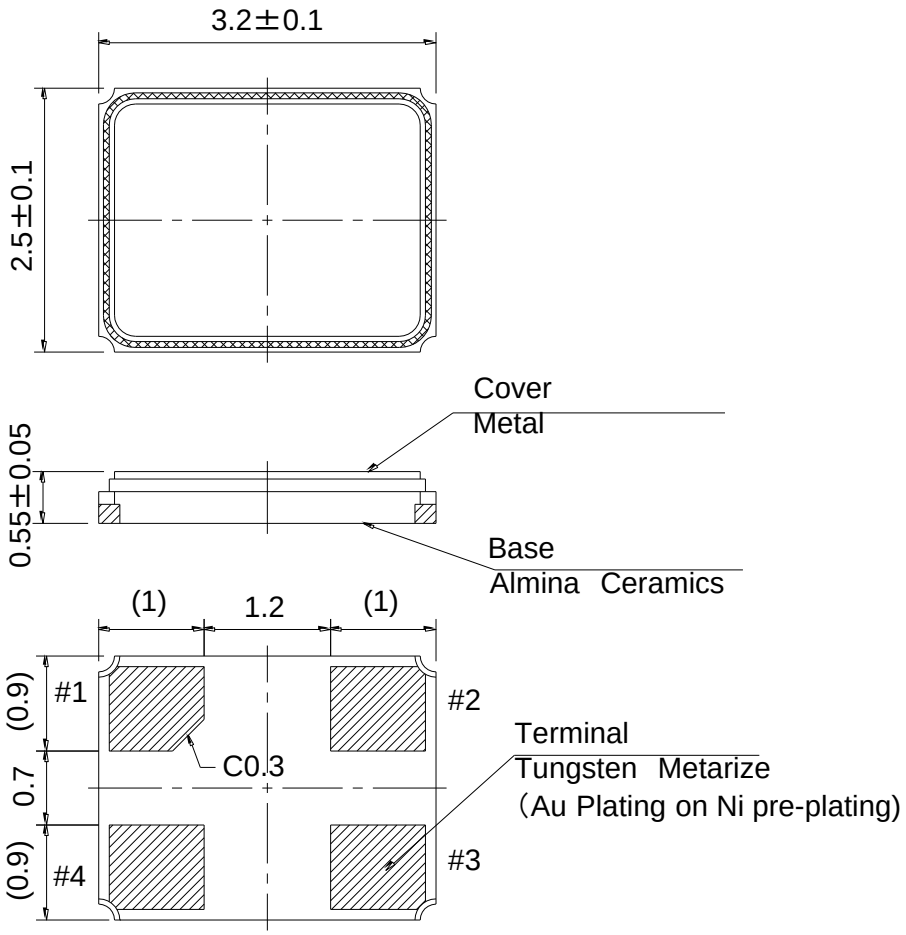
Be sure to use the product under the following conditions. Otherwise, the characteristics deterioration or destruction of the product may result.

(1) Reflow soldering heat resistance

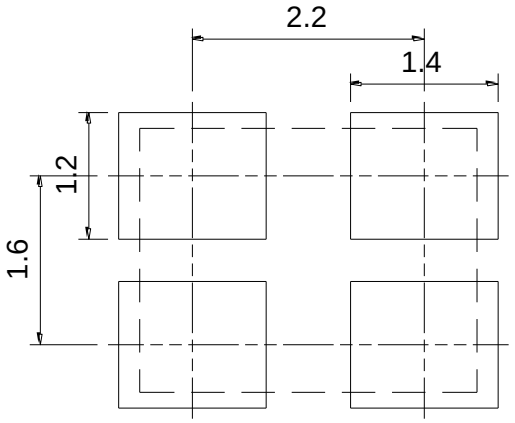
Peak temperature: 265°C, 10 sec
Heating: 230°C or higher, 40 sec
Preheating: 150°C to 180°C, 120 sec
Reflow passage times: twice

(2) Manual soldering heat resistance

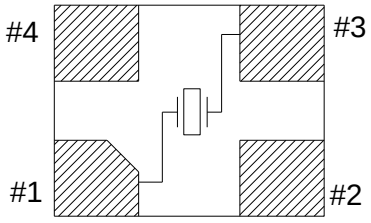
Pressing a soldering iron of 400°C on the terminal electrode for four seconds (twice).



LAND PATTERN (TYPICAL)



PIN CONNECTION（TOP VIEW）



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

	Date of Revise	Charge	Approved	Reason
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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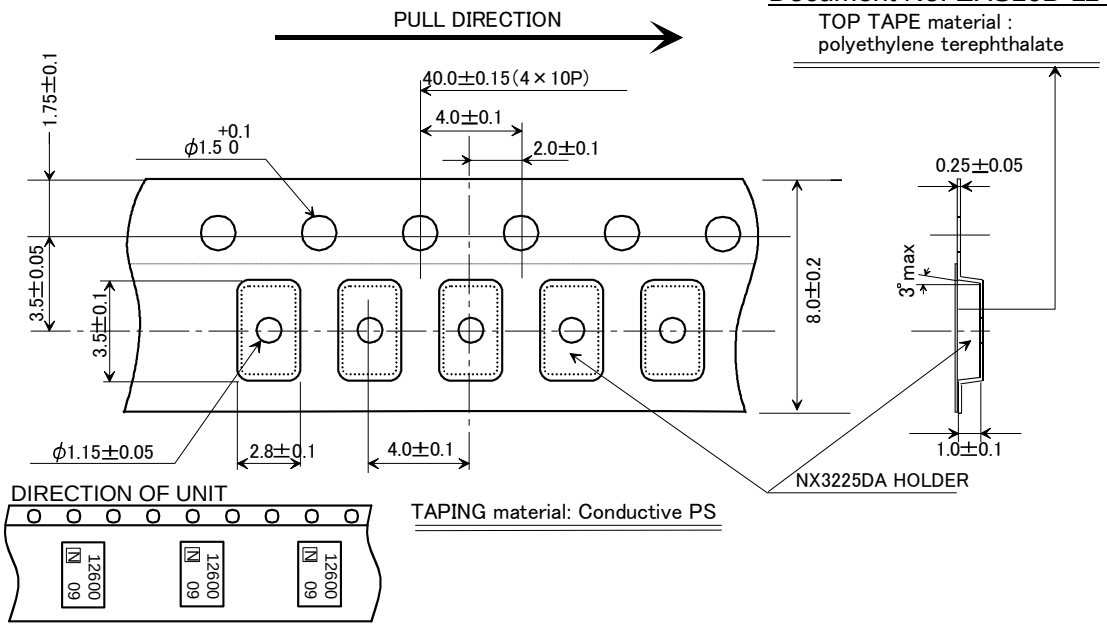

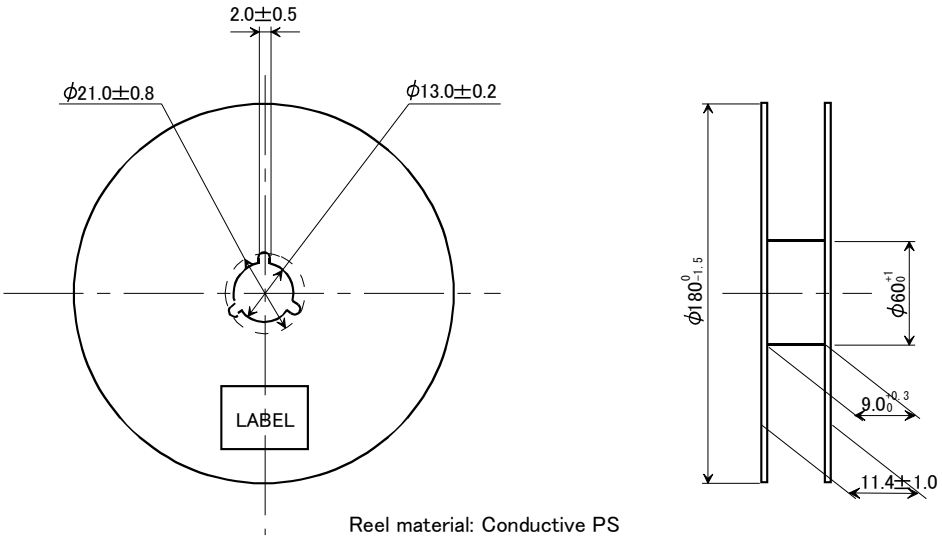

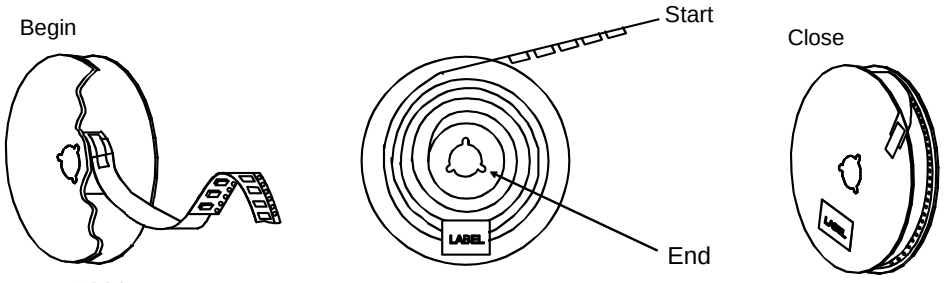

3000pcs-Product Tape

	Date of Revise	Charge	Approved	Reason
E	1.Jun.2006	K.Komada	K.Kubota	Add NX3225SA.

	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/SA Taping and Reel Spec.**	**EXK17B-00098**	E
Approved	3.Sep.2001	K.Miyashita			

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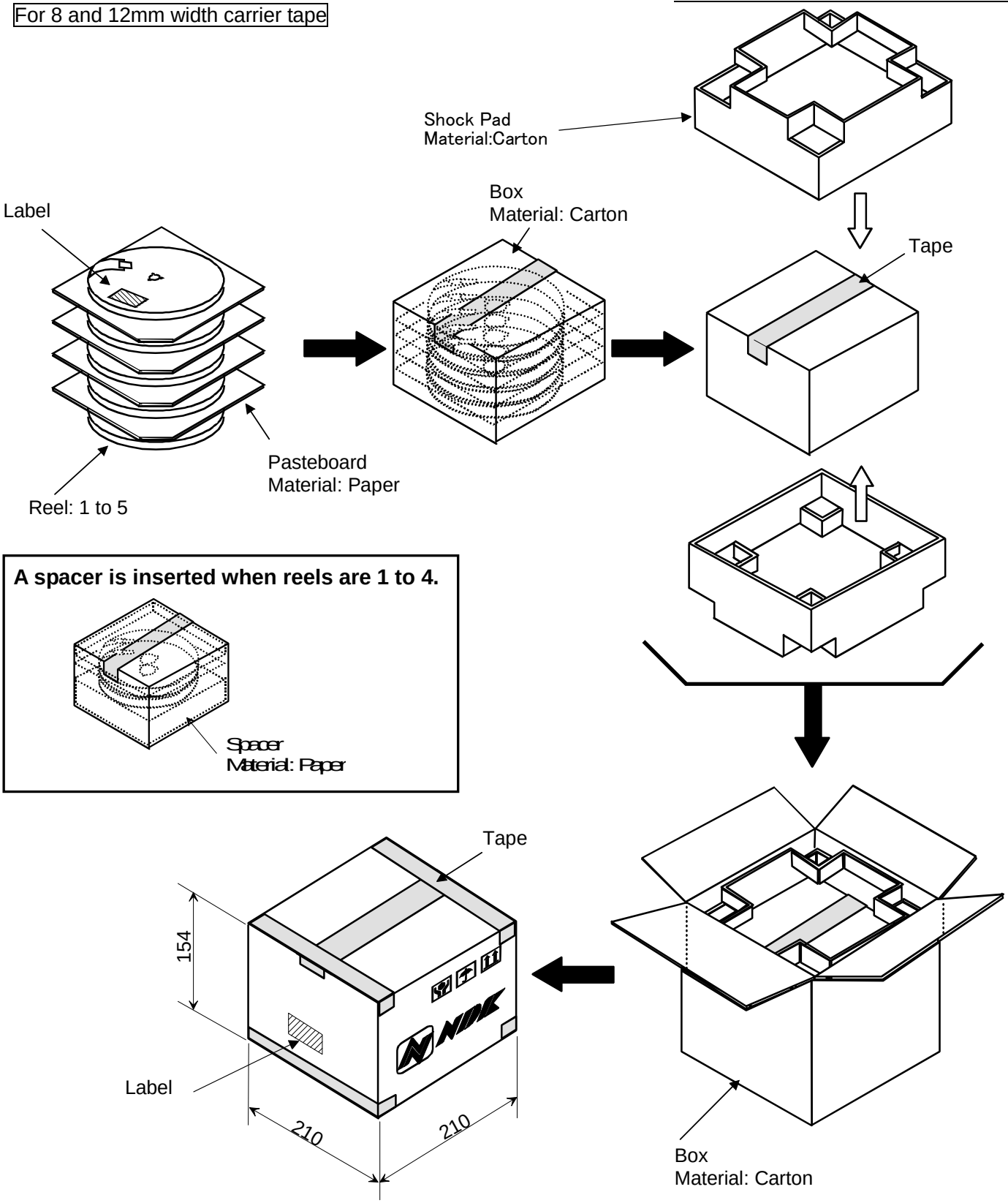
Form M-1

For 8 and 12mm width carrier tape



	Date of Revise	Charge	Approved	Reason
B	30 Jun. 2008	K. Oguri	K. Miyashita	The pasting method of shipping tape was corrected.

	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	9.Aug.2002	K.Oguri	Dimension:mm		----------
Designed	9.Aug.2002	K.Oguri	Title	Drawing No.	Rev.
Checked	---------	--------	**180mm reel Packing**	**EXK17B-00130**	B
Approved	9.Aug.2002	K.Miyashita			

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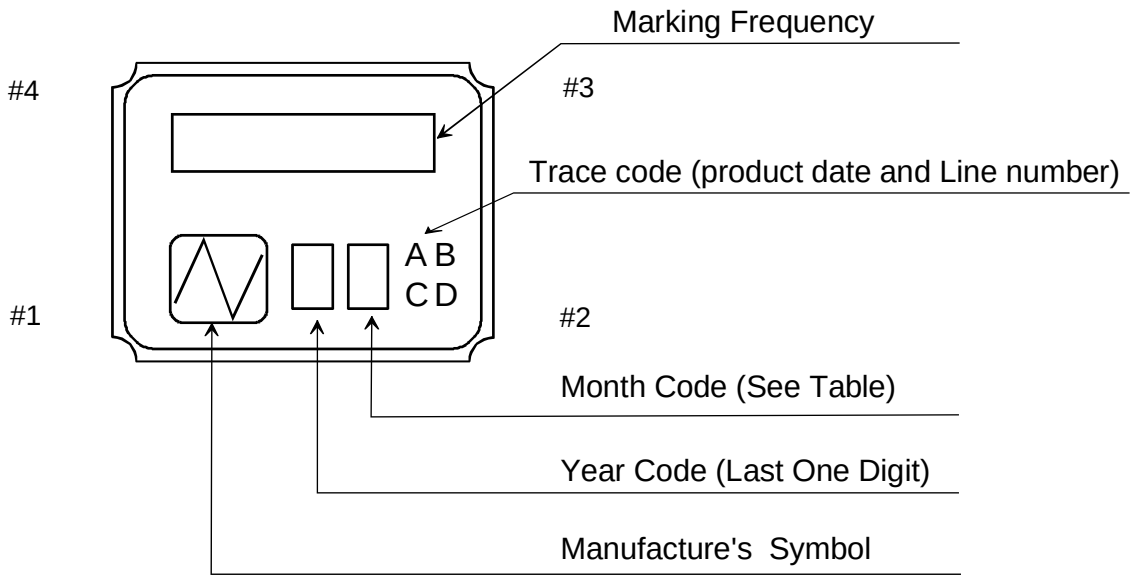
Form M-1



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
B	10.July.2008	Miyahara	K.Kubota	Delete application period.

	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**	B
Approved	16.Jan.2006	K.Okamoto			

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Reliability assurance item

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No.	Test Item	Test Methods	Specification Code
1	High Temperature Storage	+125±3°C 1000h	A,D
2	Low Temperature Storage	-40±3°C 1000h	A,D
3	Temperature Humidity	+85±3°C 80~85%RH 1000h	A,D
4	Temperature Cycling	-55±5°C / +125±5°C It is 1000 cycles using 30 minutes each as 1 cycle.	A,D
5	Vibration	Frequency Range : 10~2000Hz Amplitude or Acceleration : 1.52mm or 196m/s^2 1 cycle : 20 minutes Test time : Three mutually perpendicular axes each 4 hours.	B,D
6	Shock	Devices are shocked to half sine wave (49000m/s^2, 0.15msec) six mutually perpendicular axis each 1 times.	B,D
7	Drop	Devices are dropped from the height 75cm onto iron plate. Execution 3 times random drops.	B,D
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. Material: H63A (Silver 2~3%) Flux : Rosin resin methyl alcohol solvent (1 : 4)	C
9	Reflow resistance	Pre-heat temperature : +150~180°C Pre-heat time : 90±30s Heat temperature : more than +230°C Pre-heat time : less than 30s Peak temperature : +260±5°C Peak time : less than 10s	B,D

Specification code	Specification
A	$\Delta f/f \leq \pm$ 20 ppm $\Delta CI/CI \leq \pm$ 15 % or 5 Ω make use larger value
B	$\Delta f/f \leq \pm$ 10 ppm $\Delta CI/CI \leq \pm$ 15 % or 5 Ω make use larger value
C	The electrodes should be covered by a new solder at least 90% of immersed area.
D	After testing unless cracking of materials view of eyes and unless break of seal.

Reliability assurance item

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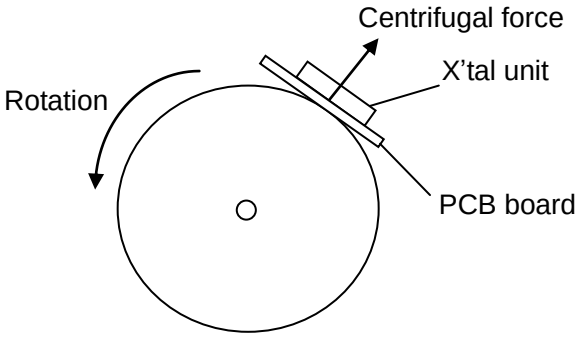
No.	Test Item	Test Methods	Specification Code
1	Acceleration Test	IEC60068-2-7 Test Ga Acceleration : 19,600m^2/s(2,000G) Duration : 500hours Direction : Fig1 Temperature : +25ºC±5ºC  Fig1.Acceleration Test	A,B,C

Specification code	Specification
A	△F/F:±5ppm max. Either big △R/R:±15% max. or △R:5Ω max.
B	After testing unless cracking of materials view of eyes and unless break of seal.
C	There not being detachment of the leads, a crack, other abnormality.

Recommendation reflow condition

1.IR reflow condition