



Serial No. : 2008-1265

DATE : 2008/09/12

Foxconn (Nanjing) Communication Co.,Ltd.

ITEM :

CRYSTAL RESONATORS

TYPE :

DST310S

NOMINAL FREQUENCY :

32.768kHz

SPEC No. :

1TJF125DP1AI00P

Please acknowledge receipt of this specification by signing and returning a copy to us.

RECEIPT	
DATE	
RECEIVED	(signature) (name)

General Manufacturer of Quartz Devices

DAISHINKU CORP.

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675-0194 Japan
Phone (81)79-425-3141 Fax (81)79-425-1134
http://www.kds.info/index_en.htm

C.ENG.

ENG.

1. ELECTRICAL CHARACTERISTICS

(This test shall be performed under the conditions of temp.at $25 \pm 3^{\circ}\text{C}$,Relative humidity 60% max.)

1.1 NOMINAL FREQUENCY	32.768 kHz
1.2 OVERTONE ORDER	Fundamental
1.3 LOADING CAPACITANCE(CL)	12.5 pF
1.4 FREQUENCY TOLERANCE	$\pm 20 \times 10^{-6}$ max. at $+25 \pm 3^{\circ}\text{C}$
1.5 DRIVE LEVEL	$0.2 \mu\text{W} \pm 20\%$
1.6 SERIES RESISTANCE	80 k Ω max.(at Series)
1.7 TURNOVER TEMPERATURE	$+25 \pm 5^{\circ}\text{C}$
1.8 TWO DIMENSIONAL TEMPERATURE CONSTANT	$-0.04 \times 10^{-6} / ^{\circ}\text{C}^2$ max.
1.9 SHUNT CAPACITANCE	1.3 pF Typ.
1.10 OPERATING TEMPERATURE RANGE	-40 ~ +85 $^{\circ}\text{C}$
1.11 STORAGE TEMPERATURE RANGE	-40 ~ +85 $^{\circ}\text{C}$
1.12 INSULATION RESISTANCE	500 M Ω min. / DC100V $\pm 15\text{V}$

2. CONSTRUCTION

2.1 HOLDER	DST310S Ceramic Base
2.2 DIMENSIONS AND MARKING	Refer to Fig.-1

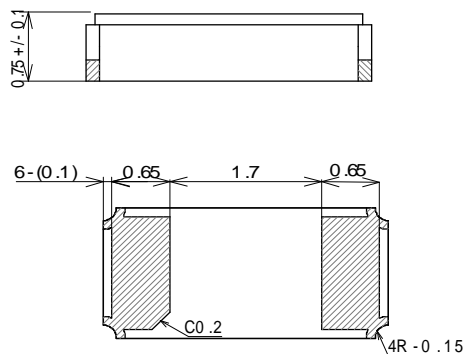
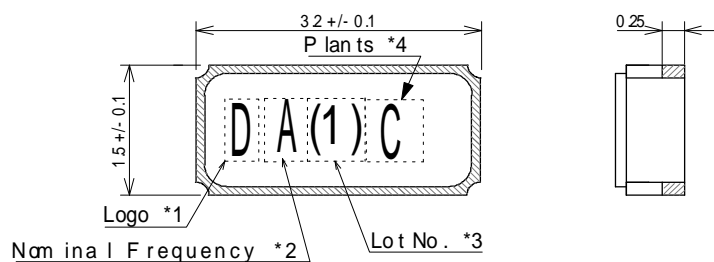
3. OTHER SPECIFICATIONS

3.1 EMBOSS CARRIER TAPE & REEL	Refer to Fig.-2,3,4,5 and Table-1
3.2 PACKING	Refer to Fig.-6
3.3 REFLOW CONDITIONS (REFERENCE)	Refer to Fig.-7
3.4 LAND PATTERN (REFERENCE)	Refer to Fig.-8

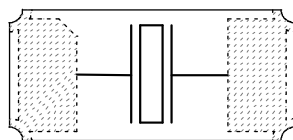
4. Mechanical and environmental performance shall be specified by attached general specification.

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<DIMENSIONS>



< Top View >



unit : mm

Tolerance ± 0.1

(Fig.-1)

<MARKING>

Marking should be printed as follows:

Logo(*1),Nominal Frequency(*2),Lot No.(*3),Plants(*4)

*1

manufacturer's trademark shall be marked 'D' as Logo.

*2

In case of 32.768kHz, nominal frequency shall be marked 'A'.

*3

Lot no. shall be marked three figures.

ex. Manufactured day: 2008.09.12 → 8 37
year week

Year: The last digit of the year

week: We gave the sequence of week numbers 01(first week) for production date.

There are starting from 1st of Jan. However,add '0' figure to the first week during the nine weeks.

The week means are from Sunday to Saturday.

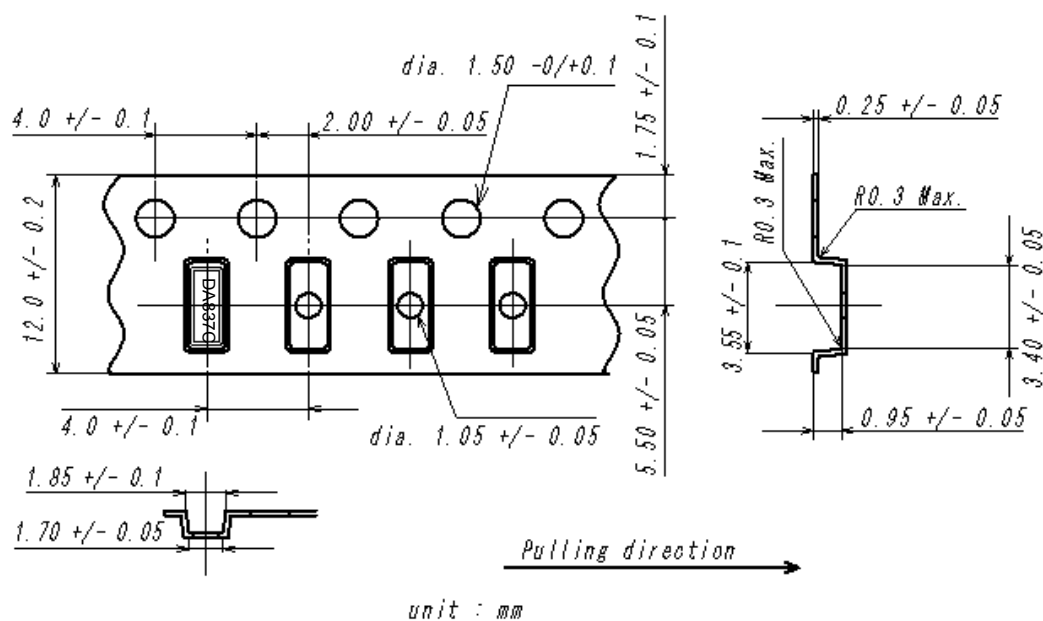
*4

Manufactured in TIANJIN KDS CORP. shall be marked 'C' as Plants.

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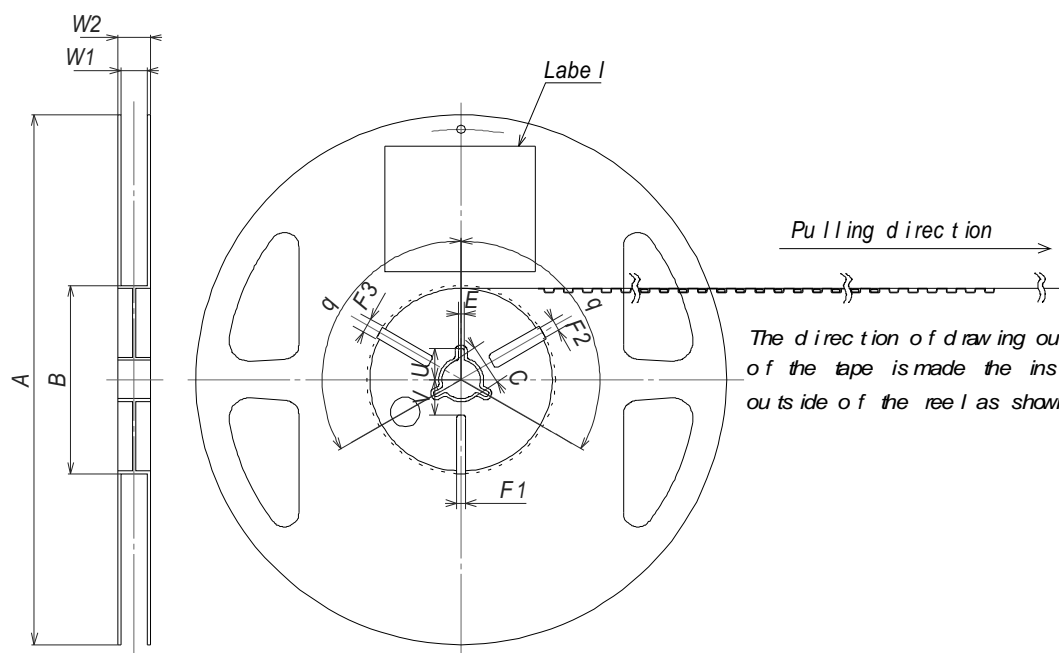
<CARRIER TAPE & REEL>

(1)Dimensions of carrier tape



(Fig.-2)

(2)Dimensions of tape reel



(Fig.-3)

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(Table-1)

unit : mm

Item			Mark	Dimensions / Angle
Flange	Diameter		A	Φ180 +0 -3.0
	Inside width		W1	13.0 ± 0.3
	Outside width		W2	15.5 ± 1.0
Center Core	Out Line diameter		B	Φ60 +1.0 -0
	Center core slit	Width	F1	3.0 ± 0.2
			F2	4.0 ± 0.2
			F3	5.0 ± 0.2
		Length	V	11.9
		Position	q	120 °
	Spindle diameter		C	Φ13 ± 0.2
	key Seats	Width	E	2.0 ± 0.5
		Length	U	10.5 ± 0.4
		Position	q	120 °
	Indication of type		Sticker label on one side of flange	

(3)Storage Condition

Temperature;+40 °C max.,Relative Humidity;80% max.

Storage Period:6 months max.

(4)Standard packing quantity

3,000 pcs./reel for $\Phi 180$

(5)Material of the tape

tape	Material
Carrier tape	Polystyrene+Carbon
Cover tape	Polyester

(6)Label Contents

Type

Our specification No.

Your Part No.

Lot No.

Nominal Frequency

Quantity

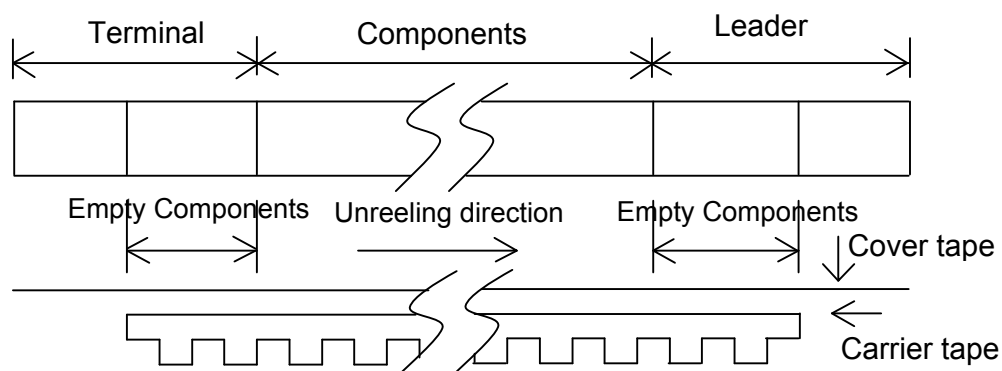
Our Company Name

Sticks label for each reel.

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(7)Taping Dimension

Leader	Cover tape	The length of cover tape in the leader is more than 400mm including empty embossed area.
	Carrier tape	After all products were packaged, must remain more than twenty pieces or 400mm empty embossed area, which should be sealed by cover tape.
Terminal	Cover tape	The tip of cover tape shall be fixed temporary by paper tape and roll around the core of reel one round.
	Carrier tape	The empty embossed area which are sealed by cover tape must remain more than 40mm.



(Fig.-4)

(8)Joint of tape

The carrier tape and cover tape should not be jointed.

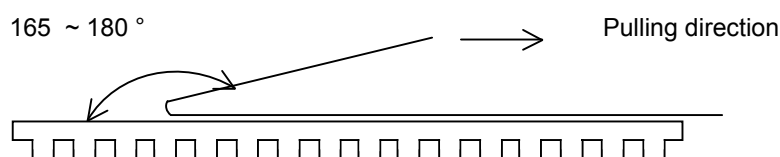
(9)Release strength cover tape

It has between 0.1N to 0.7N under following condition.

Pulling direction 165 ~ 180 °

Speed 300 mm/min.

Otherwise unless specified



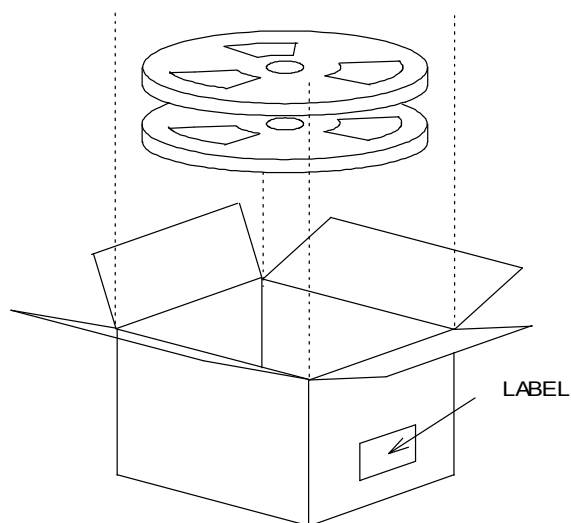
(Fig.-5)

The component must be free fall, when tear away the cover tape with upside-down the emboss carrier tape.

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<PACKING>

(1)The way of packing and label



Label contents

The type of product
Lot No.
Specification
Quantity
Shipment Day
Remark

(Fig.-6)

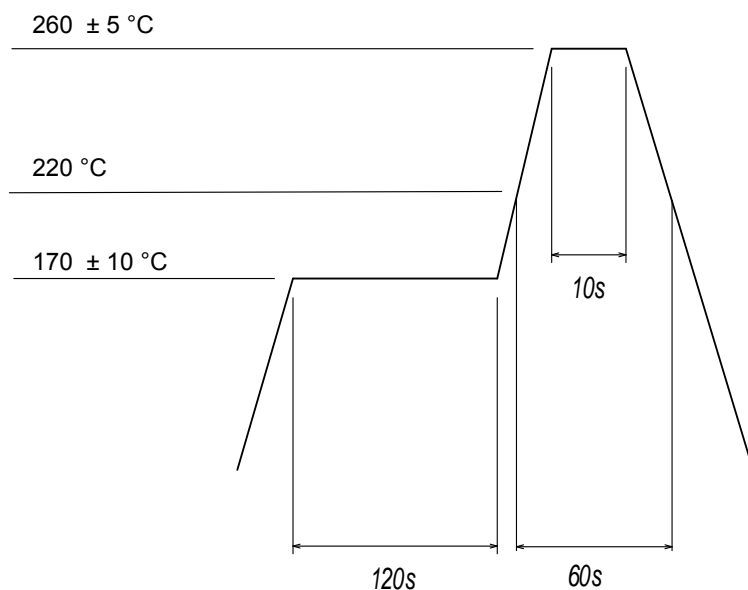
(2)The size of packing carton

There may be different size of packing carton used depending on the lot size.
Also,the product packed inside shall be protected by air cushion.

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<REFLOW CONDITIONS (REFERENCE)>

During the solder reflow process, please complete within following temperature period.
Reflow soldering shall be allowed only two times.

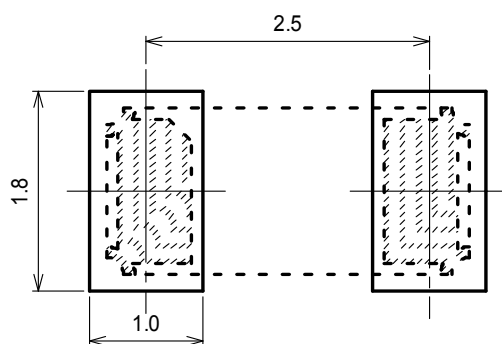


(Fig.-7)

<HANDSOLDERING METHOD>

340 °C / 3s max.

<LAND PATTERN (REFERENCE)>



unit : mm

(Fig.-8)

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1.MECHANICAL ENDURANCE

1.1 SHOCK

After the following test,parts shall conform specification table-1-B.
3 times free drop from 75cm heights to hard wood board of minimum thickness 30mm.

1.2 VIBRATION

After the following test,parts shall conform specification table-1-A,
and no abnormal appearance shall be observed.

- (1)Frequency of Vibration : 10 ~ 55Hz 15min
- (2)Amplitude total : 1.5mm
- (3)Vibration axis : X,Y,Z
- (4)Vibration period : 2 h for X,Y,Z axis

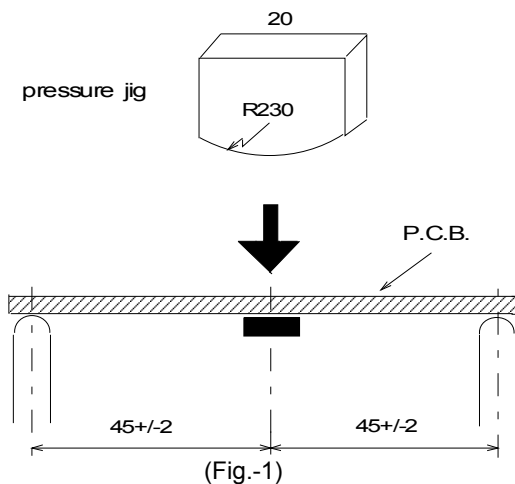
1.3 SUBSTRATE BENDING

After the following test,parts shall conform specification table-1-A,
and no abnormality shall be observed in external appearance and sealing
tightnen and others shall be based on ET-7403 of EIAJ.

Mount the specimen on substrate.

Apply the following pressure

- Direction : see Fig.-1
- Speed : 0.5 mm/s
- Hours : 5 ± 1 s
- Amount of substrate: 3 mm max.



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1.4 SHEAR

After the following test, parts shall conform specification table-1-A, and no abnormality shall be observed in external appearance and sealing tightness and others shall be based on ET-7403 of EIAJ.

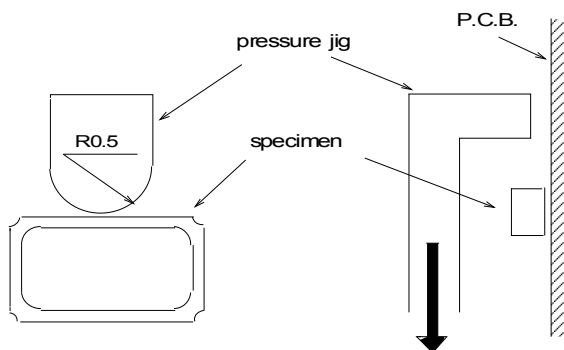
Mount the specimen on substrate.

Apply the following pressure

Weight : 10 N

Hours : 10 ± 1 s

Direction : see Fig.-2



(Fig.-2)

1.5 BODY STRENGTH

After the following test, parts shall conform specification table-1-A, and no abnormality shall be observed in external appearance and sealing tightness and others shall be based on ET-7403 of EIAJ.

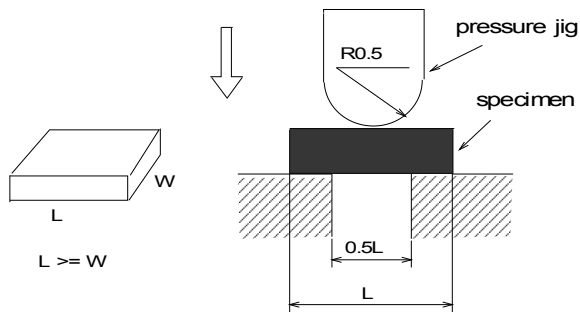
Mount the specimen on substrate.

Apply the following pressure

Weight : 10 N

Hours : 10 ± 1 s

Direction : see Fig.-3



(Fig.-3)

1.6 SEAL

Less than 2.0×10^{-9} Pa·m³/s by Helium leak detector.

Also, no bubble is observed by Fluorinert tests.

1.7 SOLDERABILITY

After the following test. More than 90% of lead shall be covered by new solder.

3 ± 1 s dip in $235 \pm 5^\circ\text{C}$ solder.

(Use rosin type flux for solder.)

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2.ENVIRONMENTAL ENDURANCE

2.1 HUMIDITY

2 hours past at room temperature after following test,parts shall conform specification table-1- C.

240 h $+85 \pm 2^{\circ}\text{C}$,relative humidity $85 \pm 5\%$.

2.2 LOW TEMPERATURE

2 hours past at room temperature after following test,parts shall conform specification table-1- C.

240 h $-40 \pm 3^{\circ}\text{C}$

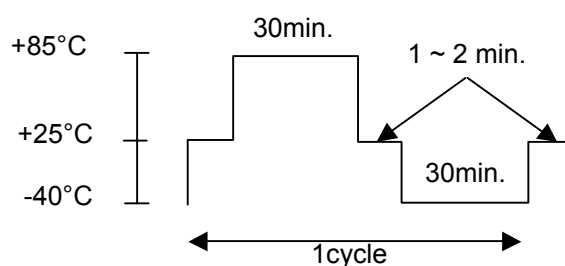
2.3 HIGH TEMPERATURE

2 hours past at room temperature after following test,parts shall conform specification table-1-C.

240 h $+85 \pm 2^{\circ}\text{C}$

2.4 TEMPERATURE CYCLE

2 hours past at room temperature after 25cycle of following test ,parts shall conform specification table-1-C.



(Fig.-4)

2.5 RESISTANCE TO SOLDERING HEAT (REFLOW)

48 hours past at room temperature from following test,parts shall conform specification table-1-C.

perform the attached Reflow conditions to reference.

2.6 RESISTANCE TO SOLDERING HEAT (HAND SOLDERING METHOD)

48 hours past at room temperature from following test,parts shall conform specification table-1-C.

340°C , 3s

3.SPECIFICATION

(Table-1)

	Frequency Variation	Equivalent Resistance
A	$\pm 5 \times 10^{-6}$	$\pm 25\%$ or $\pm 10\text{k}\Omega$ max. (Use larger specification)
B	$\pm 8 \times 10^{-6}$	$\pm 25\%$ or $\pm 10\text{k}\Omega$ max. (Use larger specification)
C	$\pm 10 \times 10^{-6}$	$\pm 25\%$ or $\pm 10\text{k}\Omega$ max. (Use larger specification)

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[THE CAUTIONS ON USE FOR DST310S SERIES]

1.SOLDERING

Please perform Reflow conditions within 2 times.

2.MOUNT

Crystal products are designed to be compatible with automatic mounting.

Be sure to have a mounting test in advance by using the actual mounting machine and check that the characteristics of the products are not damaged by the automatic mounting.

In the process where the board is warped, such as board separation process, be careful that the warping does not influence the characteristics and soldering of crystal products.

Since mounting by Ultrasonic welding and processing have a possibility of an excessive vibration spreading inside a tuning fork crystal resonator and becoming the cause of characteristic deterioration and not oscillating, it does not recommend.

3.WASHING

About use of the washing liquid of a basin system, an alcoholic system, and a chlorofluorocarbon-replacing material system, it is checking that it is satisfactory.

However please consult in advance about other washing liquid.

Tuning fork crystal resonators should not have ultrasonic washing because their frequency band is close to the washing frequency band of ultrasonic washing machines, very probably causing resonance destruction.

To use ultrasonic washing to clean these resonators, tests must be performed in advance under actual application conditions.

4.DRIVE LEVEL

The piece of crystal it is processed very smaller than the conventional thing inside DST310S series crystal unit may be damaged, if crystal resonators are exposed to an excessively high drive level.

Please use the products within the limits specified in the catalogs and specifications.

5.HANDLING OF A PRODUCT

DST310S series has sufficient intensity to fall and vibration.

Crystal resonators should not have pattern to avoid causing base crack.

6.STORAGE

Since the solderability of pins may deteriorate, please avoid storage in high-temperature,high-humidity place.

Please store crystal products in a place free from direct sunlight and condensation.

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2008-1265 REVISION RECORD

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