



Serial No. : 2017-0362

DATE : 2017/04/21

Shanghai Winson Electronics Co.,LTD.

ITEM :

CRYSTAL RESONATOR

TYPE : DSX321G

NOMINAL FREQUENCY : 8.000MHz

SPEC No. : 1C208000CK0H

If there is a change in this specifications, the specification number may be changed.

RECEIPT	
DATE	
RECEIVED	(signature) (name)

General Manufacturer of Quartz Devices

DAISHINKU CORP.

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C.ENG.

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ENG.

M. Shikai

1. ELECTRICAL CHARACTERISTICS

(This test shall be performed under the conditions of temp.at +25 ± 3°C, Relative Humidity 60% max.)

(1) NOMINAL FREQUENCY	8.000000 MHz
(2) OVERTONE ORDER	Fundamental
(3) LOAD CAPACITANCE(CL)	10.0 pF
(4) FREQUENCY TOLERANCE	±30 ppm max. (at +25 ± 3 °C)
(5) DRIVE LEVEL	10 ± 2 μW
(6) SERIES RESISTANCE	400 Ω max. (at Series)
(7) OPERATING TEMPERATURE RANGE	-40 ~ +105 °C
(8) FREQUENCY CHARACTERISTICS OVER TEMPERATURE	±100 ppm max. / -40 ~ +105 °C (ref. to +25°C)
(9) SHUNT CAPACITANCE	2.0pF max.
(10) INSULATION RESISTANCE	500MΩ min. / DC 100 ± 15V
(11) STORAGE TEMPERATURE RANGE	-40 ~ +125 °C

2. CONSTRUCTION

(1) DIMENSIONS AND MARKING Refer to 4.

3. OTHER SPECIFICATIONS

- (1) EMBOSS CARRIER TAPE & REEL Refer to 5.
- (2) PACKING Refer to 6.
- (3) REFLOW CONDITIONS (REFERENCE) Refer to 7.
- (4) LAND PATTERN (REFERENCE) Refer to 8.
- (5) RELIABILITY SPECIFICATION Refer to 9. ~ 10.
- (6) OTHER HANDLING INSTRUCTIONS Refer to 11.

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4. DIMENSIONS AND MARKING

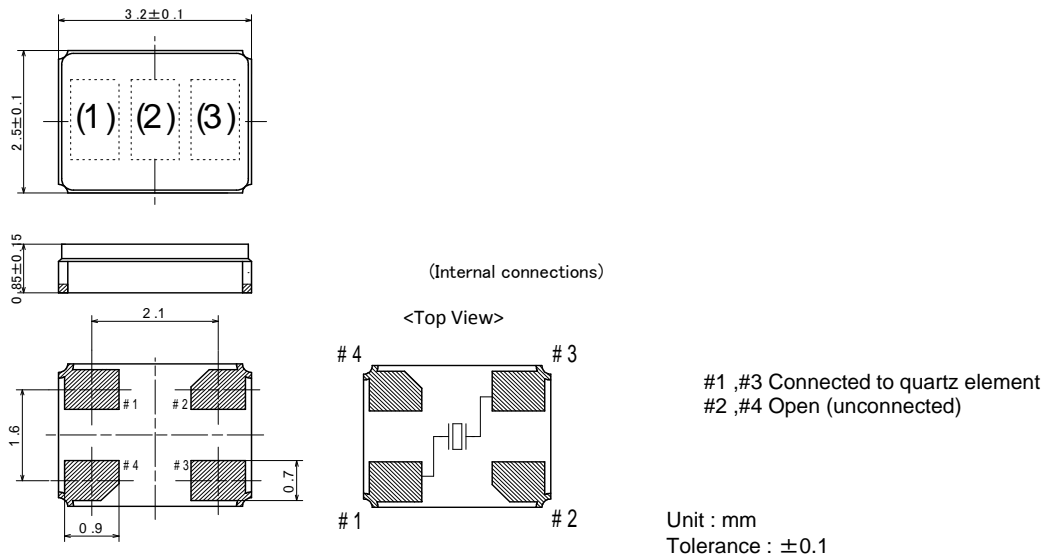


Figure-1

Logo(1) and Nominal Frequency (2) should be printed as follows by producing district

Made in INDONESIA --> Spec. No.: 1C208000CK0H , Logo : D , Frequency: 08

* Made in INDONESIA : Under Bar with D

Nominal Frequency (2) = Mark two digits from upper decimal point
(ex. 8.000000 MHz ----> 08)

Manufacturing lot No.(3)

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.

(ex. 2017/4/21 ----> 716)

Plating material of a terminal. : Ni Plating + Au Plating.

A clearance between the soldering terminal portion and a print circuit board side should be less than 0.1mm.

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5. EMOSS CARRIER TAPE & REEL

(1) Dimensions of embossed carrier tape

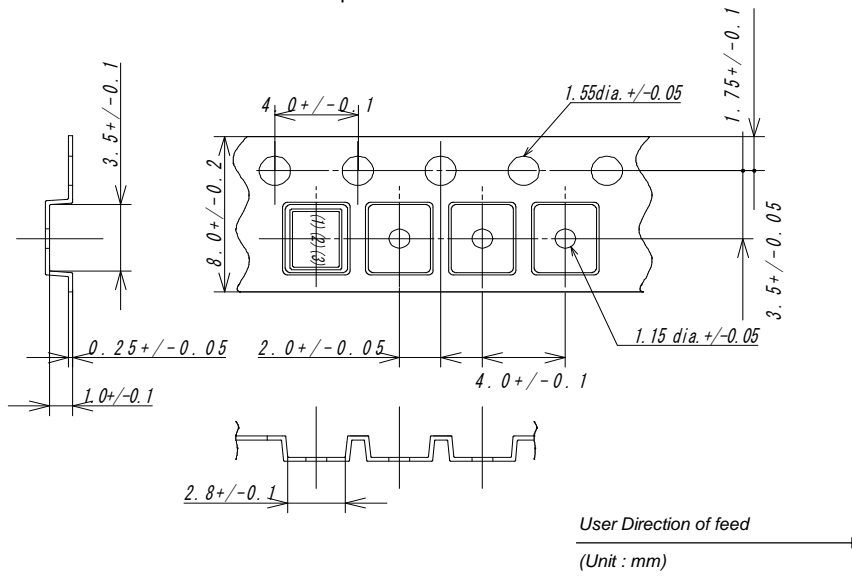


Figure-2

(2) Dimensions of tape reel

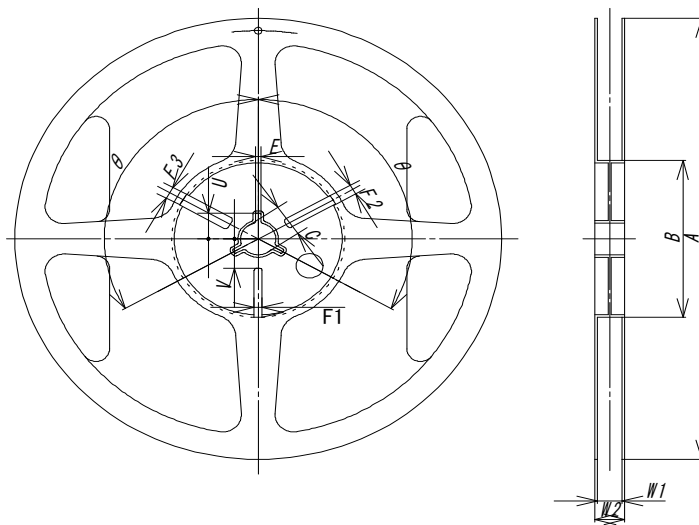


Figure-3

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(Unit:mm)

Item		Mark	Dimensions	Angle	
Flange	Diameter	A	Φ180	+0.0 / -3.0	
	Inside of Frange	W1	9.0	± 0.3	
	Outside of Frange	W2	11.4	± 1.0	
	Inside Diameter	B	Φ60	+1.0-0	
Center Core	Center Core Slit	Width	F1	3.0 ± 0.2	
			F2	4.0 ± 0.2	
			F3	5.0 ± 0.2	
	Center Core Slit	Length	V	11.9	+0.5 / -0.0
		Angle	θ	120°	
	Spindle Diameter		C	Φ13	± 0.2
	Key Seats	Width	E	2.0	± 0.5
		Length	U	10.5	± 0.4
		Angle	θ	120°	

(3) Material of the reel

Reel	Polystyrene+Carbon(Black)
	Polystyrene(White)

(4) Storage condition

Temperature : +40 °C max.

Relative Humidity : 80% max.

(It is a guaranteed term because it obtains an excellent soldering: 6 months)

(5) Standard packing quantity

3,000 pcs/reel

(6) Material of the tape

Tape	Material
Carrier tape	Polystyrene+Carbon
Cover tape	Polyester

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(7) Label contents

Type
 Our specification No.
 Your Part No.
 Lot No.
 Nominal Frequency
 Quantity
 Our Company Name
 Producing Country

Stick a label on the each reel.

(8) 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 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.

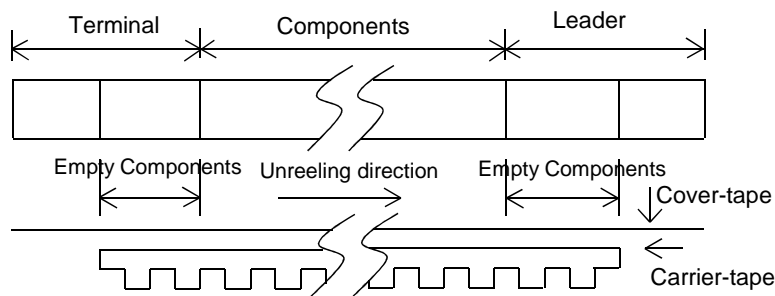


Figure-4

(9) Joint of tape

The carrier-tape and cover-tape should not be jointed.

(10) Release strength of cover tape

It has to between 0.1 ~ 0.7N under following condition.
 Pulling direction 165 ~ 180 °
 Speed 300mm/min
 Otherwise unless specified.

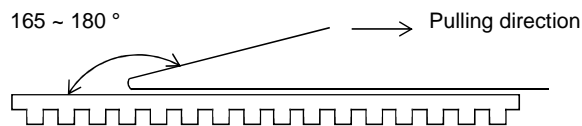


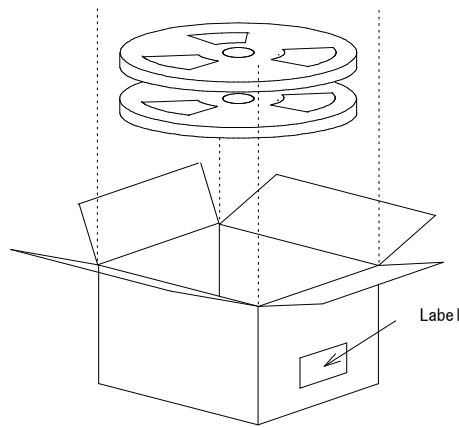
Figure-5

Other standards shall be based on JIS C 0806 -1990-

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6. PACKING

(1) STORAGE METHOD



Label contents

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

Figure-6

(2) BOX SIZE

From lot size packingsize shall be changed.

In the upper and lower part and the opening in box it shall be protected products using aircushion sheets.

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7. REFLOW CONDITIONS (REFERENCE)

During the solder reflow process, please complete within following temperature, period.
 Reflow soldering shall be allowed only 3 times.

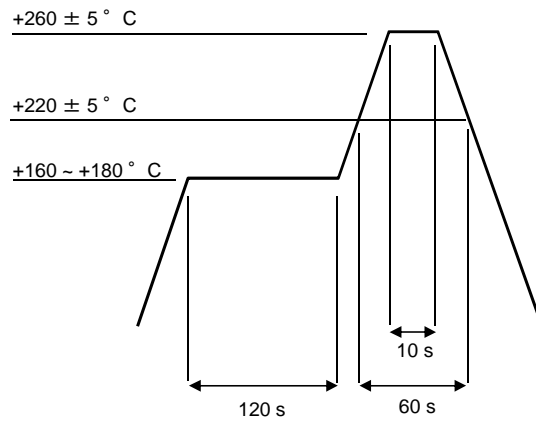
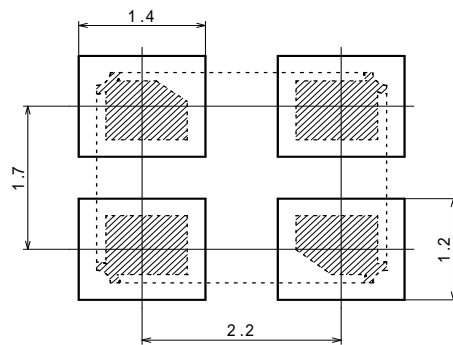


Figure-7

HANDSOLDERING METHOD : +350 ± 10 °C , 3+1/-0s Each terminal once
 (Please take care so that a soldering iron should not touch a product directly.)

8. LAND PATTERN (REFERENCE)



Unit : mm

Figure-8

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9. MECHANICAL ENDURANCE Compatible with AEC-Q200.

No.	Stress	Reference	Additional Requirements	Requirement
1	Preconditioning	-	Reflow 2times perform the attached Reflow conditions to reference.	-
2	Sealing Tightness (Helium Leak Test)	IEC 60068-2- 17	Helium Leak Detector	Less than 2.0×10^{-9} Pa m ³ /s.
3	High Temperature Exposure(Storage)	MIL-STD-202 Method 108	+105°C 1000h.	parts shall conform specification A.
4	Temperature Cycling	JESD22 Method JA-104	-40<->+105°C 1000cycles	parts shall conform specification A.
6	Moisture Resistance	MIL-STD-202 Method 106	t=24 h/cycle Step 7a & 7b not required	parts shall conform specification A.
7	Biased Humidity	MIL-STD-202 Method 103	+85°C 85%RH biased 1000h	parts shall conform specification A.
8	Operational Life	MIL-STD-202 Method 108	+105°C biased 1000h	parts shall conform specification A.
9	External Visual	MIL-STD-883 Method 2009	Construction , marking and workmanship	Without abnormal visual
12	Resistance to Solvents	MIL-STD-202 Method 215	Also aqueous wash	No marking off
13	Mechanical Shock	MIL-STD-202 Method 213	100G 6ms. 3times(18shocks)	parts shall conform specification A.
14	Vibration	MIL-STD-202 Method 204	10~2,000Hz 5G's 20min 12cycles	parts shall conform specification A.
15	Resistance to Soldering Heat	MIL-STD-202 Method 210	+260±5°C 10±1s	parts shall conform specification A.
16	Thermal Shock (Air to air)	MIL-STD-202 Method 107	-40<->+105°C 1000cycles transfer time : 20s dwell time : 20min	parts shall conform specification A.
18	Solderability	J-STD-002 Method B SMD a)	+155°C dry heat 4h Sn-3Ag-0.5Cu no-clean RMA +235°C 10s	New solder shall be cover 95%min.
		J-STD-002 Method D SMD c)	Steam conditioning:+100°C 8h Sn-3Ag-0.5Cu no-clean RMA +260°C 30s	Leaching/dewetting shall be no more than 5%.
21	Board Flex	AEC-Q200 Method 005	2mm (min.) 60s	parts shall conform specification A.
22	Terminal Strength	AEC-Q200 Method 006	A force of 1.8kg for 60s	parts shall conform specification A.

* The test No. 3, 4, 6, 7, 8 and 16 are implemented after preconditioning.

10. SPECIFICATION

Frequency Variation and Equivalent Resistance shall be within Table below after the reliability test.

Spec.	Frequency Variation	Equivalent Resistance
A	±10ppm	±25 % or 10.0 Ω max. (Use larger specification)

(unit:mm)

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11. DSX321G TYPE QUARTZ CRYSTAL HANDLING INSTRUCTIONS

(1) SOLDERING

Please perform the attached Reflow conditions to reference within 3 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 crystal resonator and becoming the cause of characteristic deterioration and not oscillating, it does not recommend.

Underfilling Material for DSX321G Types, KDS considers underfilling material such as heat-cured resin would not affect the characteristics of the DSX321G crystal mounted, however, we recommend the crystal be tested and checked in such a case prior to use so that there are the possibility that the crystal may have a lid off or a crack in the ceramic base.

(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.

Although the check about ultrasonic washing is performed,

since it is an examination with a simple substance,

the check for the second time by the use state is recommended.

(4) THE CAUTIONS ON USE

The piece of crystal it is processed very smaller than the conventional thing inside DSX321G series crystal unit may be damaged,

if excessive excitation electric power is applied.

Please use it below with the value specified on a catalog and specifications.

Please refrain from forming patterns between crystal land pattern's since there is a possibility to cause crack in base.

If the temperature is higher than +280 °C, there is a possibility for the sealing glass to remelt.

Avoid using the product at temperature higher than specified.

(5) HANDLING OF A PRODUCT

DSX321G series has sufficient intensity to fall and vibration.

However when too much shock is added according to a certain cause, the use after a characteristic check is recommended.

(6) STORAGE

Since the soldering nature of a terminal may be degraded,

please avoid storage in high temperature and a humid place.

Please keep it in the place which direct rays do not hit

and dew condensation does not generate.

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For : Shanghai Winson Electronics Co., Ltd.

Failure Rate of Crystal Resonator

1. The actual Failure Rate from Customers

Crystal Resonator DSX321G ----- 0.1 fit

(January 2015 through December 2015)

2. Failure Rate Calculation Method

$$F = f / T * 10^9$$

F : Estimated Average Failure Rate

f : Failure Quantity which is returned from Customers

T : Component Time (A number of sums which multiplied delivery quantity by use time)

The calculation method of component time

$$T = \text{Delivered Quantity} * \text{Estimated time of using component}$$


Estimated time of using component = Month * Day(As 30days) * Hours(As 8hours)

(Estimated time of using component : from delivery until October 2016)

Apr. 21, 2017

DAISHINKU CORP.

Quality Assurance Dept.



Tetsuo Okishio / General Manager