Revision History

Rev.No.	Description of revise	Date	Approved by	Checked by	Issued by
1	First Edition	Jul.29,2013	Y.Takahashi	T.Nitoube	M.Konno

[PART NUMBER LIST]

Nominal Frequency (MHz)	KYOCERA Part Number	ESR (Ω)	Nominal Frequency Code
10	CX3225GB10000D0HPQCC	300	10000
12	CX3225GB12000D0HPQCC	250	12000
13.56	CX3225GB13560D0HPQCC	250	13560
14.31818	CX3225GB14318D0HPQCC	100	14318
14.7456	CX3225GB14745D0HPQCC	100	14745
16	CX3225GB16000D0HPQCC	80	16000
18.432	CX3225GB18432D0HPQCC	80	18432
19.2	CX3225GB19200D0HPQCC	80	19200
20	CX3225GB20000D0HPQCC	60	20000
22.5792	CX3225GB22579D0HPQCC	60	22579
24	CX3225GB24000D0HPQCC	60	24000
24.576	CX3225GB24576D0HPQCC	60	24576
25	CX3225GB25000D0HPQCC	60	25000
27	CX3225GB27000D0HPQCC	50	27000
30	CX3225GB30000D0HPQCC	50	30000
32	CX3225GB32000D0HPQCC	50	32000
33.333	CX3225GB33333D0HPQCC	50	33333
38.4	CX3225GB38400D0HPQCC	50	38400
40	CX3225GB40000D0HPQCC	50	40000
48	CX3225GB48000D0HPQCC	50	48000
54	CX3225GB54000D0HPQCC	50	54000

1. APPLICATION

This specification sheet is applied to quartz crystal "CX3225GB"

2. KYOCERA PART NUMBER

Refer to K1101-13750-431 3/11 KYOCERA Part Number

3. RATINGS

Items	SYMB.	Rating	Unit	Remarks
Operating Temperature	Topr	-40~+85	°C	
Storage Temperature Range	Tstg	-40~+85	°C	

4. CHARACTERISTICS

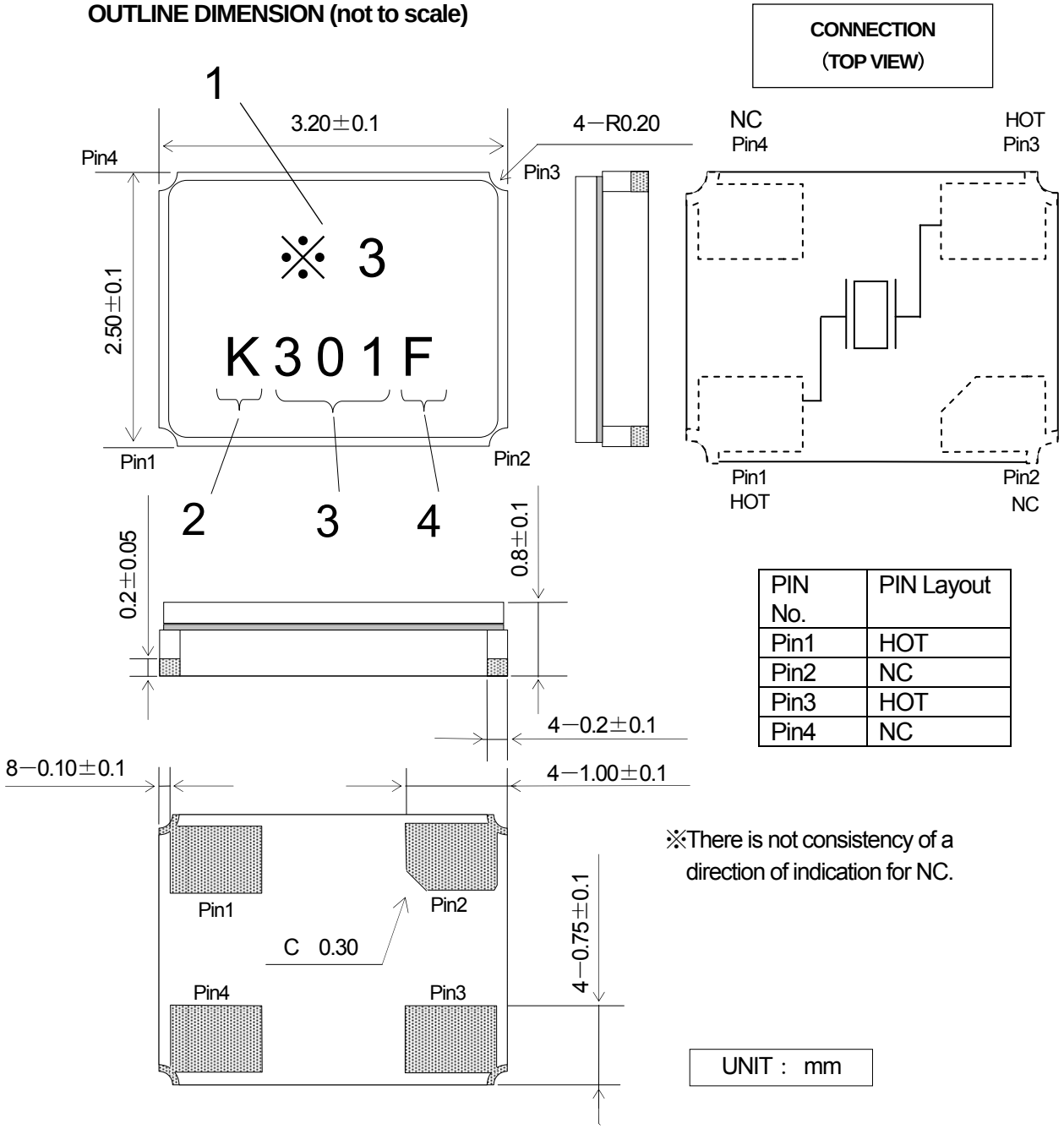
4-1 ELECTRICAL CHARACTERISTICS

Items	Electrical Specification					Test Condition	Remarks
	SYMB.	Min.	Typ.	Max.	Unit		
Mode of Vibration			Fundamental				
Nominal Frequency	F0		※1		MHz		
Nominal Temperature	T_{NOM}		+25		°C		
Load Capacitance	CL		8.0		pF		
Frequency Tolerance	df/F	-20.0		+20.0	PPM	+25±3°C	
Frequency Temperature Characteristics	df/F	-30.0		+30.0		-40~+85°C	
Frequency Aging Rate		-5.0		+5.0		1 year	+25±3°C
Equivalent Series Resistance	ESR			※2	Ω		
Drive Level	Pd	0.01		100	μW		
Insulation Resistance	IR	500			MΩ	100V(DC)	

※1 Refer to K1101-13750-431 3/11 Nominal Frequency
※2 Refer to K1101-13750-431 3/11 ESR

5. APPEARANCES, PHYSICAL DIMENSION

OUTLINE DIMENSION (not to scale)



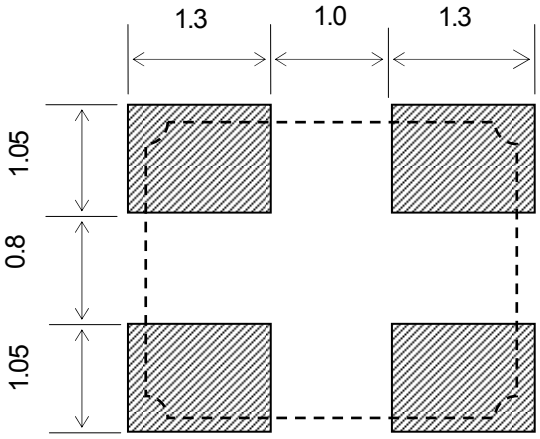
PIN No.	PIN Layout
Pin1	HOT
Pin2	NC
Pin3	HOT
Pin4	NC

MARKING

1	Nominal Frequency	Move the number of maximum indication beams of the frequency to five digits, and omit less than kHz.
2	Identification	
3	Date Code	Year···LAST 1 DIGIT of YEAR AND WEEK (Ex) Jan. 1, 2013 → 301
4	Manufacturing Location	F···KYOCERA Crystal Device Philippines, Inc

※3 Refer to K1101-13750-431 3/11 Nominal Frequency Code.
The font of marking is reference.

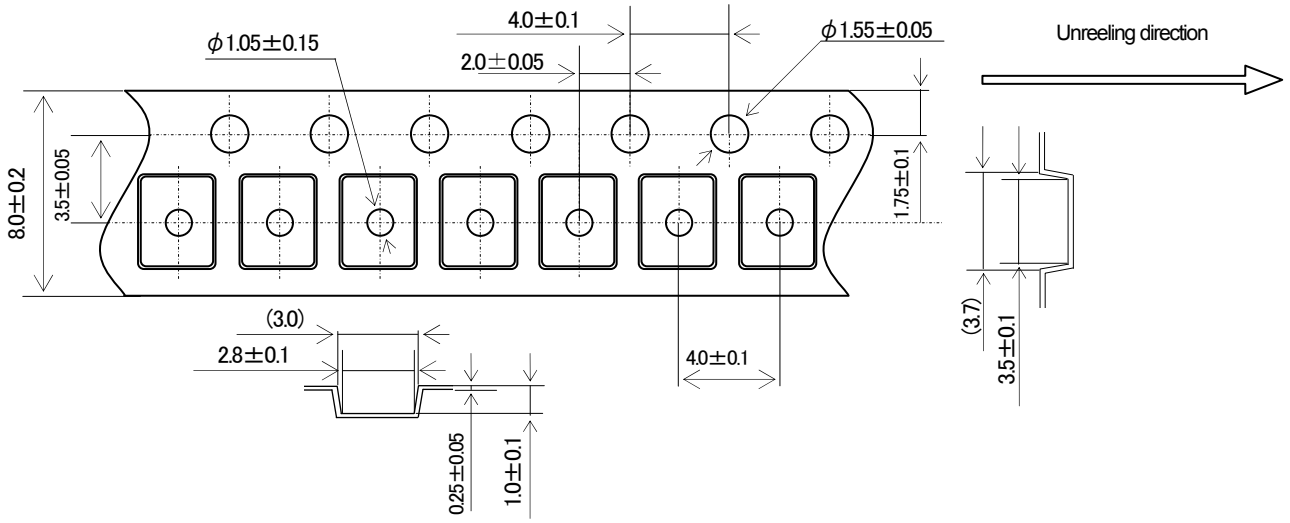
6. RECOMMENDED LAND PATTERN (not to scale)



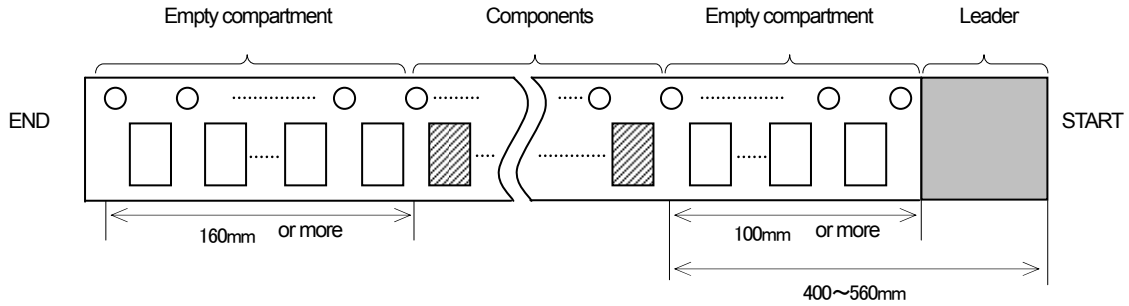
UNIT : mm

7.TAPING & REEL 梱包補助材

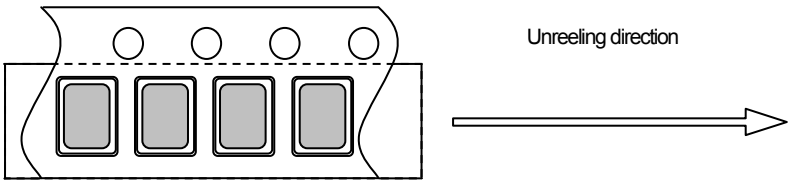
7-1.Dimensions



7-2.Leader and trailer tape

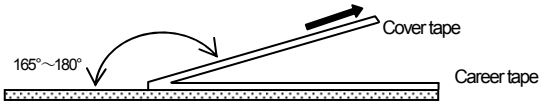


7-3.Direction（The direction shall be seen from the top cover tape side）

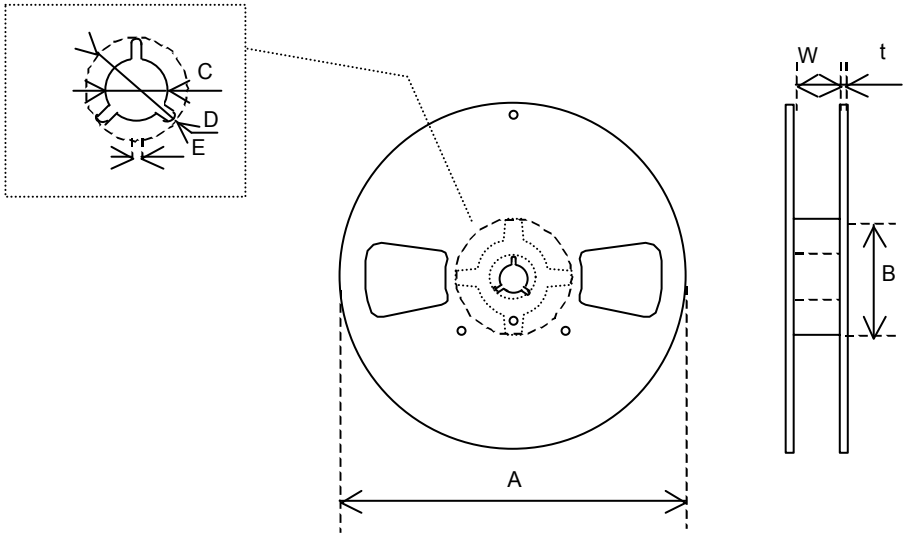


7-4.Specification

1. Material of the carrier tape shall be PS (ESD).
2. Material of the seal tape shall be polyester(ESD).
3. The seal tape shall not cover the sprocket holes. And not protrude from the carrier tape.
4. Tensile strength of the tape : 10N or more.
5. The R of the corner without designation is 0.2RMAX.
6. Disalignment between centers of the cavity and sprocket hole shall be 0.05mm or less.
7. Cumulative pitch tolerance of "P_0" shall be ±0.2mm at 10 pitches.
8. The number of lack is 0.1% of 1 reel total part number (the number of the table letters) or the part following whose 1 either is big.
   (But, the thing which lack of the continuance is not in.)
9. The marking on parts is not fixed its direction, its electrical characteristic is equal.
10. Peeling force of the seal tape: 0.1 to 1.0N.



7-5.Reel specifications



(Nonconductor type Reel)

In the case of Φ180 Reel (3000 pcs max, every 1000 pcs)

	A	B	C	D
Dimension	ϕ 180 +0/-1.5	ϕ 60 +1/-0	ϕ 13±0.2	ϕ 21±0.8
Symbol	E	W	t	
Dimension	2.0±0.5	9±1	2.0±0.5	

(Unit : mm)

8.Enviromental requirements

After following test, frequency shall not change more than $\pm 20 \times 10^{-6}$

And CI, ±20% or 5Ω of large value.

8.1 Resistance to Shock Test condition

Natural dropped from height 100cm onto hard wood board in 3 times

8.2 Resistance to Vibration Test condition

frequency	:	10－55 －10 Hz
Amplitude	:	1.5mm
Cycle time	:	15 minutes
Direction	:	X,Y,Z (3direction),2 h each.

8.3 Resistance to Heat Test condition

The quartz crystal unit shall be stored at a temperature of +85±2°C for 500 h.
Then it shal be subjected to standard atmospheric conditions for 1 h ,after whichi measurement shall be made.

8.4 Resistance to Cold Test condition

The quartz crystal unit shall be stored at a temperature of -40±2°C for 500 h.
Then it shal be subjected to standard atmospheric conditions for 1 h ,after whichi measurement shall be made.

8.5 Thermal Shock Test condition

The quartz crystal unit shall be subjected to 500 succesive change of temperature cycles , each as shown in table below, Then it shall be subjected to standard atmospheric conditions for 1h, after which measurements shall be made.

Cycle : -40±2°C（30min.）to 25±2°C（5min.）
to +85±2°C（30min.）to 25±2°C（5min.）

8.6 Resistance to Moisture Test condition

The quartz crystal unit shall be stored at a temperature of 60±2°C wich relative humidity of 90% to 95% for 240 h. Then it shall be subjected to standard atmospheric conditions for 1h, after which measurements shall be made

8.7 Soldering condition

1.) Material of solder

Kind ··· lead free solder paste

Melting point ··· +220±5°C

2.) Reflow temp.profile

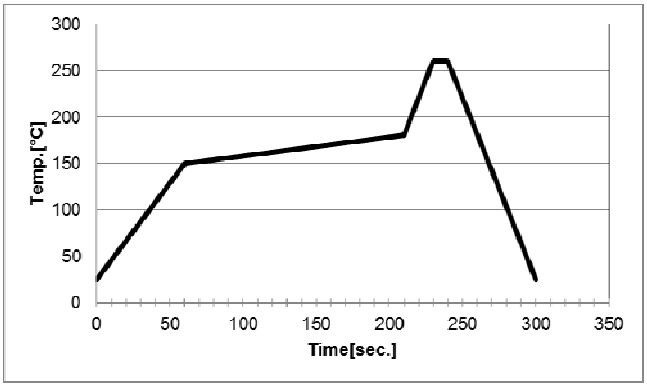
	Temp [°C]	Time[sec]
Preheating	+150 to +180	150 (typ.)
Peak	+260±5	10 (max.)
Total	—	300 (max.)

Frequency shift : ±2ppm

3.) Hand Soldering +350°C 3 sec MAX

4.) Reflow Times 2 times

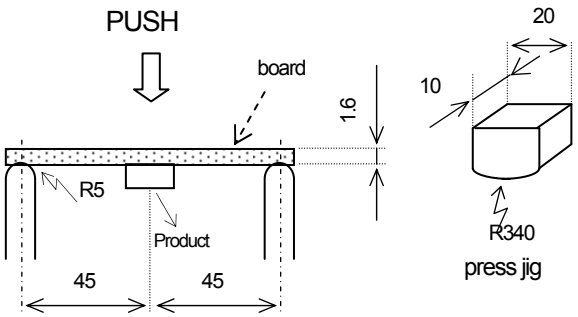
Reflow temp.profile



8.8 Intensity for bending in circuit board

Solder this product in center of the circuit board of 40mm×100mm, and add the deflection of 3mm as the bottom figure.

Test board : t=1.6mm



UNIT : mm

9.Cautions for use

(1) Automatic mounting machine use

Please use after affirmation that select the mounting machine model with a shock small if possible in the case of use of an automatic mounting machine, and it does not have breakage. There is a risk of a quartz crystal unit breakage occurring and not functioning normally by too much shock etc..

(2) Conformity of a circuit

In case of use of an oscillation circuit, please insert in a quartz crystal unit in series resistance 5 time as many as the standard value of equivalent in-series resistance, and confirm oscillating. Please remove resistance which inserted after the notes above-mentioned examination in the quartz crystal unit in series, and use it.

(3) After making the Quartz Crystal mount on a printed circuit board ,if it is required to devide the printed circuit board into another one, use it with attentive confirmation so that a warp cased by this dividing might not affect any damage. When designing a printed circuit board as well as handling the mounting As much as possible. The quartz crystal shall be passed through the reflow furnace. Then it shall be subjected to standard atmospheric conditions, after which cleaning shall be made.

10.Storage conditions

Storage at prolonged high temperature or low temperature and the storage by high humidity cause degradation of frequency accuracy, and degradation of soldering nature. Storage is performed at the temperature of 18-30 degrees C, and the humidity of 20-70 Percent in the state of packing, and a term is 6 months.

11. Manufacturing location

KYOCERA Crystal Device Philippines, Inc.

12. Quality Assurance

Kyocera Crystal Device Quality Assurance Division

13. Quality guarantee

When the failure by the responsibility of our company occurs clearly after delivery within 1 year, a substitute article etc. is appropriated gratuitously and this is guaranteed. However, when passing 1 year after delivery, there is a case where I am allowed to consider as onerous repair after both consultation.

14.Others

When any questions and opinions are in the written matter of these delivery specifications, I will ask connection of you from the our company issue day within 45 days. In a connection no case, a written matter is consented to it and employed within a term.