

Revision History

Rev.No.	Description of revise	Date	Approved by	Checked by	Issued by
1	First Edition	MAY,16,2014	Y.Takahashi	T. Nitoube	M. Abe

[PART NUMBER LIST]

Nominal Frequency (MHz)	KYOCERA Part Number	ESR (Ω)	Drive Level (μW)	Nominal Frequency Code
8.000	CX5032GB08000H0HPQZ1	300	500	8000
10.000	CX5032GB10000H0HPQZ1	150	500	10000
12.000	CX5032GB12000H0HPQZ1	150	500	12000
16.000	CX5032GB16000H0HPQZ1	100	300	16000

1. APPLICATION

This specification sheet is applied to quartz crystal "CX5032GB"

2. KYOCERA PART NUMBER

Refer to UKY1C-H1-14560-00[40] 3/11 KYOCERA Part Number

3. RATINGS

Items	SYMB.	Rating	Unit	Remarks
Operating Temperature	Topr	-40 to +85	°C	
Storage Temperature Range	Tstg	-40 to +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		12.0		pF		
Frequency Tolerance	df/F	-20.0		+20.0	PPM	+25 ±3°C	
Frequency Temperature Characteristics	df/F	-30.0		+30.0		-40 to +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		※3	μW		
Insulation Resistance	IR	500			MΩ	100V(DC)	

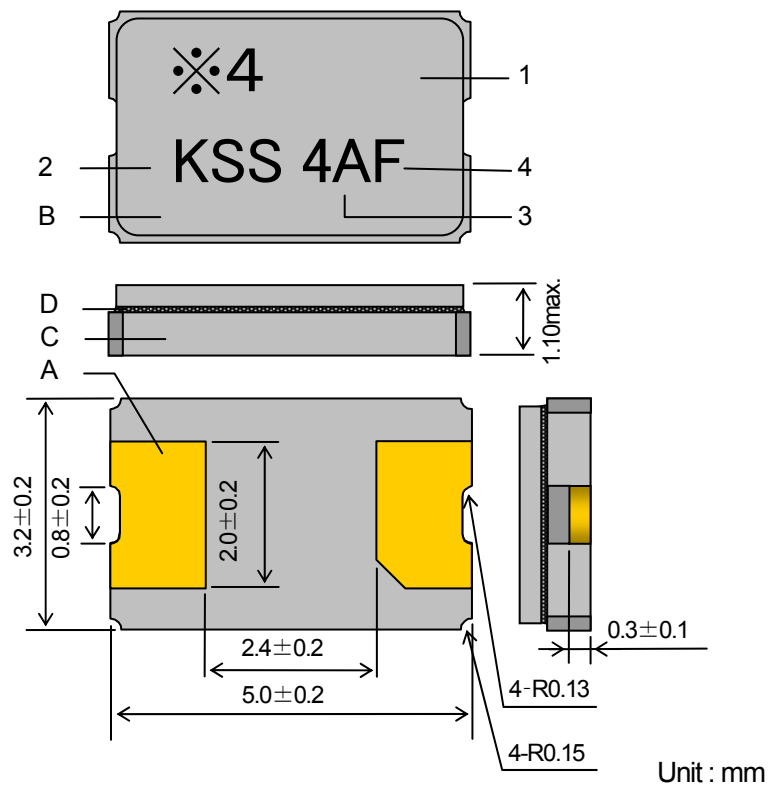
※1 Refer to UKY1C-H1-14560-00[40] 3/11 Nominal Frequency

※2 Refer to UKY1C-H1-14560-00[40] 3/11 ESR

※3 Refer to UKY1C-H1-14560-00[40] 3/11 Drive Level

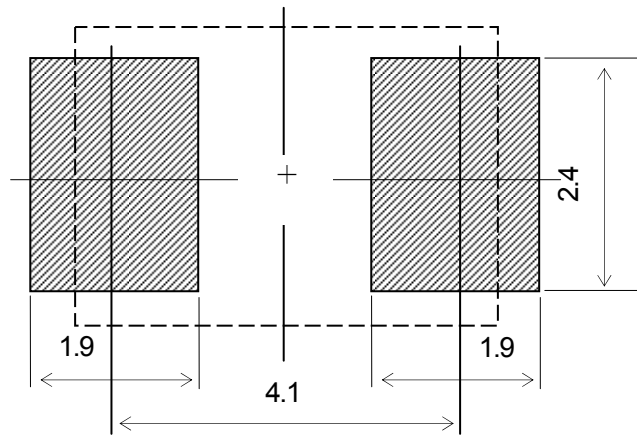
5. APPEARANCES, PHYSICAL DIMENSION

OUTLINE DIMENSION (not to scale)



A	Terminal	W-Ni-Au(Pb-Free)
B	CAP	CERAMICS (BLACK)
C	BASE	CERAMICS (BLACK)
D	GLASS	LOW TEMPERATURE GLASS

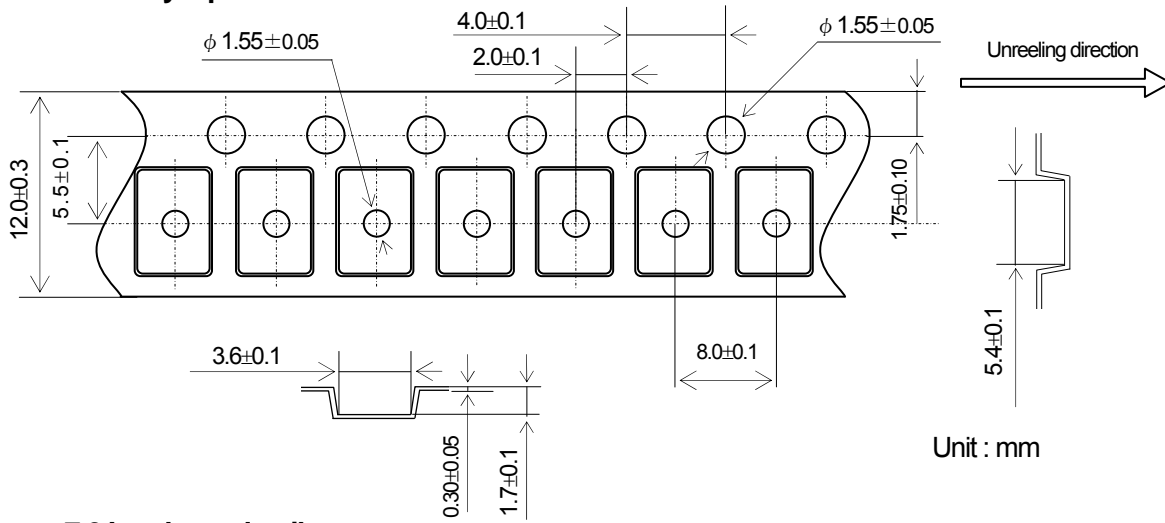
	MARKING	NOTE
1	NOMINAL FREQUENCY	(5 DIGITS MAX) UNIT: kHz ※ 4 Refer to UKY1C-H1-14560-00[40] 3/11 Nominal Frequency Code
2	IDENTIFICATION	—
3	DATE CODE	YEAR : LAST 1 DIGIT MONTH : JAN(A)~DEC(M), EXCEPT(I) EXAMPLE : Jan,2014...4A
4	MANUFACTURING LOCATION	F : Philippines Y : Yamagata
* The font of marking is reference.		

6. RECOMMENDED LAND PATTERN (not to scale)

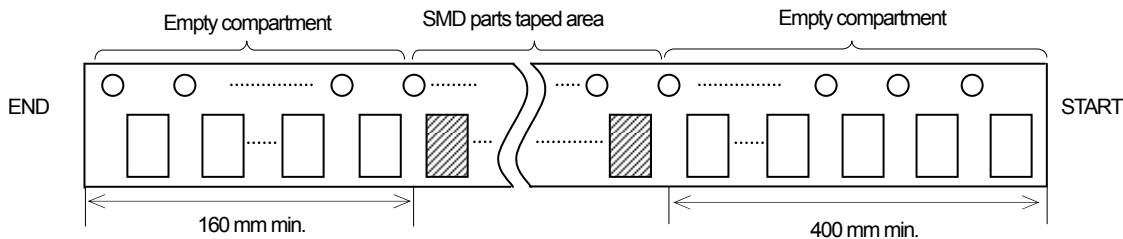
Unit : mm

7. TAPING & REEL

7.1 Carry tape dimension

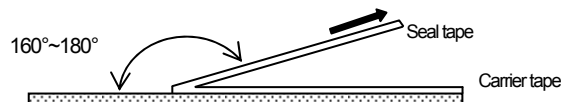


7.2 Leader and trailer tape

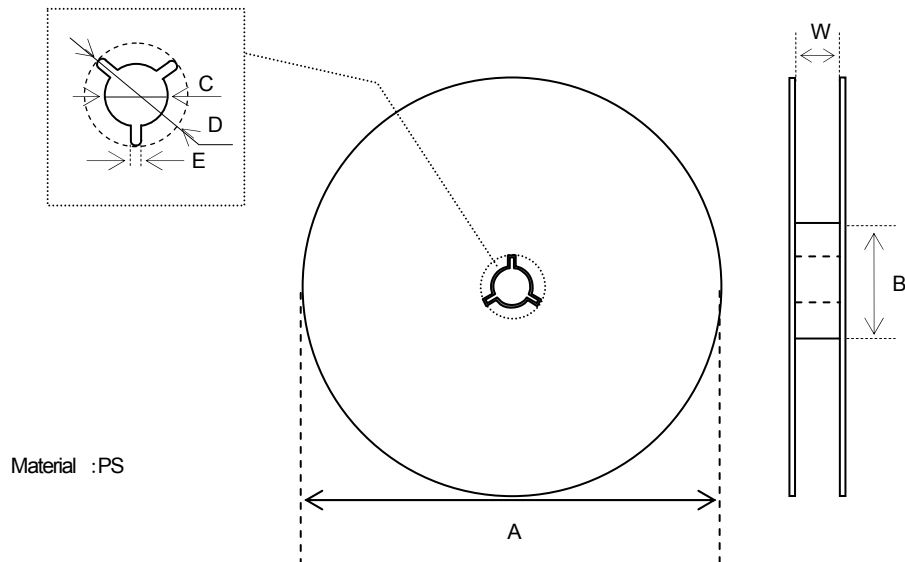


7.3 Taping specification

1. Material of the carrier tape shall be A—PET or PS (ESD)
2. The seal tape shall not cover the sprocket holes. And not protrude from the carrier tape.
3. Tensile strength of the tape : 10N or more.
4. 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.)
5. The R of the corner without designation is 0.3R MAX.
6. Misalignment between centers of the cavity and sprocket hole shall be 0.05mm or less.
7. Peeling force of the seal tape (Peeling speed 300mm/min.): 0.1 to 1.0N{10.2 to 71.4gf}.
8. Cumulative pitch error of feed hole : 50 pitch $\rightarrow \pm 0.3$ mm
9. The marking on parts is not fixed its direction, its electrical characteristic is equal.



7.4 Reel specifications



Material :PS

In the case of $\phi 180$ Reel (1,000 pcs. Max.)

Symbol	A	B	C	D
Dimension	$\phi 180$	$\phi 60$	$\phi 13$	$\phi 21$
Symbol	E	W		
Dimension	2.0	13.0		

(Unit : mm)

8. Enviromental requirements

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

And CI, $\pm 20\%$ or 5Ω of large value.

8.1 Resistance to Shock

Test condition

Natural dropped from height 75cm onto hard wood board in 3 times

8.2 Resistance to Vibration

Test condition

frequency : 10—55 —10 Hz
Amplitude : 1.5mm
Cycle time : 1 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 $+85 \pm 2^\circ\text{C}$ for 500 h.

Then it shall be subjected to standard atmospheric conditions for 1 h, after which measurement shall be made.

8.4 Resistance to Cold

Test condition

The quartz crystal unit shall be stored at a temperature of $-40 \pm 2^\circ\text{C}$ for 500 h.

Then it shall be subjected to standard atmospheric conditions for 1 h, after which measurement shall be made.

8.5 Thermal Shock

Test condition

The quartz crystal unit shall be subjected to 10 successive 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 : $-40 \pm 2^\circ\text{C}$ (30min.) to $25 \pm 2^\circ\text{C}$ (5min.)
to $+85 \pm 2^\circ\text{C}$ (30min.) to $25 \pm 2^\circ\text{C}$ (5min.)

8.6 Resistance to Moisture

Test condition

The quartz crystal unit shall be stored at a temperature of $60 \pm 2^\circ\text{C}$ with relative humidity of 90% to 95% for 500 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 ... $+220 \pm 5^\circ\text{C}$

2.) Reflow temp.profile

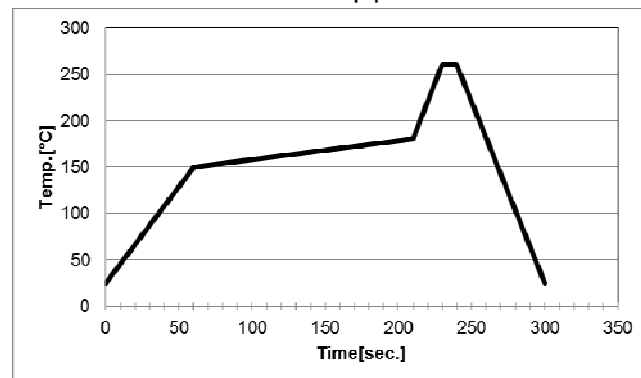
	Temp [$^\circ\text{C}$]	Time[sec]
Preheating	+150 to +180	150 (typ.)
Peak	$+260 \pm 5$	10 (max.)
Total	—	300 (max.)

Frequency shift : $\pm 2\text{ppm}$

3.) Hand Soldering $+350^\circ\text{C}$ 3 sec MAX

4.) Reflow Times 2 times

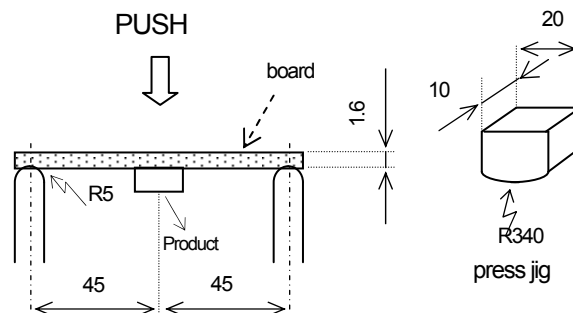
Reflow temp.profile



8.8 Intensity for bending in circuit board

Solder this product in center of the circuit board of $40\text{mm} \times 100\text{mm}$, and add the deflection of 3mm as the bottom figure.

Test board : $t = 1.6\text{mm}$



UNIT : mm

9.Cautions for use

(1) Soldering in mounting

In case of Solder paste and conductive glue contact product lid or product side face exception for product terminal it's possible to influence product characteristics.

Please be careful above contents.

(2) 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..

(3) Conformity of a circuit

In case of use of an oscillation circuit, please insert in a quartz crystal unit in series resistance 5 times 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.

(4) After making the Quartz Crystal mount on a printed circuit board ,if it is required to divide the printed circuit board into another one, use it with attentive confirmation so that a warp caused 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.
KYOCERA Crystal Device Corporation

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.