

# Specifications

Drawing No.	USY1P-H1-14464-00 1 / 6
Issued Date.	Dec,25,2014

**Messrs: KED USA**

**Note: Part Number will be revised in case of specification change.**

Product Type	Crystal Units with Thermistor
Series	CT2016DB
Frequency	19200kHz
Customer Part Number	-
Customer Specification Number	-
KYOCERA Part Number	CT2016DB19200C0FLHA1
Remarks Pb-Free, RoHS Compliant, MSL 1, GPS Quality	

**Customer Approval**

Approval Signature	Approved Date	
	Department	
	Person in charge	

**Seller**

**KYOCERA Crystal Device Corporation**  
 (Sales Division)  
 6 Takeda Tobadono-cho, Fushimi-ku, Kyoto  
 612-8501 Japan  
 TEL. No. 075-604-3500  
 FAX. No. 075-604-3501

**Manufacturer**

**KYOCERA Crystal Device Corporation**  
 (Crystal Units Division)  
 5850, Higashine-Koh, Higashine-Shi, Yamagata  
 999-3701 Japan  
 TEL. No. 0237-43-5611  
 FAX. No. 0237-43-5615

Design Department	Quality Assurance	Approved by	Checked by	Issued by
KYOCERA Crystal Device Corporation Crystal Unit Application Engineering Section Crystal Units Division	S.Itoh	T.Soda	A.Muraoka	Y.Nozaki

### Revision History

Rev.No.	Description of revision	Date	Approved by	Checked by	Issued by
1	First Edition	Dec,25,2014	T.Soda	A.Muraoka	Y.Nozaki

### 1. APPLICATION

This specification sheet is applied to Crystal Units with Thermistor “CT2016DB” for GPS Quality

### 2. KYOCERA PART NUMBER

CT2016DB19200C0FLHA1

### 3. RATINGS

Items	SYMB.	Rating	Unit	Remarks
Operating Temperature range	Topr	-30~+85	°C	
Storage Temperature range	Tstg	-40~+85	°C	

### 4. CHARACTERISTICS

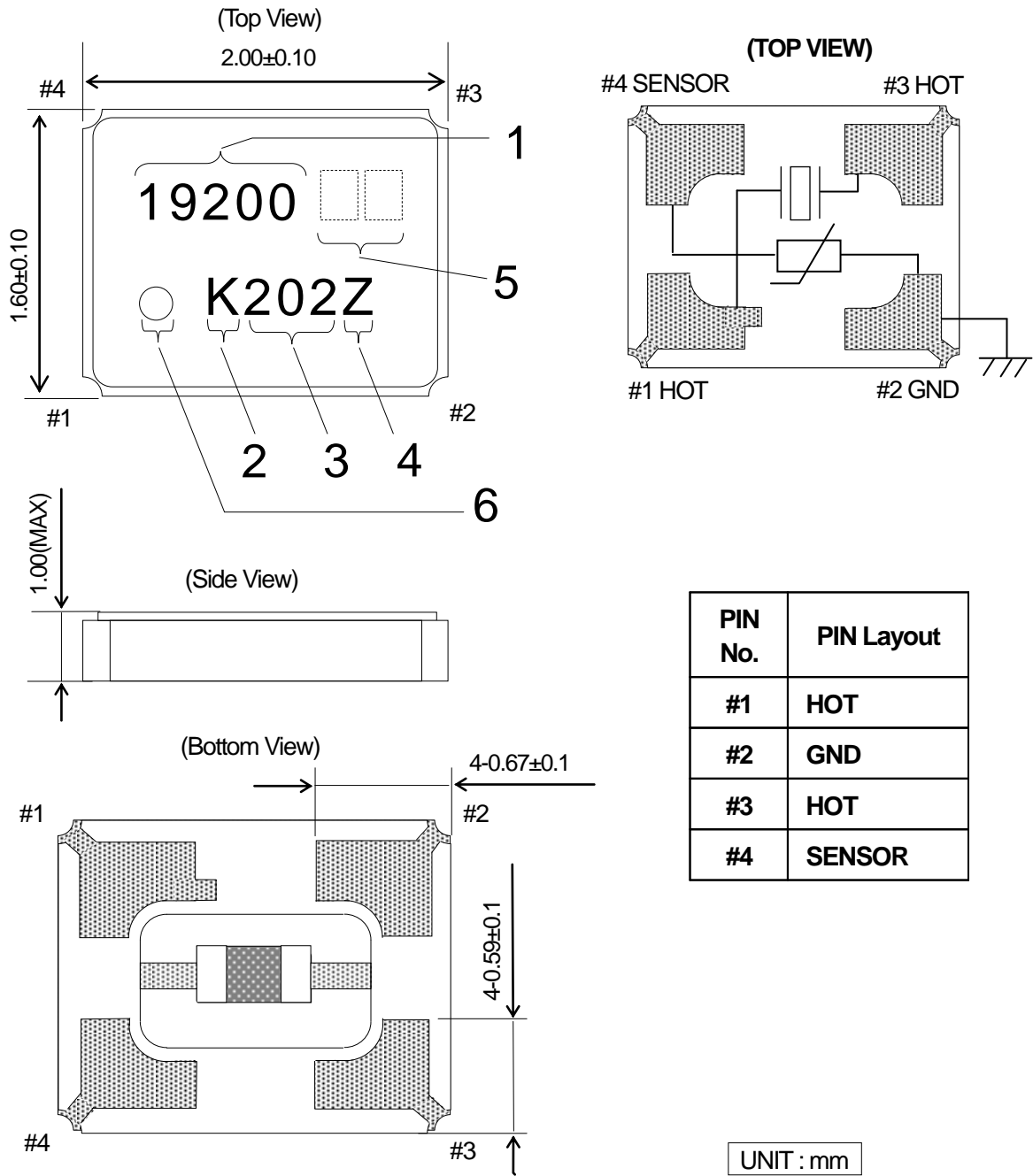
#### 4-1 ELECTRICAL CHARACTERISTICS

Items	Electrical Specification					Test Condition	Remarks
	SYMB.	Min	Typ.	Max	Unit		
Mode of Vibration		Fundamental					
Nominal Frequency	F0		19.2		MHz		
Nominal Temperature	T <sub>NOM</sub>		32		°C		*NOTE1
Load Capacitance	CL		7.0		pF		
Frequency Tolerance	dF	-10.0		+10.0	ppm	+25±3°C	
Frequency Temperature Characteristics	dF <sub>T</sub>	-12.0		+12.0		-30~+85°C	
Equivalent Series Resistance	ESR			80	Ω		
Drive Level	Pd	0.01		0.1	mW		
Insulation Resistance	IR	500			MΩ	100V(DC)	

#### 4-2 ELECTRICAL CHARACTERISTICS (Thermistor)

Items	Electrical Specification					Remarks
	SYMB.	Min	Typ.	Max	Unit	
Resistance			100k		Ω	25°C
B-Constant			4250		K	25°C - 50°C
Tolerance		-1.0		+1.0	%	

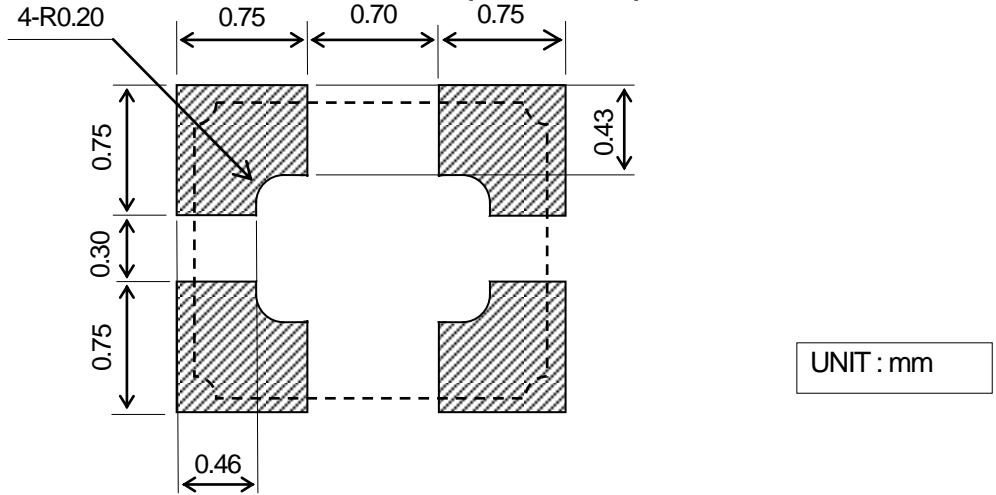
**5. APPEARANCES, DIMENSION**  
**OUTLINE DIMENSION (not to scale)**



**MARKING**

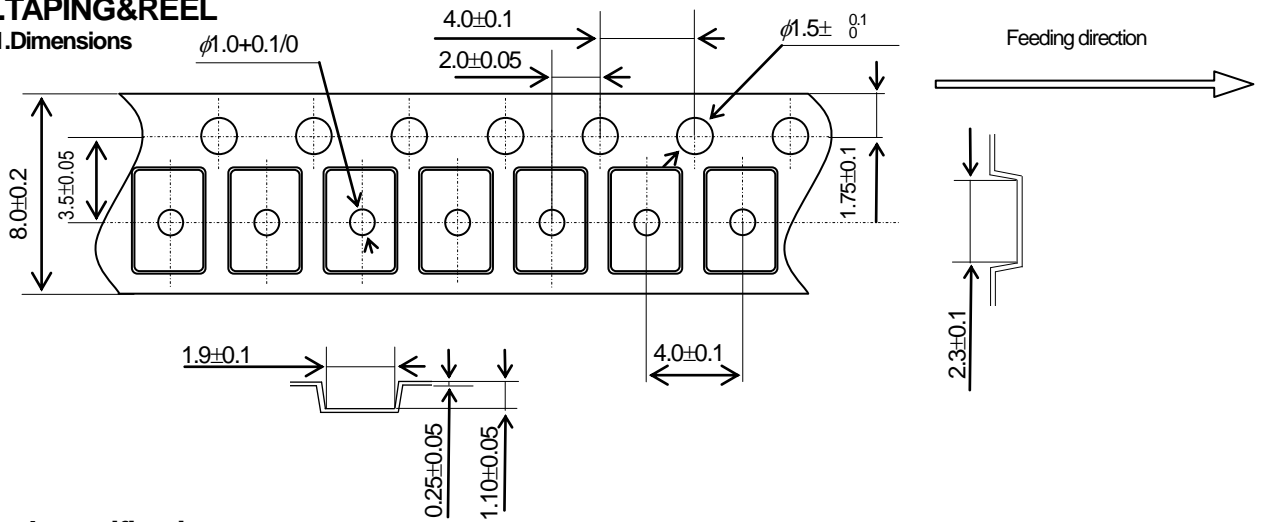
- |                            |                                                         |
|----------------------------|---------------------------------------------------------|
| (1) Nominal Frequency      | First 5digits of the frequency are indicated.           |
| (2) Identification         | [K] mark is KYOCERA Crystal Device Corporation.         |
| (3) Date Code              | LAST 1 DIGIT of YEAR and WEEK<br>(Ex) 2014,Jan,01 → 401 |
| (4) Manufacturing Location | Y → Japan(Yamagata)    Z → Japan(Shiga Yohkaichi)       |
| (5) Option Code            | Alphabet & Number 2digits or blank.(For T-Sensor)       |
| (6) 1Pin mark              |                                                         |

**6. RECOMMENDED LAND PATTERN (not to scale)**

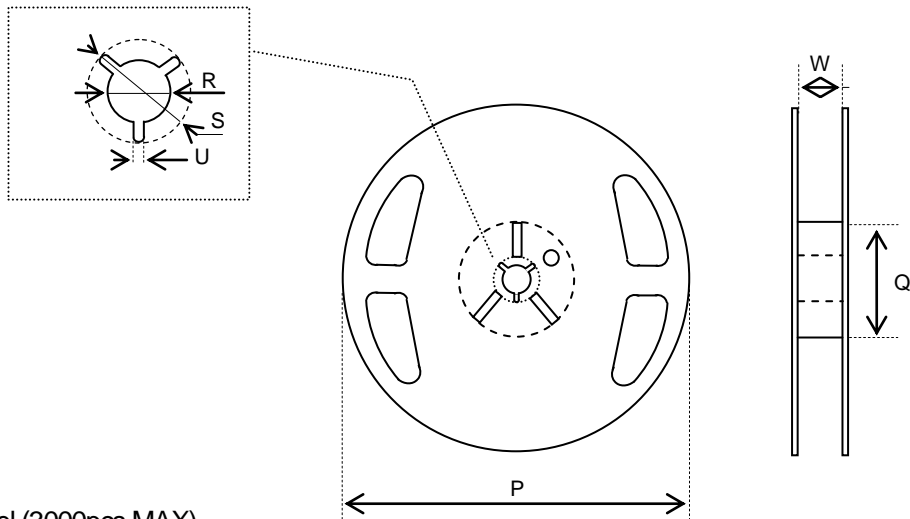


**7. TAPING & REEL**

**7-1. Dimensions**



**Reel specifications**



φ330 Reel (3000pcs MAX)

Symbol	P	Q	R
Dimension	$\phi 330 \pm 2.0$	$\phi 100 \pm 1.0$	$\phi 13 \pm 0.2$
Symbol	S	U	W
Dimension	$\phi 21 \pm 0.8$	$2.0 \pm 0.5$	$9.4 \pm 0.5$

(Unit : mm)

## 8. Cautions for use

(1) Soldering upon mounting

There is a possibility to influence product characteristics when Solder paste or conductive glue comes in contact with product lid or surface.

(2) When using mounting machine

Please minimize the shock when using Mounting Machine to avoid any excess stress to the product.

(3) Conformity of a circuit

We strongly recommend to make sure that Negative resistance (Gain) of IC is designed to be 3 times the ESR (Equivalent Series Resistance) of Crystal unit.

## 9. Storage conditions

Please store product in below conditions, and use within 6months.

Temperature +18 to +30°C, and the humidity of 20 to 70 % in the packaging condition.