

# Specifications

Drawing No.	USY1N-H1-15380-00	1 / 6
Issued Date.	Jul,28,2015	

Messrs: Digi-key

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

Product Type	Tuning Fork Crystal	
Series	ST3215SB	
Frequency	32.768 kHz	
Customer Part Number	-	
Customer Specification Number	-	
KYOCERA Part Number	ST3215SB32768H5WZZAP	
Remarks	Pb-Free, RoHS Compliant, MSL 1	

## 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

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### Manufacturer

#### **KYOCERA Crystal Device Corporation**

(Crystal Units Division)

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999-3701 Japan

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

### Revision History

Rev.No.	Description of revision	Date	Approved by	Checked by	Issued by
0	First Edition	Jul,28,2015	T.Soda	A.Muraoka	Y.Nozaki

## 1. APPLICATION

This specification sheet is applied to tuning fork crystal "ST3215SB".

## 2. PART NUMBER

ST3215SB32768H5WZZAP

## 3. RATINGS

Items	SYMB.	Rating	Unit
Operating Temperature range	Topr	-25~+75	deg. C
Storage Temperature range	Tstg	-55~+125	deg. C

## 4. CHARACTERISTICS

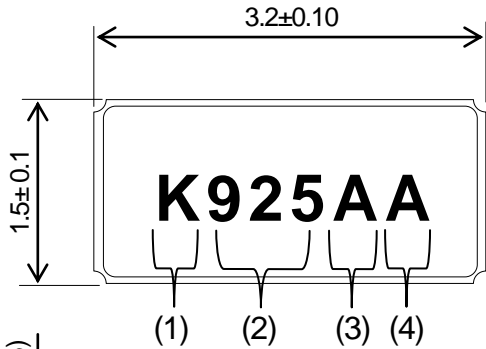
### 4-1 ELECTRICAL CHARACTERISTICS

Item	Symbol	Electrical Specification				
		Condition	Min	Typ.	Max	Unit
Nominal Frequency	fo	Ta = 25 deg. C		32.768		kHz
Frequency Tolerance	df/fo	Ta = 25 deg.C	-250		250	ppm
Frequency Stability	df/T	Operating Temperature				
Aging	df/F	Ta = 25 deg. C 1year				
Load Capacitance	CL			12.5		pF
Equivalent series resistance	R1				70	kΩ
Q-Value	Q		13000			
Motional capacitance	C1		3.0		4.4	fF
Shunt capacitance	Co		0.6		1.2	pF
Tuning point	Tp		20		30	deg. C
Secondary temperature Coefficient	K		-4.0			10 <sup>-8</sup> /degC <sup>2</sup>
Drive level	DL			0.1	0.5	μW
Insulation resistance (between electrodes)	IR		500			MΩ

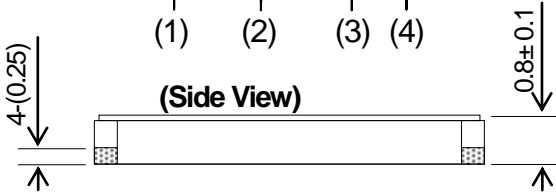
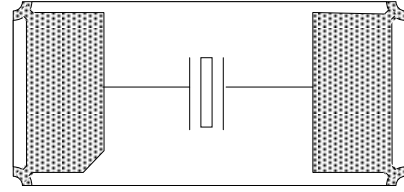
### 4-2 MOISTURE SENSITIVITY LEVEL

Level 1

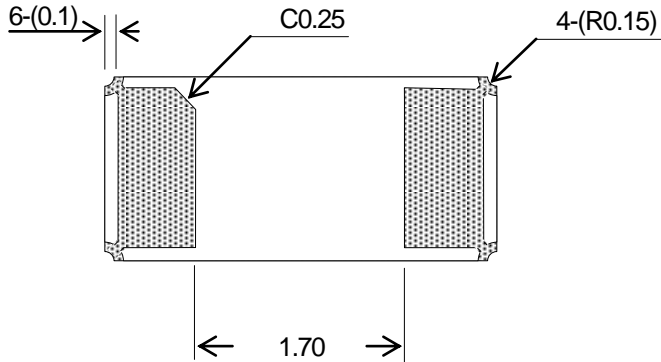
**5. APPEARANCES, DIMENSIONS**  
**OUTLINE DIMENSIONS (not to scale)**  
**(TOP VIEW)**



**CONNECTION (TOP VIEW)**



**(Bottom View)**



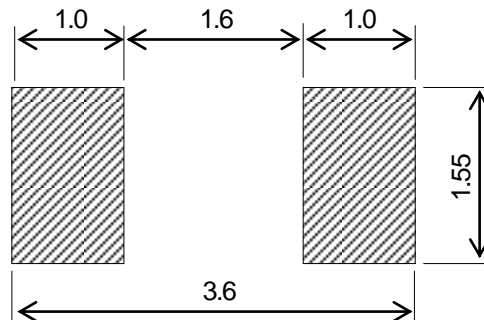
UNIT : mm

**MARKING**

- |                         |                                     |
|-------------------------|-------------------------------------|
| (1) Identification      | K                                   |
| (2) Date Code(3 Digits) | Last 1 digit of year and week Code. |
| (3) Load Capacitance    | (Example) 12.5pF → A                |
| (4) Management number   | Alphabet or Number 1digit.          |

\*The font of marking above is for reference purpose.

**6. RECOMMENDED LAND PATTERN**



UNIT : mm

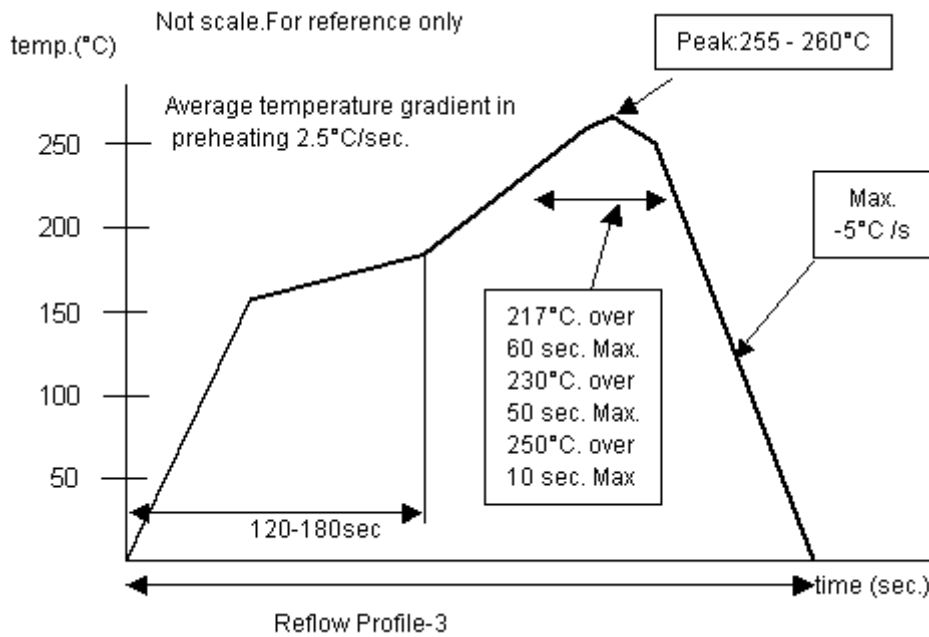
## 7. RELIABILITY

Frequency Stability and ESR Stability After stressing.

TEST ITEM		Frequency Stability (ppm)	ESR Stability (%)	Remarks
7.1	Low temp. use/storage	± 5	± 30	Ta=25 deg. C
7.2	High temp. use/storage	± 5		
7.3	Shock	± 20		
7.4	Vibration	± 5		
7.5	Soldering iron resistance	± 5		
7.6	Manual hot gas resistance	± 10		
7.7	High temp. With humidity	± 5		
7.8	Temperature cycle	± 5		

## 8. REFLOW PROFILE

Pb-free reflow requirements for soldering heat resistance



## 9. Cautions for use

### (1) Soldering upon mounting

Characteristics may be affected 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.

## 10. Storage conditions

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

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

## 11. Manufacturing location

Kyocera Crystal Device Corporation Shiga Yohkaichi Plant

## 12. Quality Assurance

To be guaranteed by Kyocera Crystal Device Quality Assurance Division

## 13. Quality guarantee

When Kyocera Crystal Device Corporation rooted failure occurs within 1 year after its delivery, substitute product will be arranged based on discussion. Quality guarantee of product after 1 year of its delivery will be waived.

## 14. Others

In case of any questions or opinions regarding the Specification, please have it in written manner within 45 days after issued date.