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Specifications

Drawing No.	USY1N-H1-13169-00 1 / 7
Issued Date.	Jul,8,2013

Messrs: Digi-Key

Note: In case of specification change, KYOCERA Part Number also will be changed.

Product Name	Tuning Fork Crystal
Product Model	ST3215SB
Frequency	32.768 kHz
Customer Part Number	-
Customer Specification Number	-
KYOCERA Part Number	ST3215SB32768B0HPWB3
Remarks Pb-Free, RoHS Compliant, MSL 1	

Customer Acceptance

Accept Signature	Approved Date	
	Department	
	Person in charge	

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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	F.Mukae	T.Soda	A.Muraoka	Y.Nozaki

Revision History

Rev.No.	Description of revise	Date	Approved by	Checked by	Issued by
0	First Edition	Jul,8,2013	T.Soda	A.Muraoka	Y.Nozaki

1. APPLICATION

This specification sheet is applied to tuning fork crystal “ST3215SB”.

2. PART NUMBER

ST3215SB32768B0HPWB3

3. RATINGS

Items	SYMB.	Rating	Unit
Operating Temperature	Topr	-40~+85	deg. C
Storage Temperature range	Tstg	-55~+125	deg. C

4. CHARACTERISTICS

4-1 ELECTRICAL CHARACTERISTICS

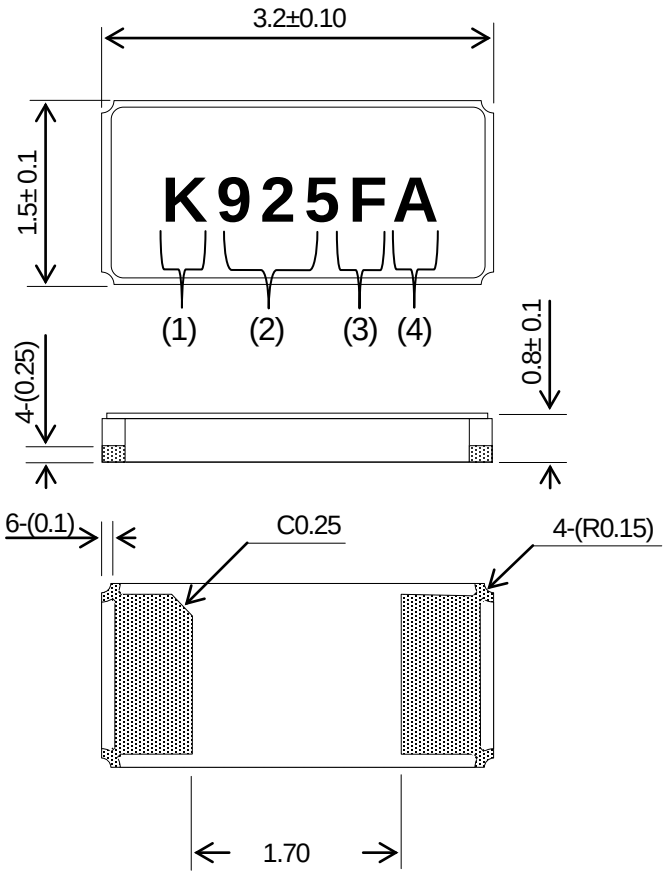
Item	Symbol	Electrical Specification				
		Condition	Min	Typ.	Max	Unit
Nominal Frequency	fo	Ta = 25 deg. C		32.768		kHz
Frequency Tolerance	df/fo	Ta = 25 deg.C	-20		20	ppm
Load Capacitance	CL			6.0		pF
Equivalent series resistance	R1				60	kΩ
Q-Value	Q		13000			
Motional capacitance	C1		3.0		4.4	fF
Shunt capacitance	Co		0.6		1.2	pF
Turning point	Tp		20		30	deg. C
Secondary temperature Coefficient	K		-4.0			10^{-8}/degC^2
Aging	df/F	Ta = 25 deg. C	-3		3	ppm/year
Drive level	DL			0.1	0.5	μW
Insulation resistance (between electrodes)	IR		500			MΩ

4-2 MOISTURE SENSITIVITY LEVEL

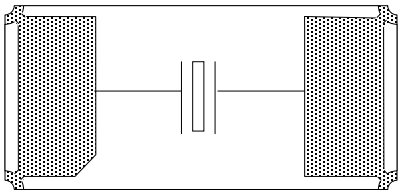
Level 1

5. APPEARANCES, PHYSICAL DIMENSION

OUTLINE DIMENSION



CONNECTION (TOP VIEW)



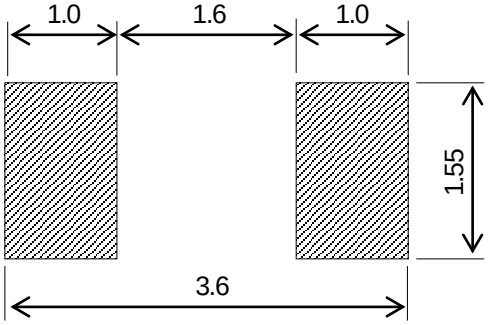
UNIT : mm

MARKING

1	Identification	K
2	Date Code(3 Digits)	Last 1 digit of year and week Code.
3	Load Capacitance	(Example) 6.0pF → F
4	Management number	Alphabet or Number 1digit.

*The font of marking above is for reference purpose.

6. RECOMMENDED LAND PATTERN



UNIT : mm

7. TAPING

7.1 TAPING

Maximum quantity per 1 reel is Max 3,000pcs(ϕ180 Reel) and oriented part in 1 direction

1.Material of the carrier tape shall be polystyrene or A-PET (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.

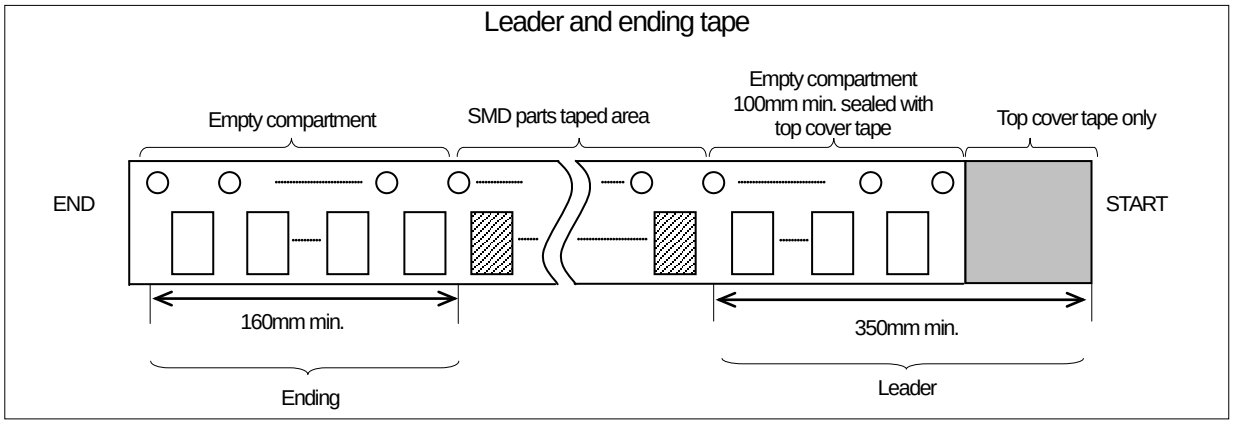
4. The R of the corner without designation is 0.2R MAX.

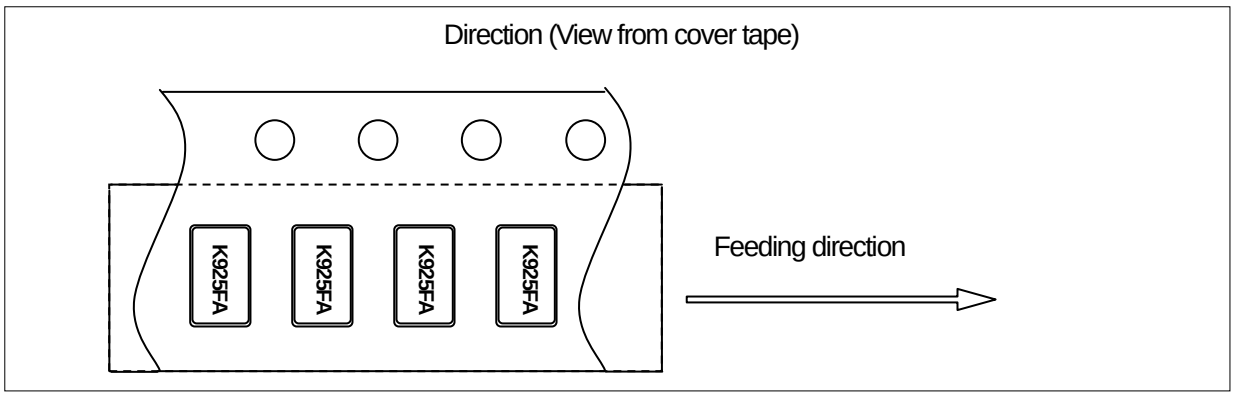
5. Misalignment between centers of the cavity and a sprocket hole shall be 0.05mm or less.

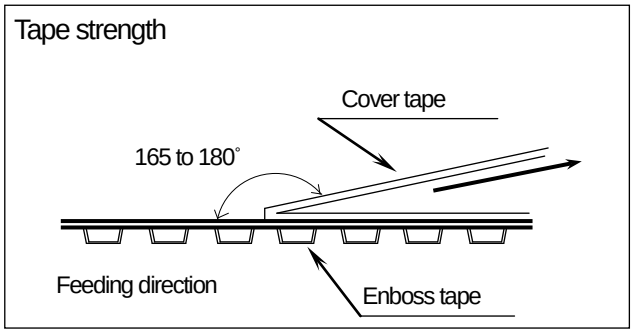
6. Cumulative pitch tolerance of "G" shall be ±0.2mm at 10 pitches.

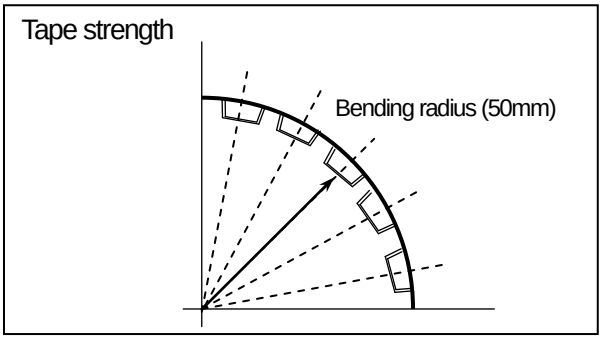
7. The directivity of printing in an embossing tape shall be unified as shown in the above-mentioned figure.

8. Peeling force of the seal tape is in the range of 0.1 to 0.7N.

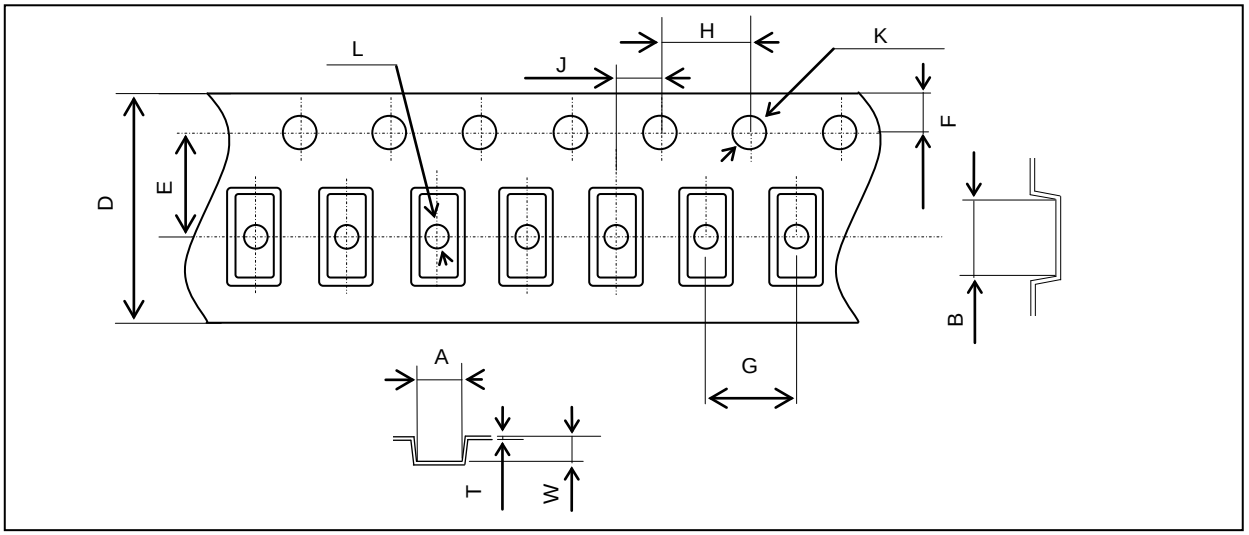








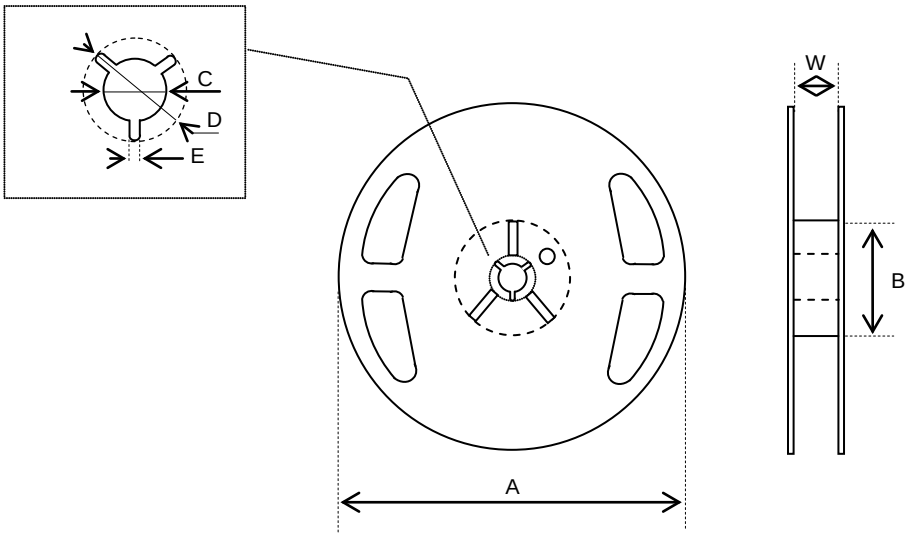
7-2 Emboss Taping specifications



symbol	A	B	D	E	F	G
Dimension	1.8±0.1	3.6±0.1	12.0±0.3	5.5±0.1	1.75±0.1	4.0±0.1
Symbol	H	J	K	L	W	T
Dimension	4.0±0.1	2.0±0.1	1.5+0.1/-0	1.0+0.1/-0	1.0±0.1	0.3±0.05

(Unit: mm)

7-3 Reel specifications



Symbol	A	B	C
Dimension	ϕ180 +0/-1.5	ϕ60 +1.0/-0	ϕ13±0.2
Symbol	D	E	W
Dimension	ϕ21±0.8	2.0±0.5	13.0 +1.0/-0

(Unit: mm)

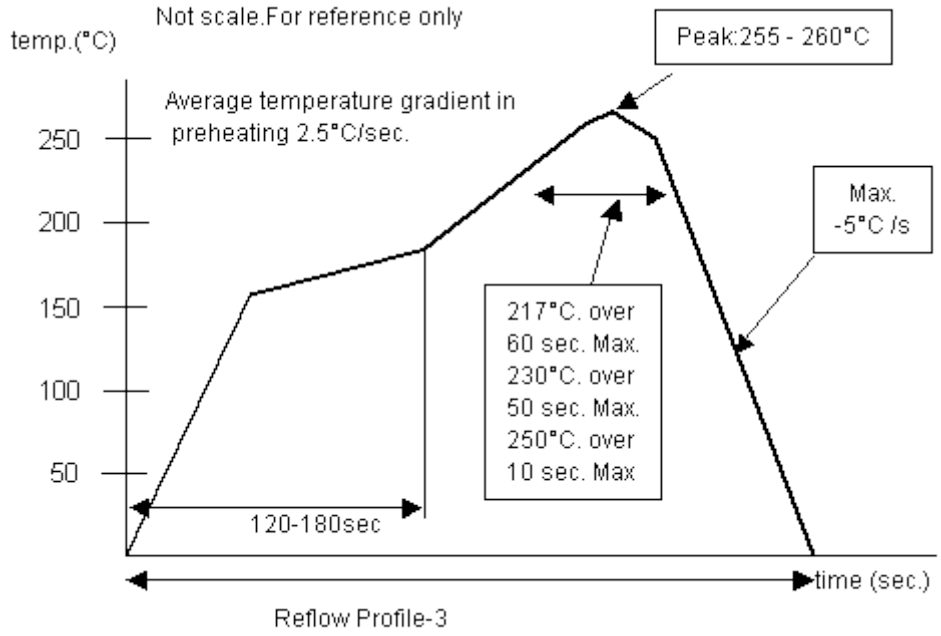
8. RELIABILITY

Frequency Stability and ESR Stability After stressing.

TEST ITEM		Frequency Stability (ppm)	ESR Stability (%)	Remarks
8.1	Low temp. use/storage	±5	±30	Ta=25 deg. C
8.2	High temp. use/storage	±5		
8.3	Shock	±20		
8.4	Vibration	±5		
8.5	Soldering iron resistance	±5		
8.6	Manual hot gas resistance	±10		
8.7	High temp. With humidity	±5		
8.8	Temperature cycle	±5		

9. REFLOW PROFILE

Pb-free reflow requirements for soldering heat resistance



Reflow Profile-3