

Specifications

| | |
|--------------|-------------------------|
| Drawing No. | USY1N-H1-13168-00 1 / 7 |
| Issued Date. | Jul,5,2013 |

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 | ST3215SB32768C0HPWBB |
| Remarks Pb-Free, RoHS Compliant, MSL 1 | |

Customer Acceptance

| | | |
|------------------|------------------|--|
| Accept Signature | Approved Date | |
| | | |
| | Department | |
| | | |
| | Person in charge | |

Seller

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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,5,2013 | T.Soda | A.Muraoka | Y.Nozaki |
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| | | | | | |
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1. APPLICATION

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

2. PART NUMBER

ST3215SB32768C0HPWBB

3. RATINGS

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

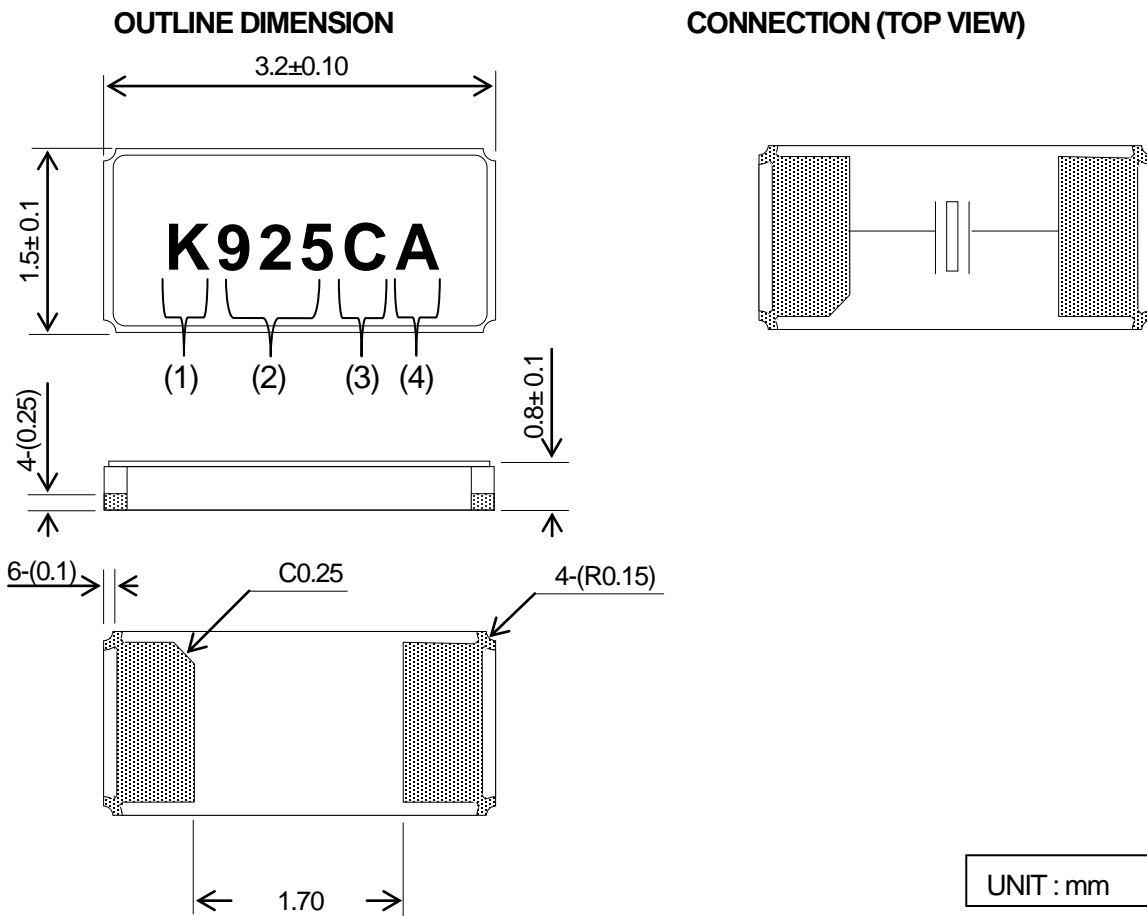
4. CHARACTERISTICS**4-1 ELECTRICAL CHARACTERISTICS**

| Item | Symbol | Electrical Specification | | | | Unit |
|--|--------|--------------------------|-------|--------|-----|-------------------------------------|
| | | Condition | Min | Typ. | Max | |
| Nominal Frequency | fo | Ta = 25 deg. C | | 32.768 | | kHz |
| Frequency Tolerance | df/fo | Ta = 25 deg.C | -20 | | 20 | ppm |
| Load Capacitance | CL | | | 7.0 | | 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 |
| 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

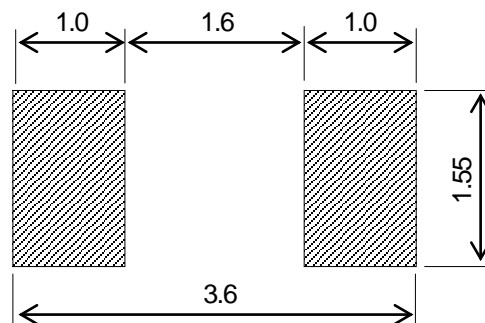


MARKING

- | | | |
|---|---------------------|-------------------------------------|
| 1 | Identification | K |
| 2 | Date Code(3 Digits) | Last 1 digit of year and week Code. |
| 3 | Load Capacitance | (Example) 7pF → C |
| 4 | Management Code | Alphabet or Number 1digit. |

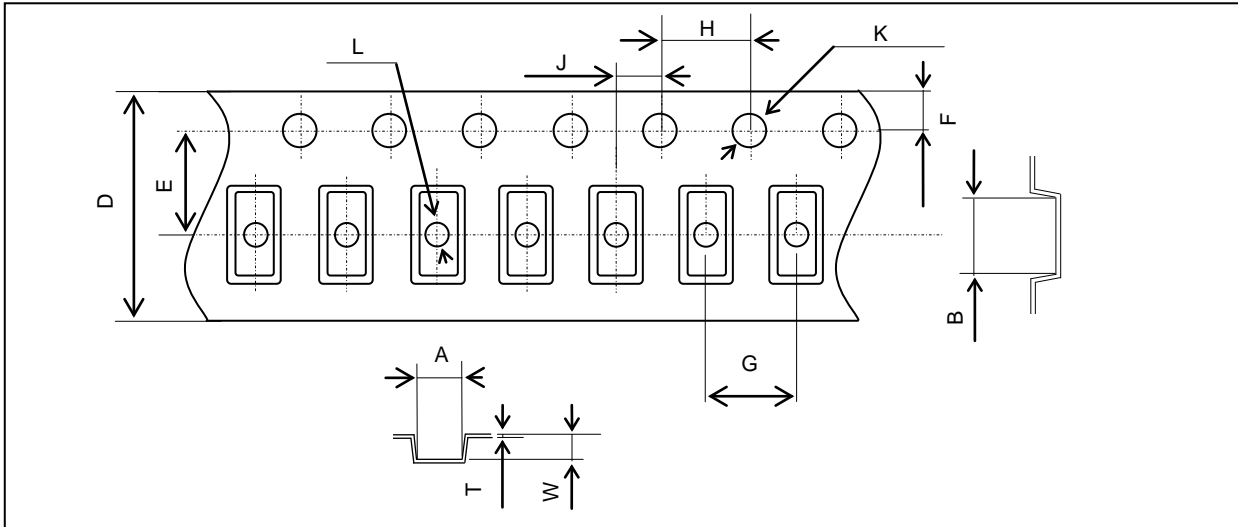
*The font of marking above is for reference purpose.

6. RECOMMENDED LAND PATTERN



UNIT : mm

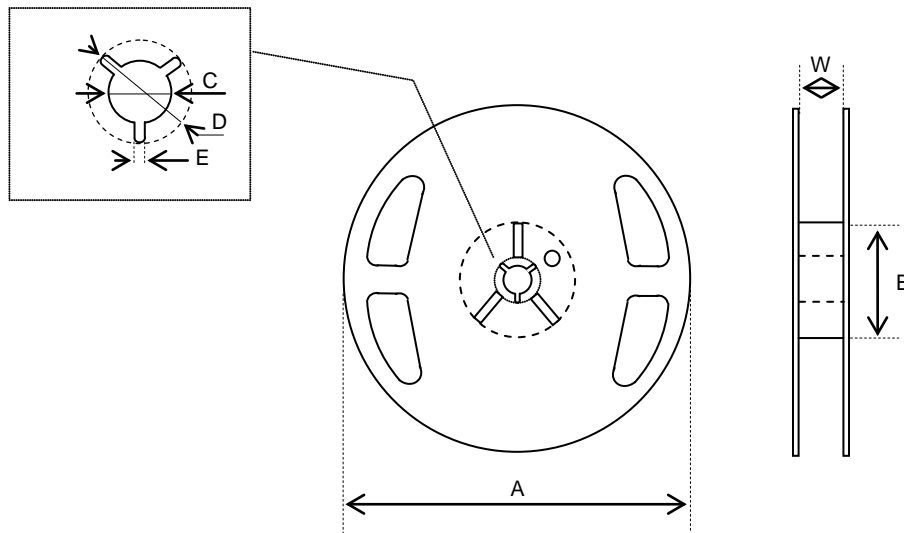
7-2 Emboss Taping specifications



| | | | | | | |
|-----------|---------|---------|------------|------------|----------|----------|
| 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

