MHz Range Crystal unit TSX-3225

SEIKO EPSON CORPORATION

Product name TSX-3225 32.000000 MHz 16.0 +10.0-10.0

Product Number / Ordering code X1E0000210170xx

Please refer to the 5.Packing information about xx (last 2 digits)

Pb free / Complies with EU RoHS directive

Reference weight Typ. 17 mg

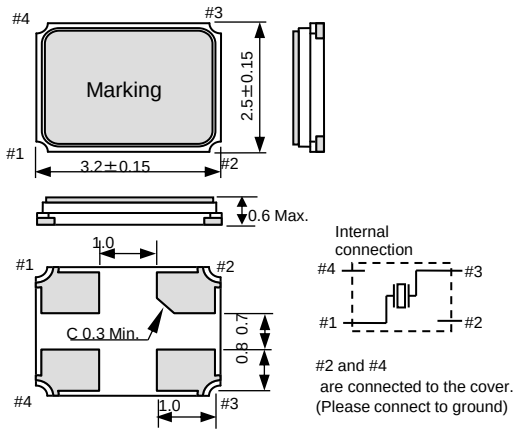
## 1.Absolute maximum ratings

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions / Remarks |
|---|---|---|---|---|---|---|
| Storage temperature | T_stg | -40 | − | +125 | ºC | Storage as single product |
| Operating temperature | T_use | -40 | − | +105 | ºC | |

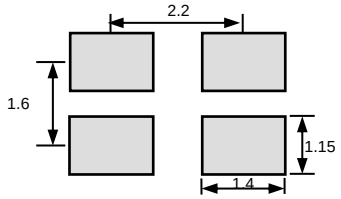
## 2.Specifications(characteristics)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions / Remarks |
|---|---|---|---|---|---|---|
| Nominal frequency | f_nom | — | 32.000000 | — | MHz | Fundamental |
| Frequency tolerance | f_tol | -10 | − | +10 | x $10^{-6}$ | @+25ºC |
| Frequency Stability over temperature | f_tem | -20 | − | +20 | x $10^{-6}$ | -40ºC to +85ºC |
| Operating temperature | T_use | -40 | − | +85 | ºC | |
| Level of drive | DL | 10 | 100 | 200 | µW | |
| Load capacitance | CL | — | 16 | — | pF | |
| Motional resistance (ESR) | R1 | − | - | 40 | Ω | |
| Motional capacitance | C1 | - | 5.55 | - | fF | |
| Motional inductance | L1 | - | 4.46 | - | mH | |
| Shunt capacitance | C0 | - | 1.50 | - | pF | |
| Frequency aging | f_age | -1 | — | +1 | x$10^{-6}$ /yea | @+25ºC, First year |

## 3.External dimensions (Unit: mm)




## 4.Footprint(Recommended) (Unit: mm)




## 5.Packing information

[ 1 ]Product number last 2 digits code (xx) description The recommended code is "17"

X1E0000210170xx

| Code | Condition | Code | Condition |
|---|---|---|---|
| 01 | Any Q'ty vinyl bag(Tape cut) | 00 | 2000pcs / Reel |
| 11 | Any Q'ty / Reel | 16 | 3000pcs / Reel |
| 12 | 250pcs / Reel | 17 | 4000pcs / Reel |
| 14 | 1000pcs / Reel | | |


深圳市满度科技有限公司
Web:www.manduic.com
Tel:150-1290-5940
Email:sales@manduic.com
微信扫码咨询客服

[ 2 ] Taping specification

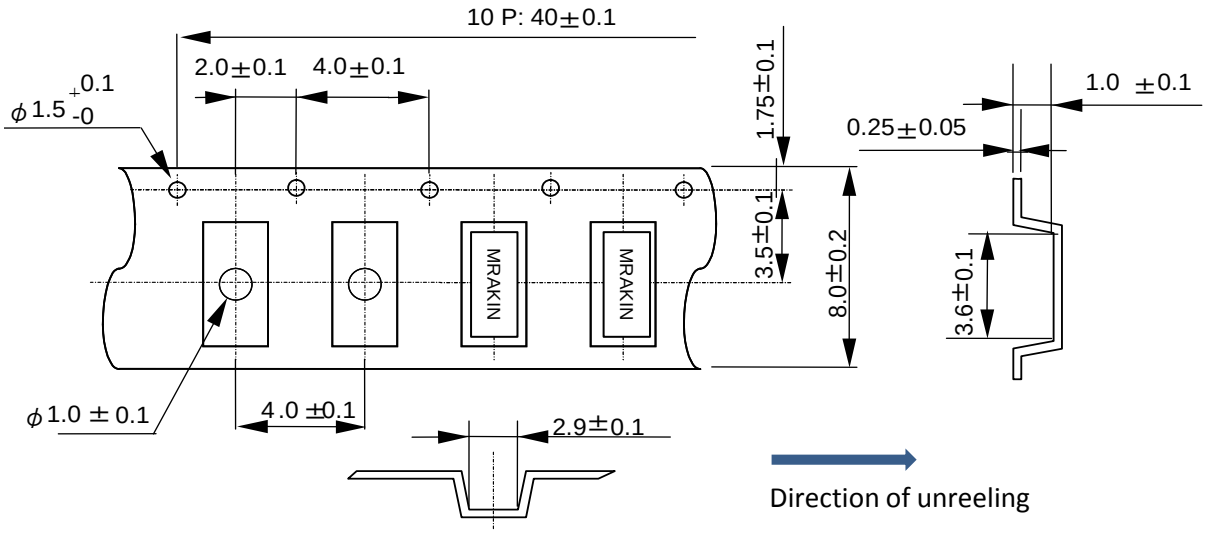
Subject to EIA-481 & IEC-60286

(1) Tape dimensions TE0804L

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

Unit: mm

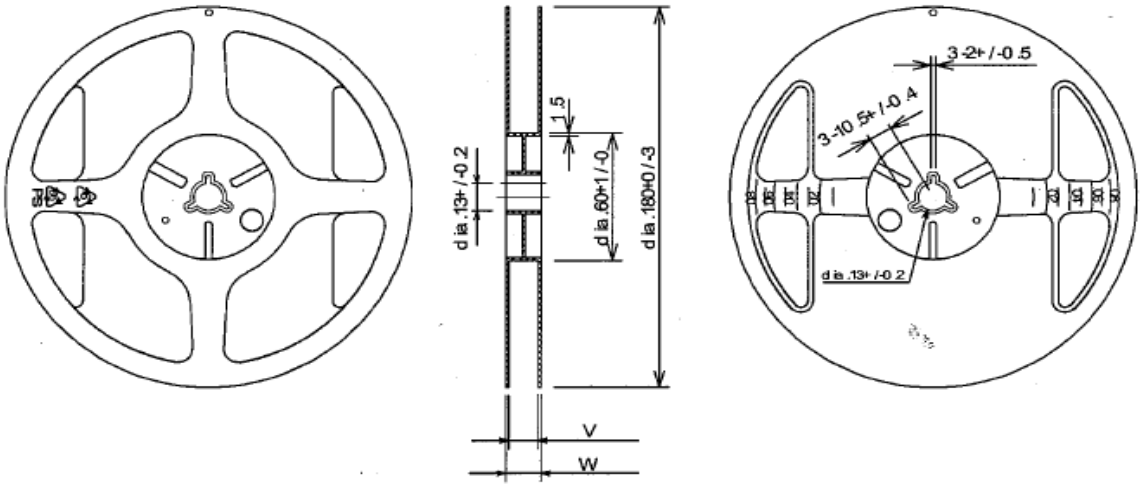



(2) Reel dimensions

Center material : PS

Material of the Reel : PS

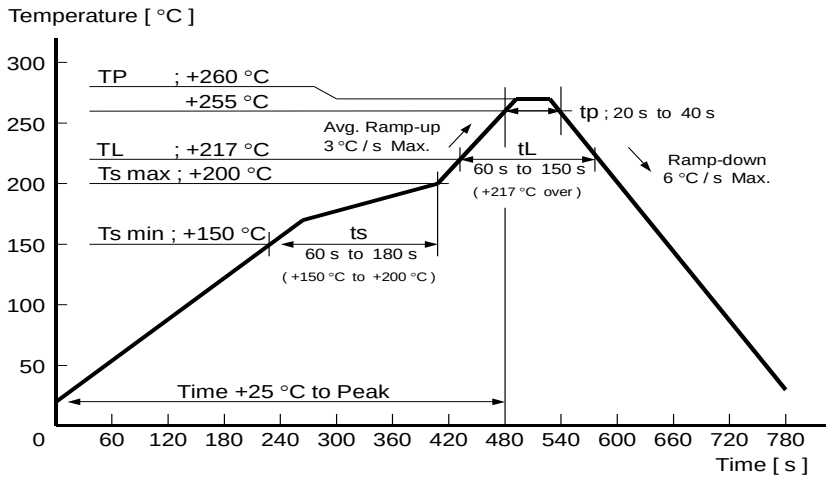
Unit: mm




| V(mm) | W(mm) |
|---|---|
| 9.0+/-0.3 | 11.4+/-1 |

## 6.Reflow profile

Reflow condition (Follow of JEDEC STD-020D.01)




## 7.Notice

- This material is subject to change without notice.
- Any part of this material may not be reproduced or duplicated in any form or any means without the written permission of Seiko Epson.
- The information about applied data,circuitry, software, usage, etc. written in this material is intended for reference only.
  Seiko Epson does not assume any liability for the occurrence of customer damage or infringing on any patent or copyright of a third party.
  This material does not authorize the licensing for any patent or intellectual copyrights.
- When exporting the products or technology described in this material, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
- You are requested not to use the products (and any technical information furnished, if any) for the development and/or manufacture of weapon of mass destruction or for other military purposes. You are also requested that you
  would not make the products available to any third party who may use the products for such prohibited purposes.
- These products are intended for general use in electronic equipment. When using them in specific applications that require
  extremely high reliability, such as the applications stated below, you must obtain permission from Seiko Epson in advance.
  / Space equipment (artificial satellites, rockets, etc.)
  / Transportation vehicles and related (automobiles, aircraft, trains, vessels, etc.)
  / Medical instruments to sustain life
  / Submarine transmitters
  / Power stations and related
  / Fire work equipment and security equipment
  / Traffic control equipment
  / And others requiring equivalent reliability.

- All brands or product names mentioned herein are trademarks and/or registered trademarks of their respective.

## Contact us

http://www5.epsondevice.com/en/contact/