

Product name TSX-3225 24.000000 MHz 16.0 +10.0-10.0

Product Number / Ordering code X1E0000210130xx

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

Pb free / Complies with EU RoHS directive

Reference weight Typ. 17 mg

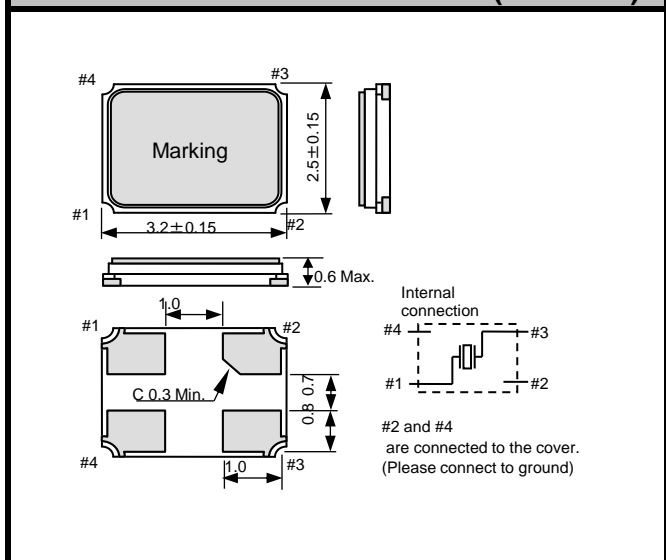
**1.Absolute maximum ratings**

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

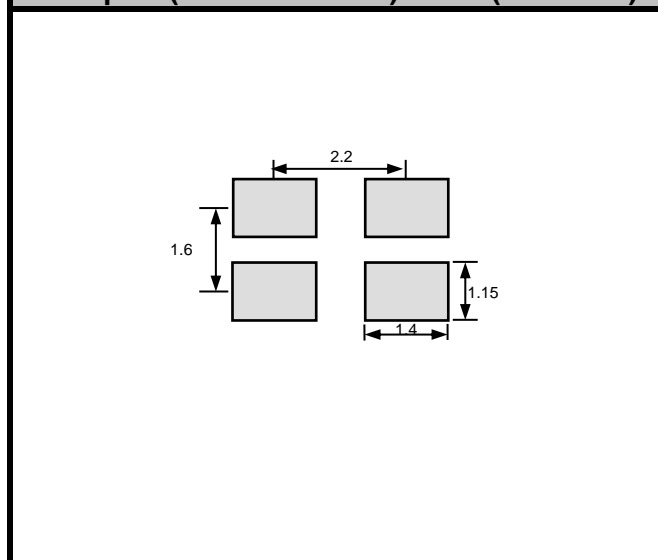
**2.Specifications(characteristics)**

| Parameter                            | Symbol | Min. | Typ.      | Max. | Unit                   | Conditions / Remarks |
|--------------------------------------|--------|------|-----------|------|------------------------|----------------------|
| Nominal frequency                    | f_nom  | —    | 24.000000 | —    | MHz                    | Fundamental          |
| Frequency tolerance                  | f_tol  | -10  | -         | +10  | x 10 <sup>-6</sup>     | @+25°C               |
| Frequency Stability over temperature | f_tem  | -20  | -         | +20  | x 10 <sup>-6</sup>     | -40°C to +85°C       |
| Operating temperature                | T_use  | -40  | -         | +85  | °C                     |                      |
| Level of drive                       | DL     | 10   | 100       | 200  | μW                     |                      |
| Load capacitance                     | CL     | —    | 16        | —    | pF                     |                      |
| Motional resistance (ESR)            | R1     | -    | -         | 40   | Ω                      |                      |
| Motional capacitance                 | C1     | -    | 3.48      | -    | fF                     |                      |
| Motional inductance                  | L1     | -    | 12.64     | -    | mH                     |                      |
| Shunt capacitance                    | C0     | -    | 1.27      | -    | pF                     |                      |
| Frequency aging                      | f_age  | -1   | —         | +1   | x10 <sup>-6</sup> /yea | @+25°C, 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"

X1E0000210130xx

| 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               |      |                |

[ 2 ] Taping specification

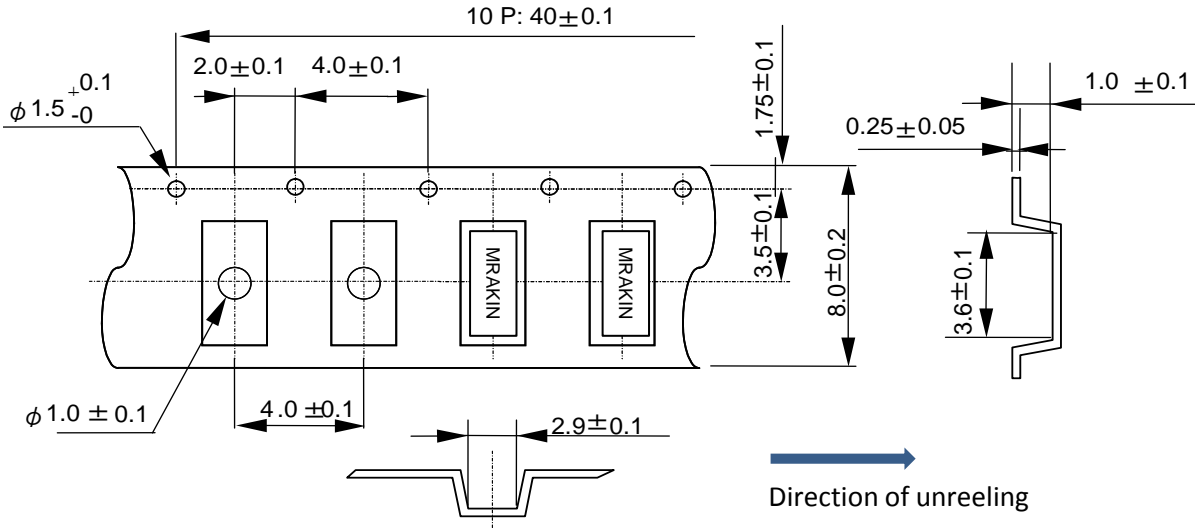
Subject to EIA-481 & IEC-60286

(1) Tape dimensions TE0804L

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

Unit: mm

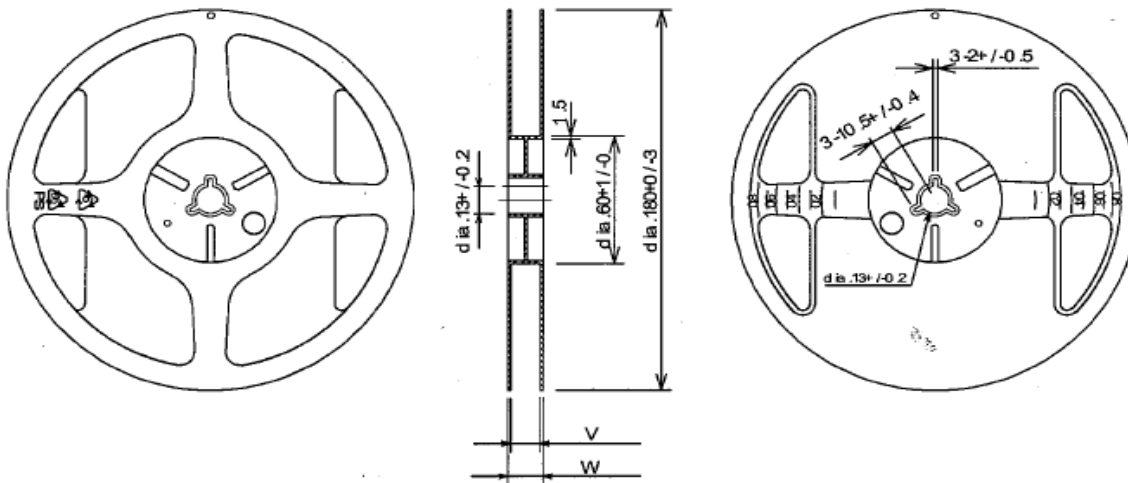


(2) Reel dimensions

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)



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