

kHz Range Crystal unit

FC1610AN

SEIKO EPSON CORPORATION

Product name

FC1610AN 32.768000 kHz 6.0 +20.0-20.0

Product Number / Ordering code

X1A0001210013xx

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

Complies with EU RoHS directive

Reference weight Typ. 3 mg

**1.Absolute maximum ratings**

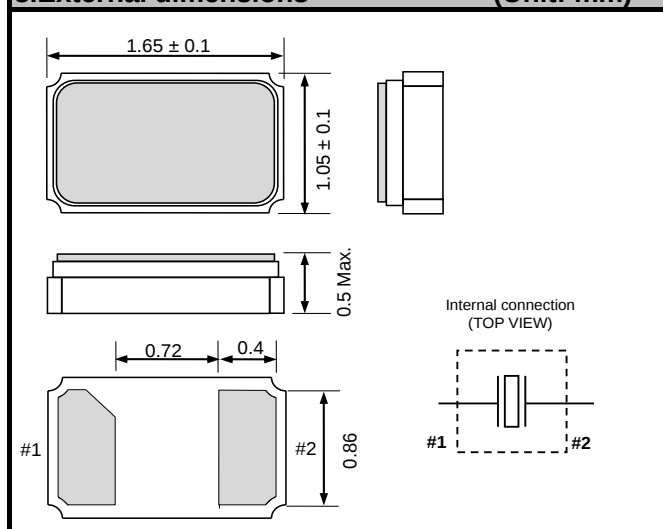
| Parameter           | Symbol | Min. | Typ. | Max. | Unit | Conditions / Remarks      |
|---------------------|--------|------|------|------|------|---------------------------|
| Storage temperature | T_stg  | -55  | -    | 125  | °C   | Storage as single product |
| Maximum drive level | GL     | -    | -    | 0.5  | μW   |                           |

**2.Specifications(characteristics)**

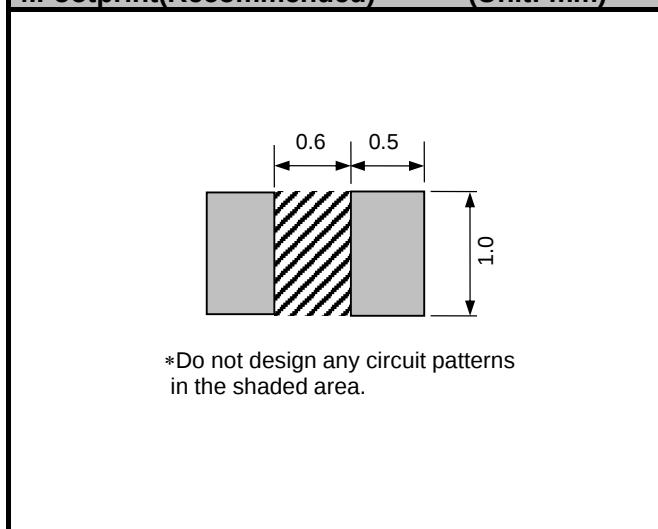
| Parameter                 | Symbol | Min. | Typ.   | Max.  | Unit                                | Conditions / Remarks |
|---------------------------|--------|------|--------|-------|-------------------------------------|----------------------|
| Nominal frequency         | f_nom  | -    | 32.768 | -     | kHz                                 |                      |
| Operating temperature     | T_use  | -40  | -      | 85    | °C                                  |                      |
| Level of drive            | DL     | —    | 0.1    | 0.5   | μW                                  |                      |
| Frequency tolerance       | f_tol  | -20  | -      | 20    | x 10 <sup>-6</sup>                  | +25°C DL=0.1μW       |
| Turnover temperature      | Ti     | 20   | 25     | 30    | °C                                  |                      |
| Parabolic coefficient     | B      | -    | -      | -0.04 | x 10 <sup>-6</sup> /°C <sup>2</sup> |                      |
| Load capacitance          | CL     | -    | 6.0    | -     | pF                                  |                      |
| Motional resistance (ESR) | R1     | -    | -      | 90    | k Ω                                 |                      |
| Motional capacitance      | C1     | -    | 6      | -     | fF                                  |                      |
| Shunt capacitance         | C0     | -    | 1.2    | -     | pF                                  |                      |
| Motional inductance       | L1     | -    | 4      | -     | kH                                  |                      |
| Frequency aging           | f_age  | -3   | -      | 3     | 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 "00"

X1A0001210013xx

| Code | Condition                    | Code | Condition      |
|------|------------------------------|------|----------------|
| 01   | Any Q'ty vinyl bag(Tape cut) | 16   | 3000pcs / Reel |
| 11   | Any Q'ty / Reel              | 00   | 5000pcs / Reel |
| 12   | 250pcs / Reel                |      |                |
| 14   | 1000pcs / Reel               |      |                |

## [ 2 ] Taping specification

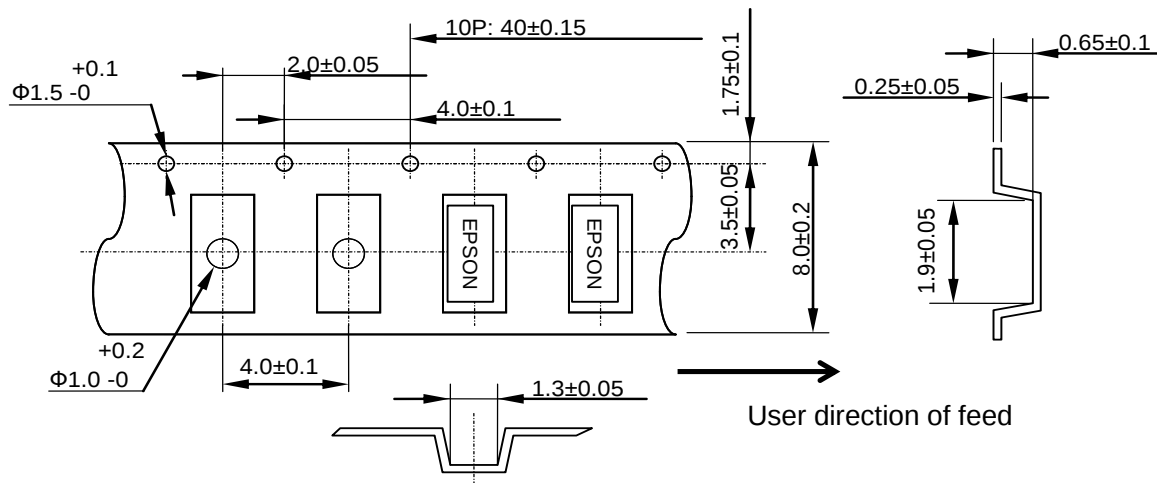
Subject to EIA-481 &amp; IEC-60286

## (1) Tape dimensions TE1204L

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

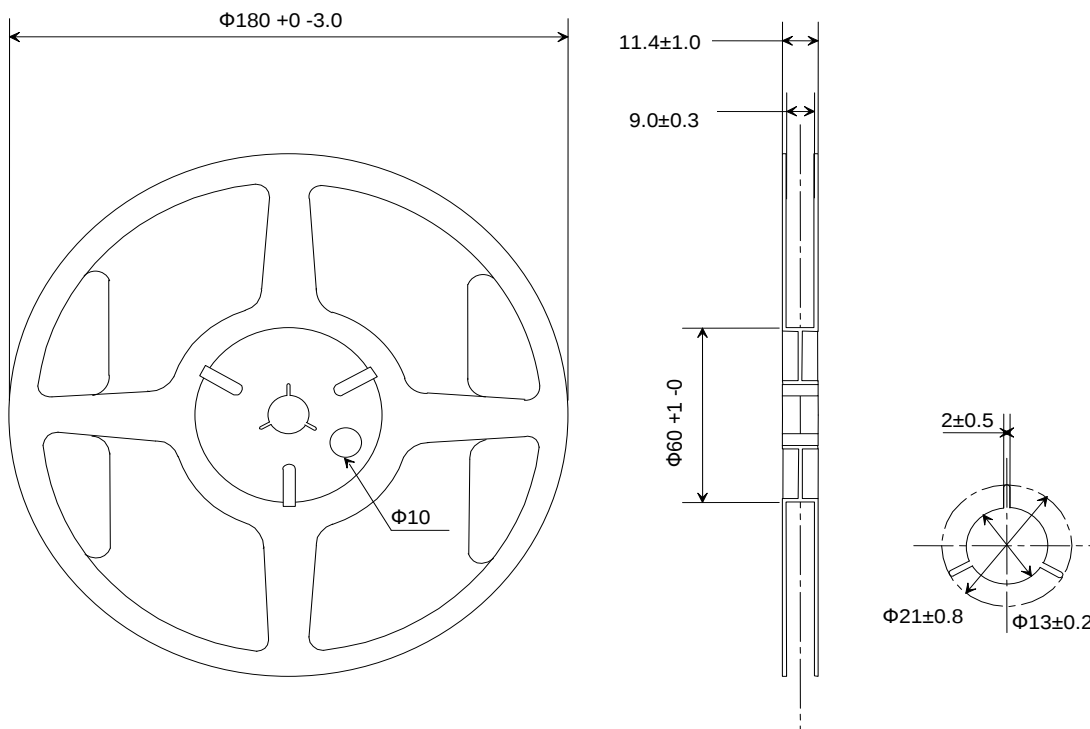
Unit: mm



## (2) Reel dimensions

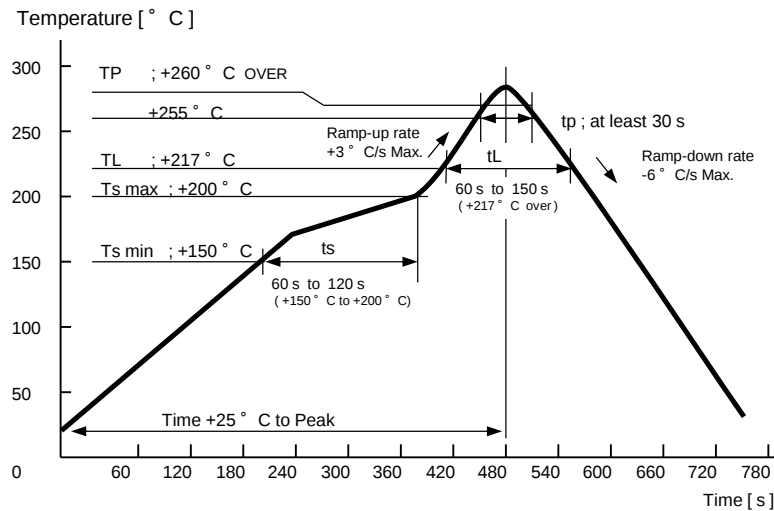
Material of the Reel : PS

Unit: mm



**Reflow profile**

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

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