

Product name

FC-135 32.768000 kHz 9.0 +30.0-30.0

Product Number / Ordering code

Q13FC13500008xx

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

Complies with EU RoHS directive

Reference weight Typ. 11 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.Specificatioins(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  | -30.0 | -      | +30.0 | 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     | -     | 9.0    | -     | pF                                  |                      |
| Motional resistance (ESR)          | R1     | -     | -      | 70    | k Ω                                 |                      |
| Motional capacitance               | C1     | -     | 3.4    | -     | fF                                  |                      |
| Shunt capacitance                  | C0     | -     | 1      | -     | pF                                  |                      |
| Motional inductance                | L1     | -     | 7.1    | -     | kH                                  |                      |
| Frequency aging                    | f_age  | -3    | -      | 3     | x10 <sup>-6</sup> /yea              | @+25°C, First year   |

3.External dimensions (Unit: mm)

Top view: 3.2±0.1, 1.5±0.1, C622J

Side view: 0.8±0.1

Bottom view: 1.7, 0.75, #1, #2

Internal Connection: #1, #2

4.Footprint(Recommended) (Unit: mm)

2.5, 1.8, 1.0

\*Do not design any circuit patterns in the shaded area.

5.Packing information

[ 1 ]Product number last 2 digits code (xx) description

The recommended code is "00"

Q13FC13500008xx

| Code | Condition                    | Code | Condition      |
|------|------------------------------|------|----------------|
| 01   | Any Q'ty vinyl bag(Tape cut) | 14   | 1000pcs / Reel |
| 11   | Any Q'ty / Reel              | 15   | 2000pcs / Reel |
| 12   | 250pcs / Reel                | 00   | 3000pcs / Reel |
| 13   | 500pcs / Reel                |      |                |

## [ 2 ] Taping specification

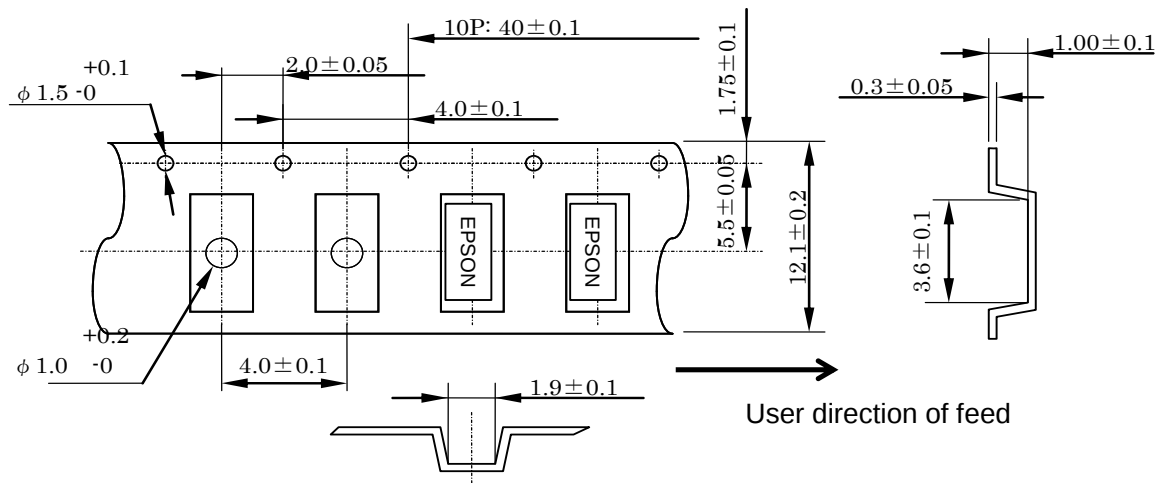
Subject to EIA-481 &amp; IEC-60286

## (1) Tape dimensions TE1204L

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

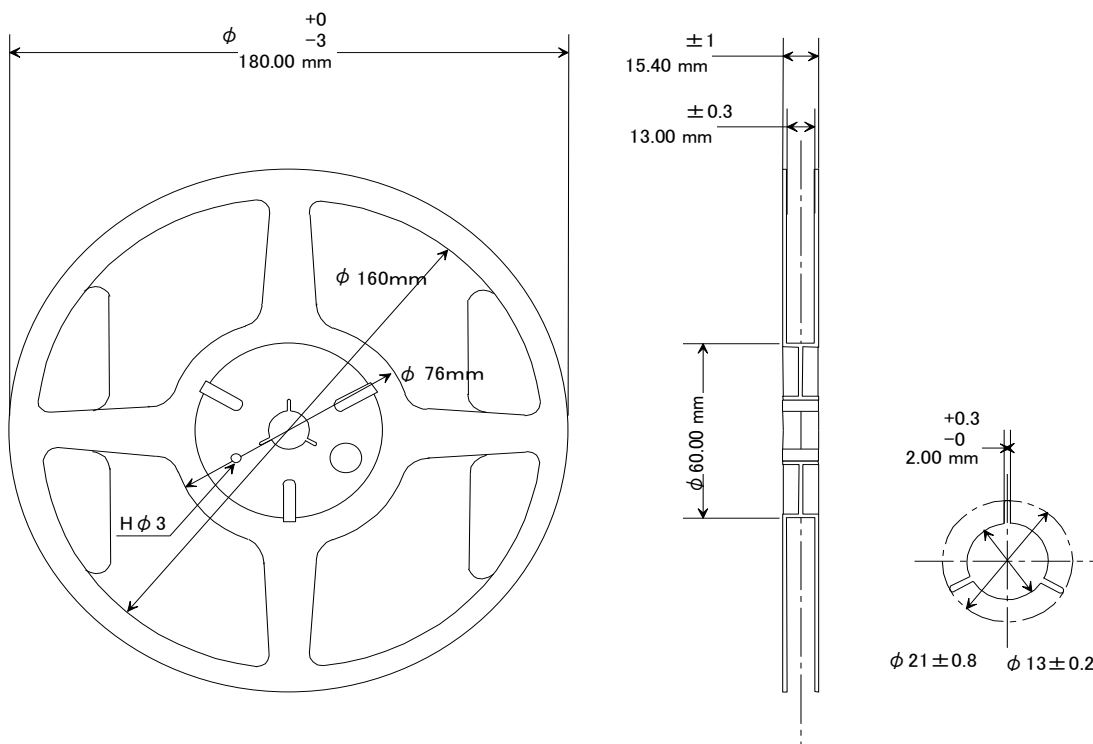
Unit: mm



## (2) Reel dimensions

Material of the Reel : PS

Unit: mm



**Reflow profile**

Pre Heating Temperature

Tp1 ~ Tp2 = + 170 °C

Heating Temperature

TMlt = + 220 °C

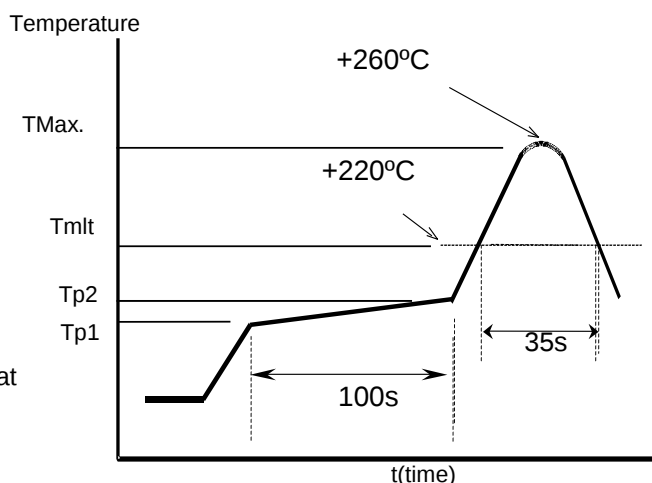
Peak Temperature

TMax. = + 260 °C

Point of measuring

In case of Solder ability

Terminal.

In case of Resistance to soldering heat  
Surface.**Notice**

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