

### Features

- Frequency range : 10MHz to 52MHz
- SMD seam sealing ceramic package
- Supply voltage : 3.3V
- Free Run Stability for 20 Years :  $\pm 4.6\text{ppm}$  (Stratum 3)
- Clipped Sinewave output
- Voltage control function available
- External dimensions (mm)  
L : 7.0 x W : 5.0 x H : 2.0
- RoHS compliant & Pb free

### Applications

- Wireless communications, Smallcell, Base station
- Precise timing & synchronization network (IEEE1588, Sync.E), OTN, PTN, Switch
- Test and measurement equipment
- Smart grid
- Stratum 3

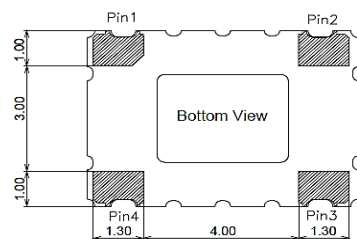
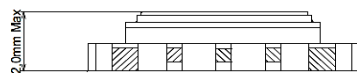
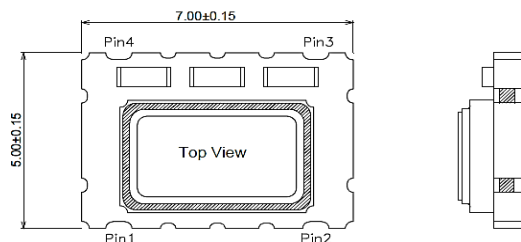
### Electrical Characteristics

| Item                                      |                   | QTS750                                                           | Conditions                                      |
|-------------------------------------------|-------------------|------------------------------------------------------------------|-------------------------------------------------|
| Nominal Frequency Range ( $F_0$ )         |                   | 10MHz ~ 52MHz                                                    |                                                 |
| Frequency Tolerance ( $F_{tol}$ )         |                   | $\pm 2.0$ ppm Max.                                               | Note [1]                                        |
| Frequency Stability                       | vs Temperature    | $\pm 0.1\text{ppm}$ , $\pm 0.28\text{ppm}$ , $\pm 0.5\text{ppm}$ | Note [2]                                        |
|                                           | vs Load           | $\pm 0.1$ ppm Max.                                               | Load $\pm 5\%$                                  |
|                                           | vs Supply Voltage | $\pm 0.1$ ppm Max.                                               | $V_{DD} \pm 5\%$                                |
| Operating Temperature Range ( $T_{OTR}$ ) |                   | $-40^\circ\text{C} \sim +85^\circ\text{C}$                       |                                                 |
| Supply Voltage ( $V_{DD}$ )               |                   | 3.3V                                                             |                                                 |
| Current Consumption ( $I_{DD}$ )          |                   | 5.0 mA Max.                                                      |                                                 |
| Output Type                               |                   | Clipped Sinewave                                                 |                                                 |
| Output Load                               |                   | 10k $\Omega$ // 10pF                                             |                                                 |
| Output Level                              |                   | 0.8 V(p-p) Min.                                                  | Note [3]                                        |
| Start-up Time                             |                   | 2.5 ms Max.                                                      |                                                 |
| Auto Frequency Control (AFC) Range        |                   | $\pm 5\text{ppm} \sim \pm 16\text{ppm}$                          | VCTCXO, optional<br>$V_C = 1.5 \pm 1.0\text{V}$ |
| Phase Noise                               |                   | -135 dBc/Hz Typ.                                                 | at 1kHz offset                                  |
| Aging ( $F_{aging}$ )                     |                   | $\pm 1$ ppm Max.                                                 | at $25^\circ\text{C}$ , first year              |
| 24 Hours Holdover Stability               |                   | $\pm 40$ ppb Max.                                                | Note [4]                                        |
| Free Run Stability for 20 Years           |                   | $\pm 4.6$ ppm Max.                                               | Note [5]                                        |
| Storage Temperature Range ( $T_{STR}$ )   |                   | $-55^\circ\text{C} \sim +125^\circ\text{C}$                      |                                                 |

### Notes:

- [1] Refer to nominal frequency, operation after 2 times of reflow at 25°C.
- [2] Refer to  $(F_{max} + F_{min})/2$ .
- [3] Decoupling capacitor is required in external circuit.
- [4] 24 hours at constant temperature after 48 hours operation
- [5] Inclusive of initial tolerance at 25°C, variations over temperature, supply voltage, load, reflow soldering and aging for 20 years.

### Dimensions

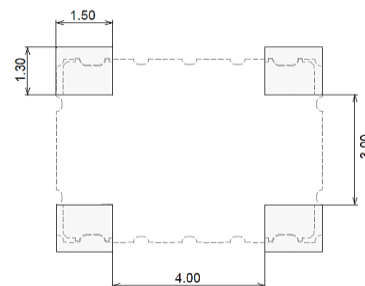


(Unit: mm)

### Pin function

| Pin   | Function        |        |
|-------|-----------------|--------|
|       | TCXO            | VCTCXO |
| Pin 1 | GND or NC       | AFC    |
| Pin 2 | GND             |        |
| Pin 3 | OUTPUT          |        |
| Pin 4 | V <sub>DD</sub> |        |

### Recommended pad layout



### Ordering Information

QTS750 - 19.200M B P - T

#### Frequency in Hz

Please contact us for available frequencies

#### Supply Voltage

B 3.3 V

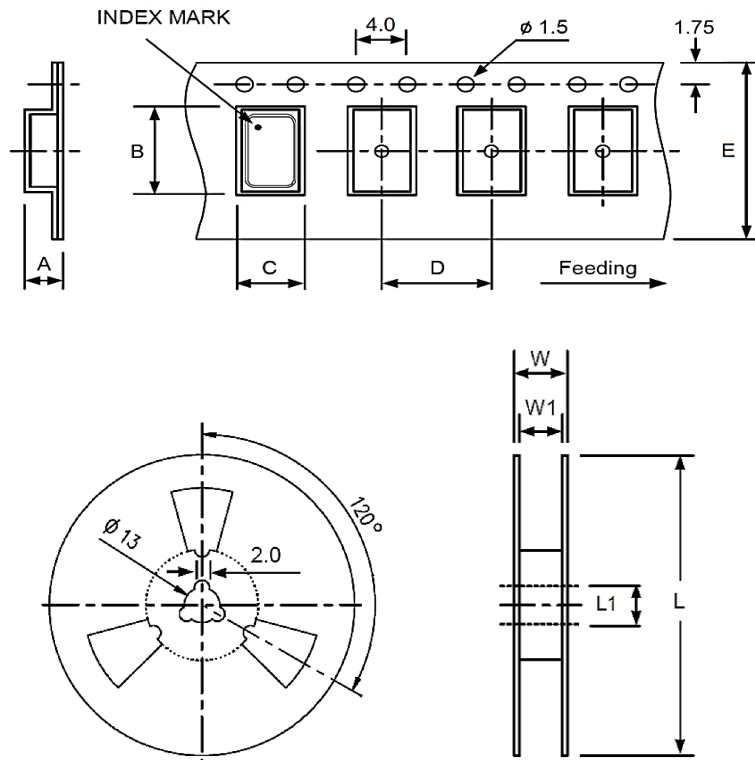
#### Packaging Method

T Tape & Reel

#### Frequency Stability (over Temp.)

|   |            |                  |        |
|---|------------|------------------|--------|
| F | ± 0.5 ppm  | (-40°C ~ +85°C), | VCTCXO |
| G | ± 0.5 ppm  | (-40°C ~ +85°C), | TCXO   |
| O | ± 0.28 ppm | (-40°C ~ +85°C), | VCTCXO |
| P | ± 0.28 ppm | (-40°C ~ +85°C), | TCXO   |
| T | ± 0.1 ppm  | (-40°C ~ +85°C), | VCTCXO |
| U | ± 0.1 ppm  | (-40°C ~ +85°C), | TCXO   |

### Packing



| DIMENSIONS | A    | B    | C    | D    | E    | L     | L1   | W    | W1   |
|------------|------|------|------|------|------|-------|------|------|------|
|            | 2.00 | 7.90 | 5.45 | 8.00 | 16.0 | 180.0 | 13.0 | 20.5 | 16.0 |

(Unit: mm)

### Reflow Profile

Solder melting point :  $220^{\circ}\text{C} \pm 10^{\circ}\text{C}$ , 60 sec. Min., 200 sec. Max.

Peak temperature :  $260^{\circ}\text{C} \pm 10^{\circ}\text{C}$ , 10 sec. Min., 30 sec. Max.

