

### Features

- Frequency range : 10MHz to 52MHz
- SMD seam sealing ceramic package
- Supply voltage : 3.3V
- Free Run Stability for 20 Years :  
±4.6ppm (Stratum 3)
- CMOS output
- Voltage control function available
- Tri-state function available
- External dimensions (mm)  
L : 5.0 x W : 3.2 x H : 2.1
- 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

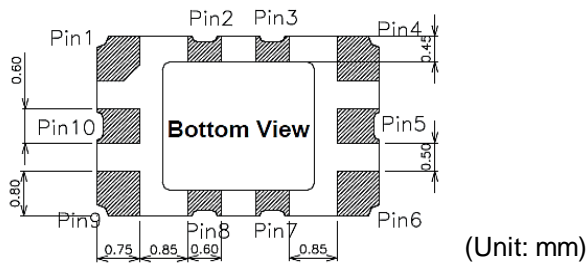
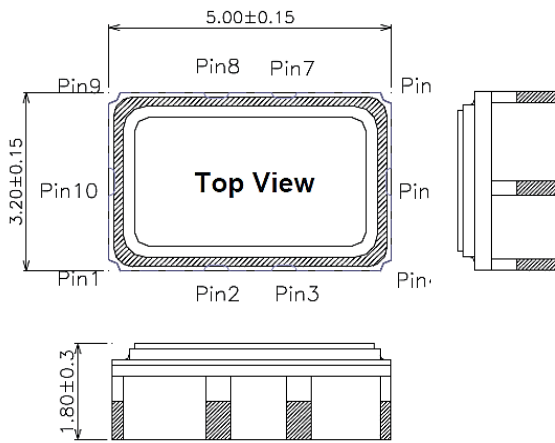
### Electrical Characteristics

| Item                                      |                      | QTS532C                    | Conditions                               |
|---|----------------------|----------------------------|--|
| Nominal Frequency Range ( $F_0$ )         |                      | 10MHz ~ 52MHz              |  |
| Frequency Tolerance ( $F_{tol}$ )         |                      | ±2.0 ppm Max.              | Note [1]                                 |
| Frequency Stability                       | vs Temperature       | ±0.1ppm, ±0.28ppm, ±0.5ppm | Note [2]                                 |
|   | vs Load              | ±0.1 ppm Max.              | Load ±5%                                 |
|   | vs Supply Voltage    | ±0.1 ppm Max.              | $V_{DD} \pm 5\%$                         |
| Operating Temperature Range ( $T_{OTR}$ ) |                      | -40°C ~ +85°C              |  |
| Supply Voltage ( $V_{DD}$ )               |                      | 3.3V                       |  |
| Current Consumption ( $I_{DD}$ )          |                      | 5.0 mA Max.                |  |
| Output Type                               |                      | CMOS                       |  |
| Output Load                               |                      | 15 pF                      |  |
| Output Voltage                            | High ( $V_{OH}$ )    | 90% $V_{DD}$ Min.          |  |
|   | Low ( $V_{OL}$ )     | 10% $V_{DD}$ Max.          |  |
| Tri-state Input                           | High (output enable) | 80% $V_{DD}$ Min.          |  |
|   | Low (output disable) | 20% $V_{DD}$ Max.          |  |
| Start-up Time                             |                      | 2.5 ms Max.                |  |
| Auto Frequency Control (AFC) Range        |                      | ±5ppm ~ ±16ppm             | VCTCXO, optional<br>$V_C = 1.5 \pm 1.0V$ |
| Phase Noise                               |                      | -135 dBc/Hz Typ.           | at 1kHz offset                           |
| Aging ( $F_{aging}$ )                     |                      | ±1 ppm Max.                | at 25°C, first year                      |
| 24 Hours Holdover Stability               |                      | ±40 ppb Max.               | Note [3]                                 |
| Free Run Stability for 20 Years           |                      | ±4.6 ppm Max.              | Note [4]                                 |
| Storage Temperature Range ( $T_{STR}$ )   |                      | -55°C ~ +125°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] 24 hours at constant temperature after 48 hours operation
- [4] Inclusive of initial tolerance at 25°C, variations over temperature, supply voltage, load, reflow soldering and aging for 20 years.

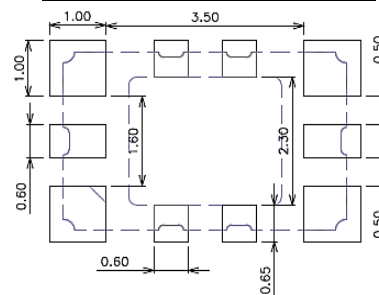
**Dimensions**



**Pin function**

| Pin    | Function          |        |
|--------|-------------------|--------|
|        | TCXO              | VCTCXO |
| Pin 1  | GND or NC         | AFC    |
| Pin 2  | Do not connection |        |
| Pin 3  | Tri-state         |        |
| Pin 4  | GND               |        |
| Pin 5  | Do not connection |        |
| Pin 6  | OUTPUT            |        |
| Pin 7  | Do not connection |        |
| Pin 8  | Do not connection |        |
| Pin 9  | V <sub>DD</sub>   |        |
| Pin 10 | Do not connection |        |

**Recommended pad layout**



**Ordering Information**

**QTS532C - 19.200M B P - T**

**Frequency in Hz**  
Please contact us for available frequencies

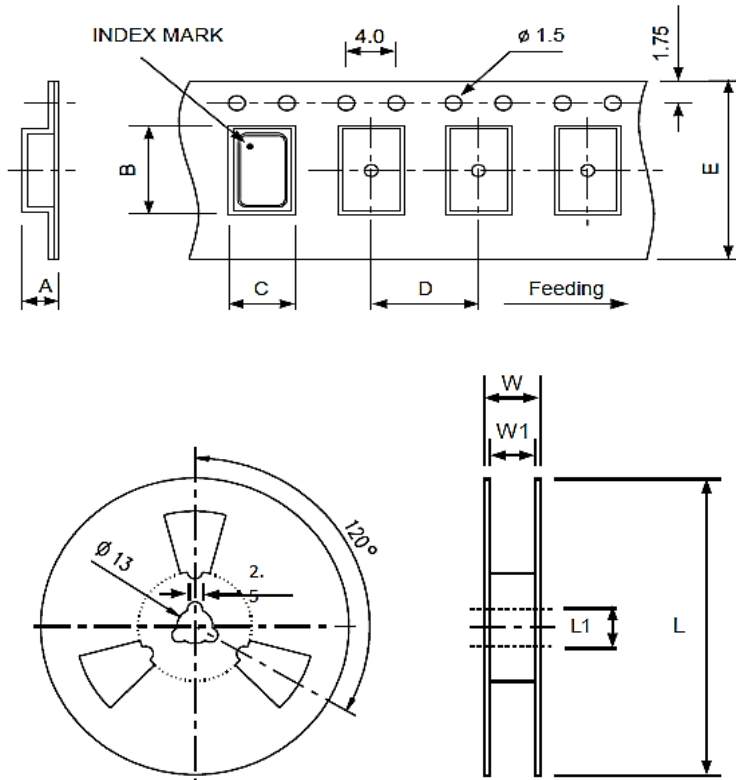
**Supply Voltage**  
B 3.3 V

**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   |

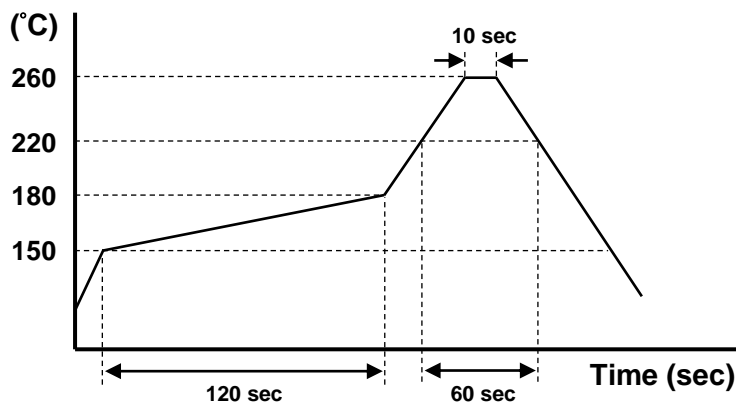
### Packing



| DIMENSIONS (mm) | A    | B    | C    | D    | E     | L   | L1   | W    | W1   |
|-----------------|------|------|------|------|-------|-----|------|------|------|
|                 | 2.20 | 5.30 | 3.50 | 8.00 | 12.00 | 178 | 17.3 | 16.1 | 13.5 |

(Unit: mm)

### Reflow Profile



#### Notes:

- [1] Period while temperature exceeds the solder melting point 220°C should be less than 200 sec.
- [2] Period while temperature stays at the top melting point 260°C should be less than 30 sec.