

### 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)
- Clipped Sinewave output
- Voltage control function available
- External dimensions (mm)  
L : 5.0 x W : 3.2 x H : 1.5
- 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

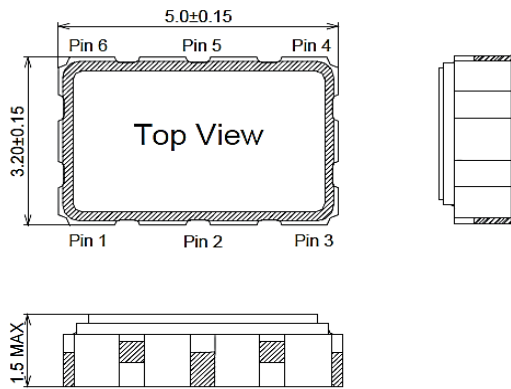
### Electrical Characteristics

Item		QTS532	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		Clipped Sinewave	
Output Load		10kΩ // 10pF	
Output Level		0.8 V(p-p) Min.	Note [3]
Start-up Time		2.5 ms Max.	
Auto Frequency Control (AFC) Range		±5ppm ~ ±16ppm	VCTCXO, optional $V_C = 1.5 \pm 1.0V$
Phase Noise		-130 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 [4]
Free Run Stability for 20 Years		±4.6 ppm Max.	Note [5]
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] 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.

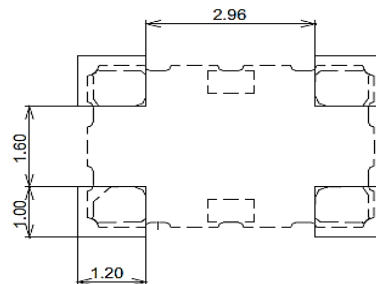
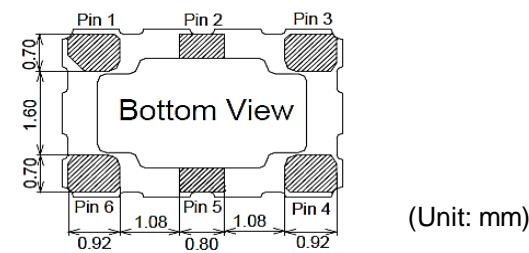
**Dimensions**



**Pin function**

Pin	Function	
	TCXO	VCTCXO
Pin 1	GND or NC	AFC
Pin 2	NC	
Pin 3	GND	
Pin 4	OUTPUT	
Pin 5	NC	
Pin 6	V <sub>DD</sub>	

**Recommended pad layout**



**Ordering Information**

**QTS532 - 19.200M B P - T**

**Frequency in Hz**

Please contact us for available frequencies

**Package Method**

T Tape & Reel

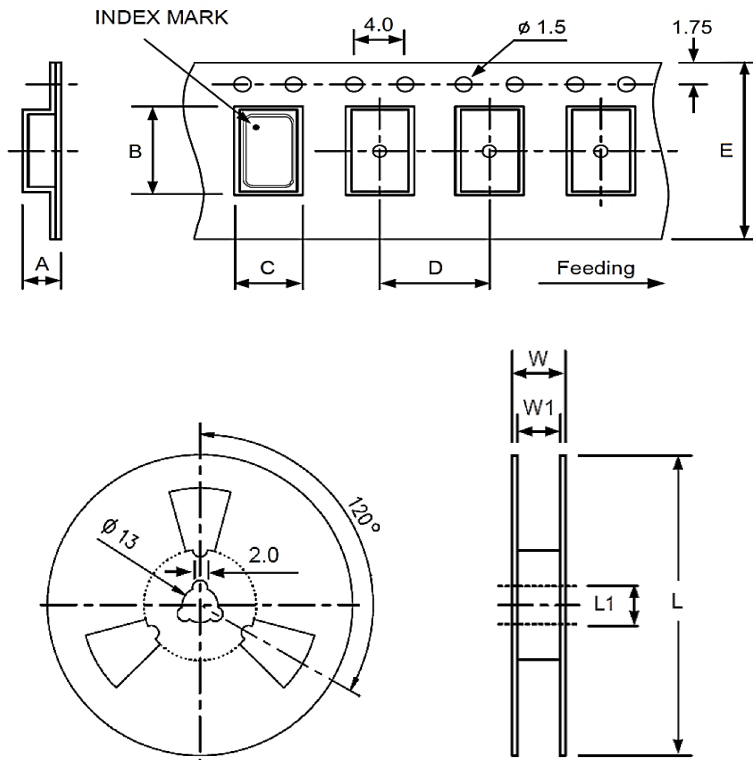
**Supply Voltage**

B 3.3 V

**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
		1.46	5.50	3.60	8.00	12.00	180	13.0	15.4

(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.

