

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
- 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

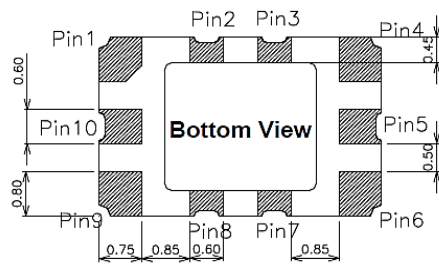
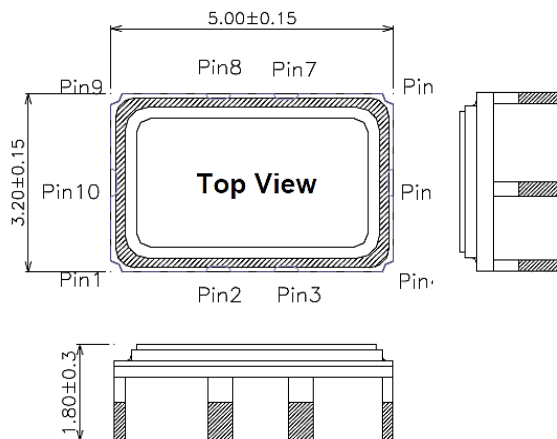
Electrical Characteristics

Item		QTS532	Conditions
Nominal Frequency Range (F_0)		10MHz ~ 52MHz	
Frequency Tolerance (F_{tol})		$\pm 2.0\text{ ppm Max.}$	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	$\pm 0.1\text{ ppm Max.}$	Load $\pm 5\%$
	vs Supply Voltage	$\pm 0.1\text{ ppm Max.}$	$V_{DD} \pm 5\%$
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 Ω // 10pF	
Output Level		0.8 V(p-p) Min.	Note [3]
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		$\pm 5\text{ppm} \sim \pm 16\text{ppm}$	VCTCXO, optional $V_C = 1.5 \pm 1.0\text{V}$
Phase Noise		-135 dBc/Hz Typ.	at 1kHz offset
Aging (F_{aging})		$\pm 1\text{ ppm Max.}$	at 25°C , first year
24 Hours Holdover Stability		$\pm 40\text{ ppb Max.}$	Note [4]
Free Run Stability for 20 Years		$\pm 4.6\text{ ppm Max.}$	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

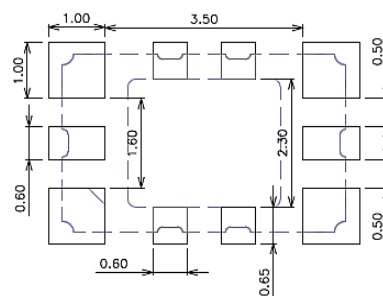


(Unit: mm)

Pin function

Pin	Function	
	TCXO	VCTCXO
Pin 1	GND or NC	AFC
Pin 2	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_{DD}	
Pin 10	Do not connection	

Recommended pad layout



Ordering Information

QTS532 - 19.200M B P - T

Frequency in Hz

**Please contact us for
available frequencies**

Supply Voltage

B 3.3 V

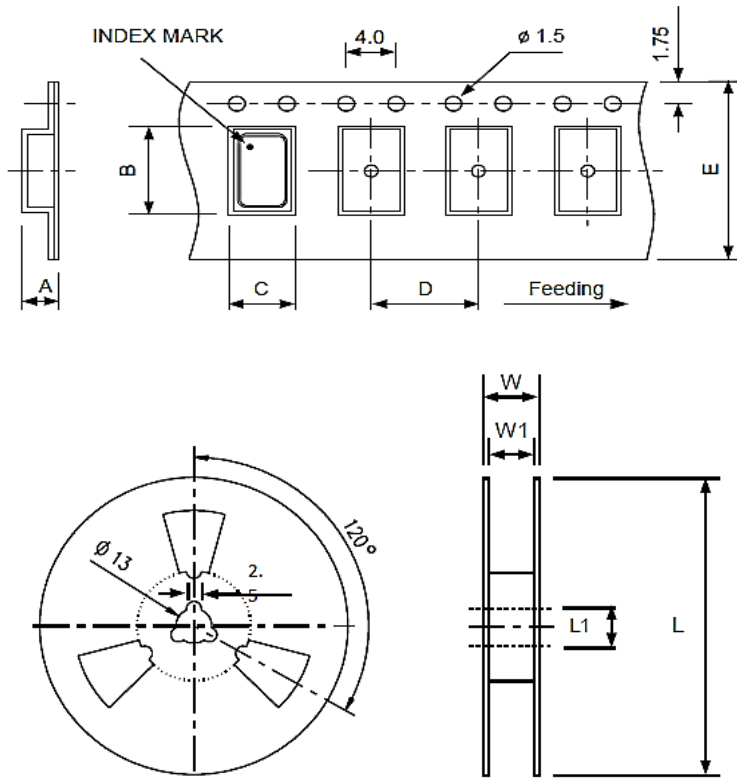
Packaging Method

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

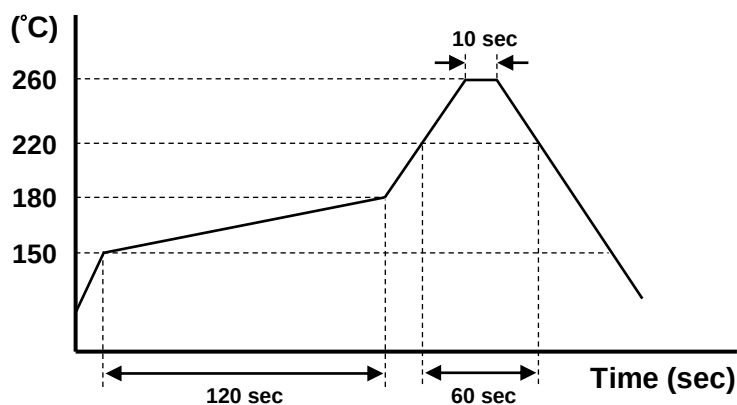
Packing



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.