

### Features

- Frequency range : 32.768 kHz
- Low ESR
- SMD : Ceramic package
- External dimensions (mm)  
L : 3.2 x W : 1.5 x H : 0.75
- RoHS compliant & Pb free

### Applications

- Power sensitive designs
- Communication devices
- Measuring equipments
- Consumer products
- Commercial & industrial applications

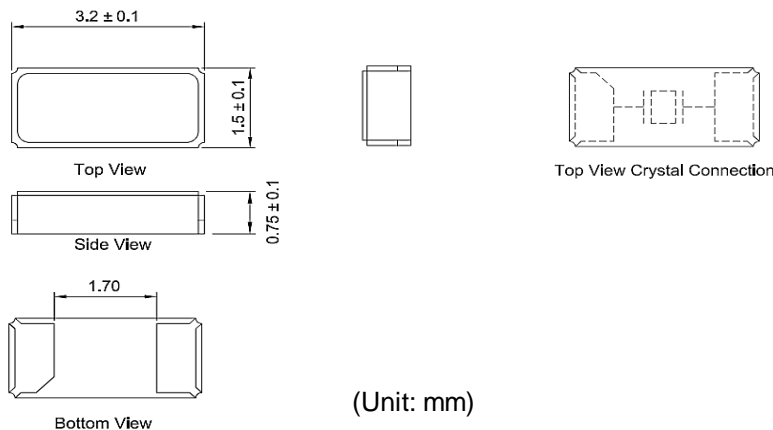
### Electrical Characteristics

Item	Symbol	QT3CL	Conditions
Nominal Frequency	$f_0$	32.768 kHz	
Frequency Tolerance	$\Delta f/f_0$	$\pm 10\text{ppm}$ , $\pm 20\text{ppm}$	at 25°C, Note [1]
Load Capacitance	$C_L$	6pF, 7pF, 9pF, 12.5pF	
Operating Temperature Range	$T_{OTR}$	-40°C ~ +85°C	
Storage Temperature Range	$T_{STR}$	-55°C ~ +125°C	
Turnover Temperature	$T_M$	25°C $\pm$ 5°C	
Temperature Coefficient	$\beta$	-0.04 ppm/°C <sup>2</sup> Max.	
Motional Capacitance	$C_1$	3.1 fF Typ.	
Motional Resistance (ESR)	$R_1$	50 kΩ Max.	at 25°C
Drive Level	$D_L$	0.1μW Typ. / 1.0μW Max.	
Aging	$\Delta f/f_0$	$\pm 3$ ppm Max.	at 25°C $\pm$ 3°C, first year
Shunt Capacitance	$C_0$	1.0 pF Typ.	

#### Notes:

[1] Frequency Tolerance ( $\Delta f/f_0$ ) +/-10ppm for Load Capacitance ( $C_L$ ) 6pF, 9pF, 12.5pF only.

### Dimensions

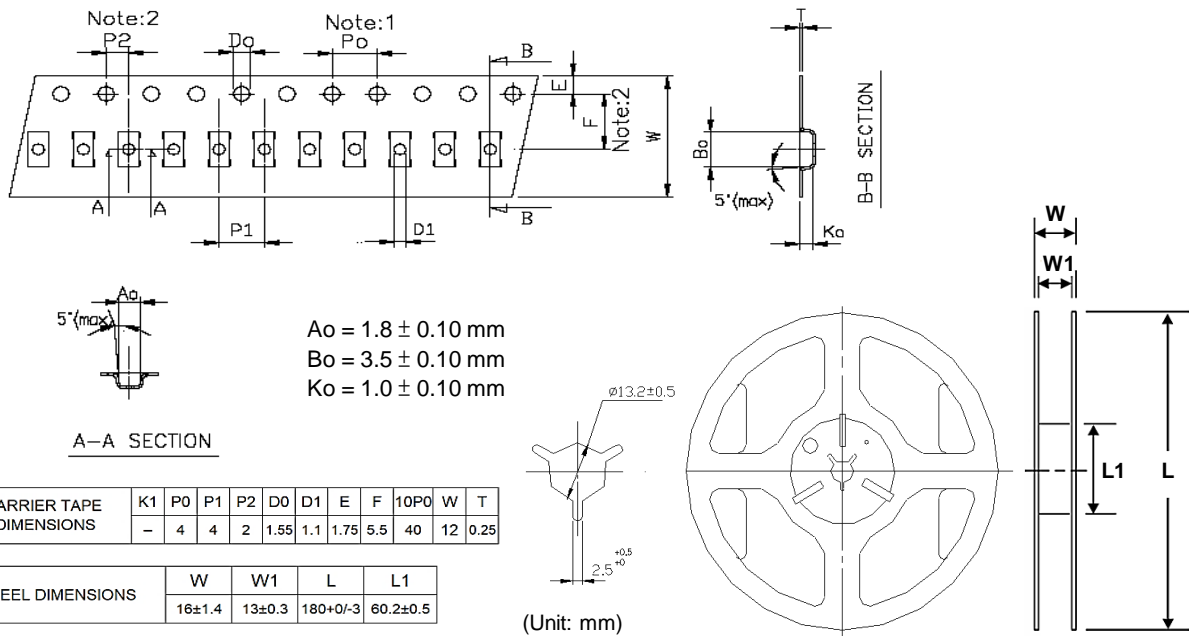


## Ordering Information

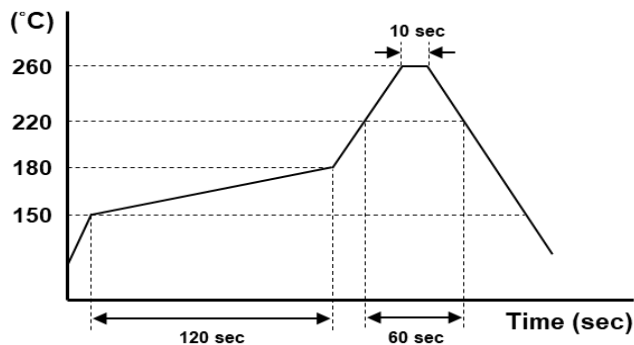
**QT3CL - 32.768K D Z F - T**

<b>Frequency Tolerance (at 25°C)</b> <b>D</b> ± 20 ppm <b>E</b> ± 10 ppm	<b>Frequency Stability (over Temp.)</b> <b>Z</b> Standard for kHz	<b>Load Capacitance</b> <b>B</b> 6 pF <b>Y</b> 7 pF <b>C</b> 9 pF <b>F</b> 12.5 pF	<b>Packaging Method</b> <b>T</b> Tape & Reel
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## Packing



## Reflow Profile



Total time : Max. 200 sec.  
Solder melting point : 220°C