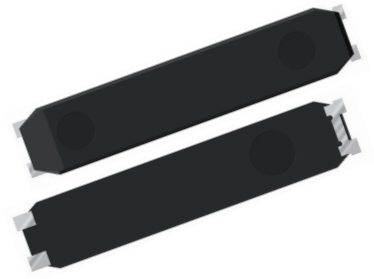


# QTP7 Series

## 1.4x6.9 Plastic SMD Tuning Fork



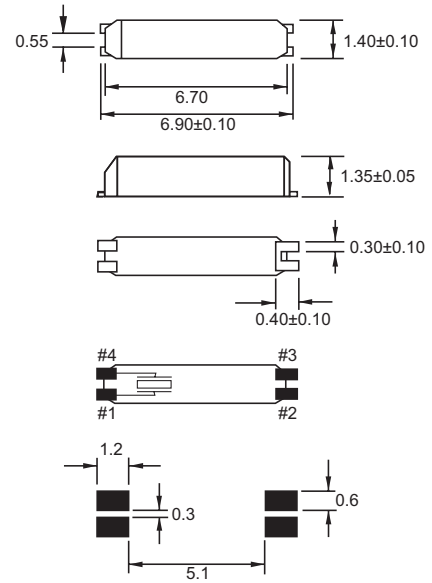
### Features

- Most appropriate for high-density circuit board by the small surface mount type
- Embedded with heat resistant cylinder type crystal bring highly stable characteristics
- Suitable for small mobile telecommunication devices

### General Specifications

Nominal Frequency	32.768 kHz
Frequency Tolerance at 25°C	±20ppm
Aging per Year	±3ppm max.
Turnover Temperature	25°C ±5°C
Temperature Coefficient	-0.035 ±0.008ppm/Δ °C <sup>2</sup>
Temperature Range (Operating)	-40 to +85°C
Storage Temperature	-55 to +125°C
Equivalent Series Resistance (ESR)	65KΩ max.
Load Capacitance C <sub>L</sub>	Standard 12.5pF
	Optional 7.0pF
Shunt Capacitance C <sub>0</sub>	0.8pF typ.
Motional Capacitance C <sub>1</sub>	3.0fF typ.
Drive Level	1μW max.
Insulation Resistance (MΩ)	500 at 100Vdc ±15Vdc
Quality Factor	70000 typ.
Capacitance Ratio	450 typ.
Resistance to Shock	±5ppm maximum offset from 75 cm drop test in all axes on to a hard surface.

### Mechanical Dimensions

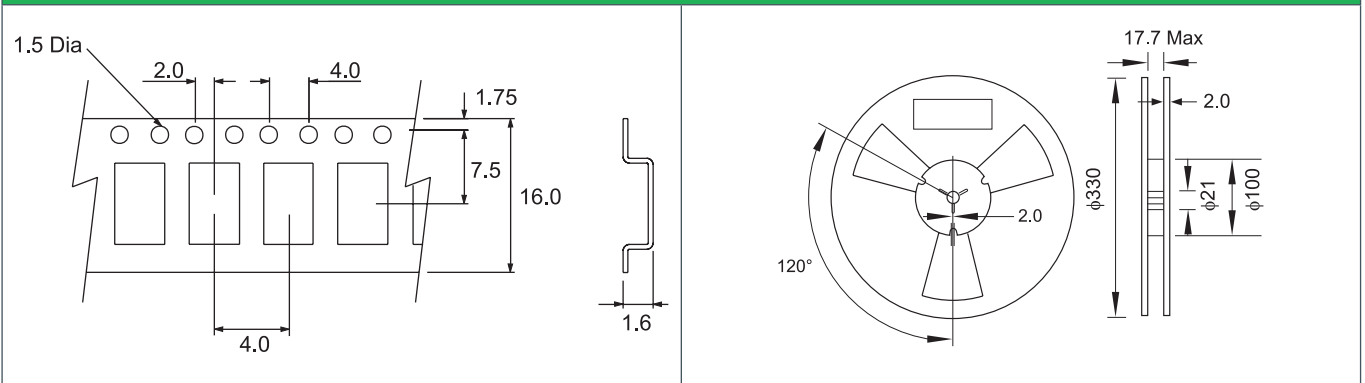


Pin Connection: #1 Crystal, #2 N/C, #3 N/C, #4 Crystal

### Part Numbering Guide

Qantek Code	Package	Nominal Frequency (in kHz)	Load Capacitance	Operating Temperature Range	Frequency Tolerance	Packaging
Q = Qantek	TP7 = 1.4x6.9 Plastic SMD	32.768	07 = 7pF 12 = 12.5pF	B = -40 to +85°C	20 = ±20ppm	R = 3000pcs Tape&Reel
Example: QTP732.76812B20R						bold letters = recommended standard specification

### Tape and Reel Dimensions



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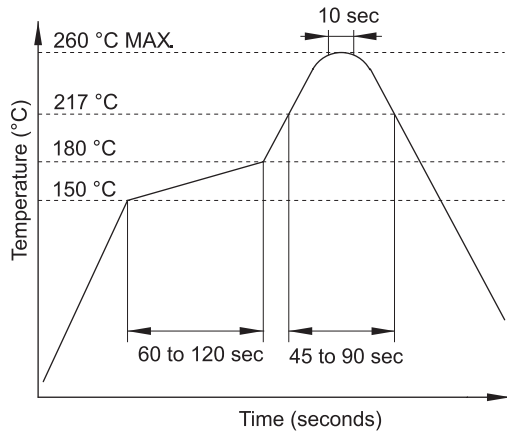
# QTP7 Series

1.4x6.9 Plastic SMD Tuning Fork

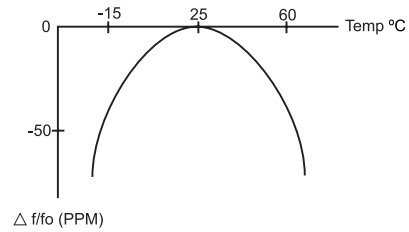
## Marking Code Guide

Contains manufacturer code / lot code

## Solder Reflow Profile



## Frequency vs. Temperature Characteristics



To calculate the frequency stability the parabolic curvature constant (K) is needed.  
For calculating the stability at 45°C:

1- Change in temperature ( $\Delta T$ ) is  $(45-25) = +20^\circ\text{C}$

2- Change in frequency is  $(-0.034 \times (\Delta^\circ\text{C})^2) = (-0.034 \times (20)^2) = -13.6\text{ppm}$