Surface Mount Tuning Fork Crystal Unit
4.1 x 1.5mm package

Pb | **RoHS** Compliant

Features

- Suitable for time of day clock
- Small and compact package
- Ideal for pick and place assembly
- Excellent for automatic and high density surface mounting
- RoHS Compliant

Electrical Specifications

Normal Frequency		32.768	KHz
Frequency Tolerance at 25°C		±20	PPM
Aging per year		±3	
Turnover Temperature		25 ±5	°C
Temperature Coefficient		-0.034 ±0.008 PPM/Δ °C²	
Operating Temperature Range		-40 to +85	
Storage Temperature Range		-55 to +125	
Equivalent Series Resistance (ESR)		65	K Ohm Max
Load Capacitance	Standard	12.5	pF
	Optional	9.0	
Shunt Capacitance		1.7	pF Typ
Motional Capacitance		3.0	fF Typ
Drive Level		1.0	uW Max
Insulation Resistance		500 at 100Vdc (±15Vdc)	M Ohm Min
Quality Factor		70000	Typ
Capacitance Ratio		450	
Resistance to Shock		±5 PPM maximum offset from 75cm drop test in all axes on to a hard surface	

Frequency vs Temp. Characteristics

To Calculate the frequency stability the parabolic curvature constant (K) is needed

For Calculating the stability at 45°C?
1 – Chang in temperature (ΔT)is (45-25) = +20°C
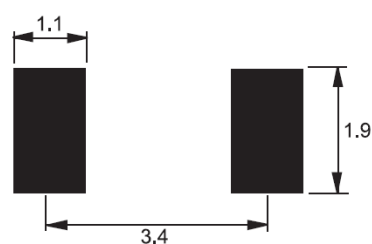2 – Change in frequency is (-0.034x (Δ °C)²) = (-0.034 x (20) ²)
= -13.6PPM

Wavetron
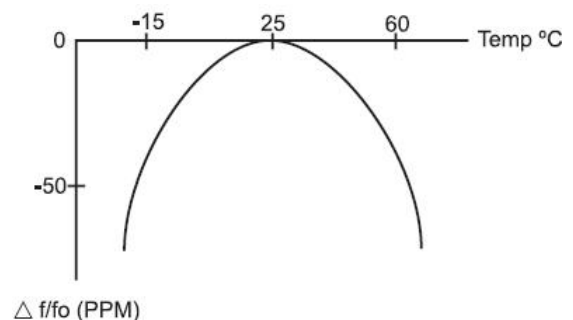
Part Numbering System

Type		Frequency KHz		Load Capacitance (pF)		Frequency Tolerance		Tape & Reel
WT4115	-	32.768	-	12.5 (Standard) 9 (Option)	-	20 (±20PPM)	-	TR

Examples : WT4115-32.768-12.5-TR or WT4115-32.768-9-TR

Mechanical Outline

4.1 ± 0.1

Marking

1.5 ± 0.1

0.6   2.7   0.6

0.8 ± 0.1

1.1

1.9

3.4
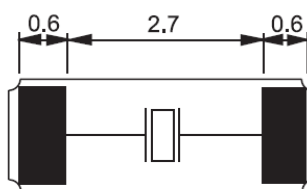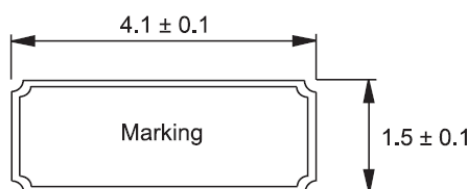
PCB Solder Pad Layout
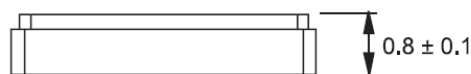
Package is Ceramic-Metal.
Dimensions are millimeters.

Carrier Tape Dimensions

1.5 Dia.
2.0   4.0
1.75
5.5
12.0
4.0
Direction of Feed
1.1
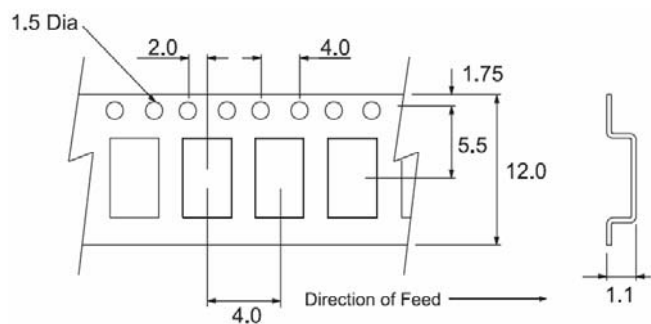
Solder Reflow Characteristics

260°C

230°C

150°C

Temperature

10 seconds max
(2 times max)

120±20 seconds
Pre-heat Area

50±20 seconds
Reflow Area

Cooling

Time (seconds)
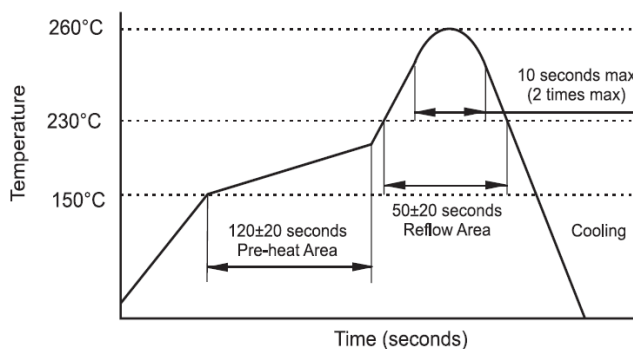
Notes:
1 – Standard Temperature Range does not need to be included in Part Number description.
2 – Product is shipped in Tape and Reel configuration. Each reel contains 1000 pieces.
3 – Quantites less than 1000 pieces are shipped bulk in ESD pouches.
4 – Specification subject to change without notice.