



actual size

# Quartz Crystal · MTF32

- 3 x 8 mm cylinder type
- 32.768 kHz standard



## General Data

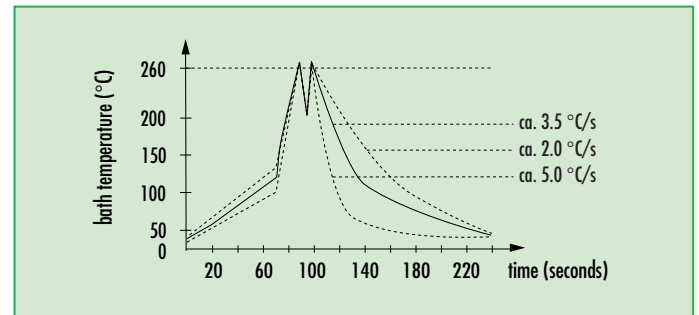
type	MTF32
frequency	32.768 kHz
frequency tolerance at 25 °C ± 5 °C	± 10 ppm / ± 20 ppm
load capacitance $C_L$	10 pF / 12.5 pF std. (6 pF ~ 12.5 pF on request)
temperature constant ( $T_C$ )	$T_C = -0.04 \cdot 10^{-6} / ^\circ\text{C}^2$ max. $T_C = -0.034 \cdot 10^{-6} / ^\circ\text{C}^2$ typical
frequency temperature characteristic	$f$ (ppm) = $T_C \cdot (25^\circ\text{C} - T)^2$ $T$ = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance $C_0$	1.5 pF typical
series resistance max. (ESR)	30.0 k $\Omega$ (23.0 k $\Omega$ ask if available)
storage temperature	-40 °C ~ +90 °C
drive level max.	1 $\mu$ W
aging first year	< ± 5 ppm

## Frequency Stability vs. Temperature

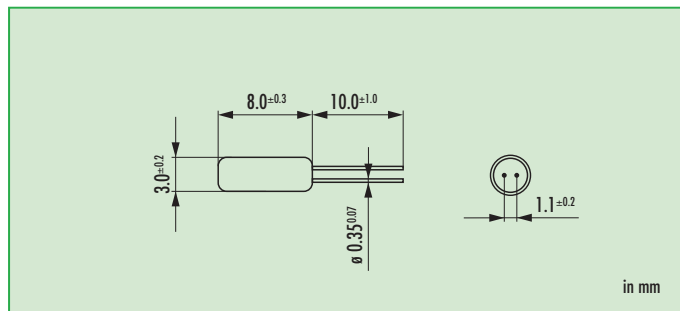
		- 80 ppm	- 160 ppm
-20 °C ~ +70 °C	STD.	●	
-40 °C ~ +85 °C	T1		●

● standard

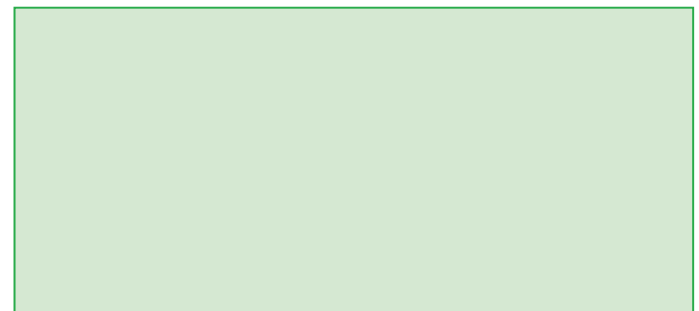
## Wave Soldering Profile



## Dimensions

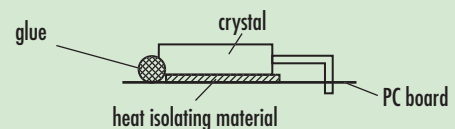


## Marking



## Mounting

**Mounting:** if the crystal should be mounted vertically to your board (see picture), do not directly solder the metal can. The crystal may be overheated by the direct heat flow. Please use glue (hot-melt adhesive) or mechanical clamping to fasten the metal can.



## Order Information

Q	frequency	type	load capacitance	stability at 25 °C	option
Quartz	0.032768 MHz	MTF32	6 pF ~ 12.5 pF 10.0 pF Std. 12.5 pF Std.	20 ± 20 ppm 10 ± 10 ppm	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-MTF32-12.5-20-LF (Suffix LF = RoHS compliant / Pb free pads)

