



actual size

Quartz Crystal · MTF32

Tuning Fork Crystal · 3.0 x 8.0 mm

- 3 x 8 mm cylinder type
- 32.768 kHz standard



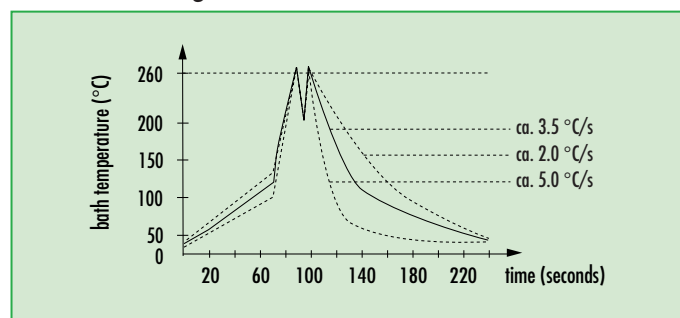
General Data

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	$f(\text{ppm}) = T_C \cdot (25^\circ\text{C} - T)^2$ 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 Ω (23.0 k Ω ask if available)
storage temperature	-40 °C ~ +90 °C
drive level max.	1 μW
aging first year	< ± 5 ppm

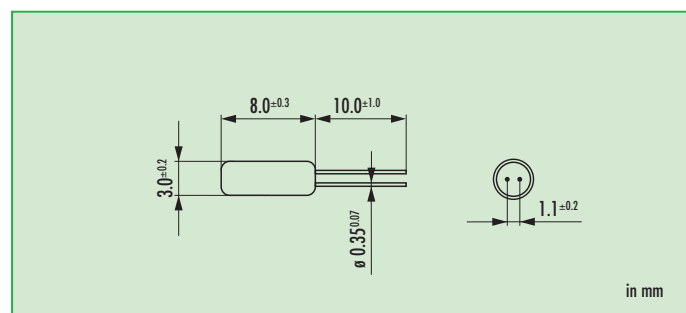
Frequency Stability vs. Temperature

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

Wave Soldering Profile



Dimensions

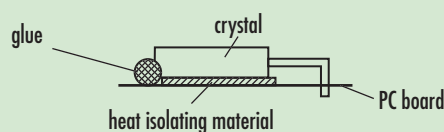


Marking

company code
date code
internal code (optional)

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)