



actual size

Quartz Crystal · MMTF32

Tuning Fork Crystal · 2.0 x 6.0 mm

- 2 x 6 mm cylinder type
- 32.768 kHz standard



General Data

| type | MMTF32 |
|--|--|
| 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 · 10 ⁻⁶ / °C ² max. T _C = -0.034 · 10 ⁻⁶ / °C ² typical |
| frequency temperature characteristic | f (ppm) = T _C · (25 °C - T) ² T = requested temperature |
| operating temperature range | -20 °C ~ +70 °C / -40 °C ~ +85 °C |
| shunt capacitance C ₀ | 1.2 pF typical |
| series resistance max. (ESR) | 40.0 kΩ (35.0 kΩ ask if available) |
| storage temperature | -40 °C ~ +90 °C |
| drive level max. | 1 μW |
| aging first year | < ± 5 ppm |

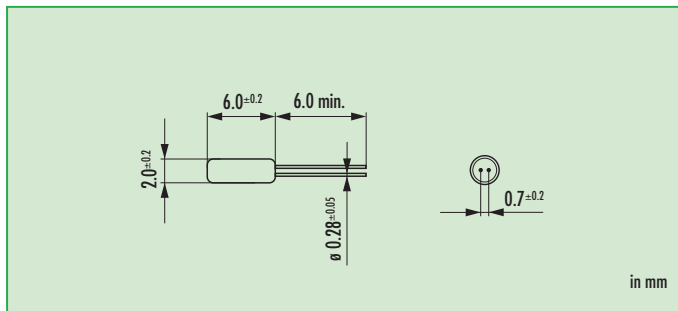
Frequency Stability vs. Temperature

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

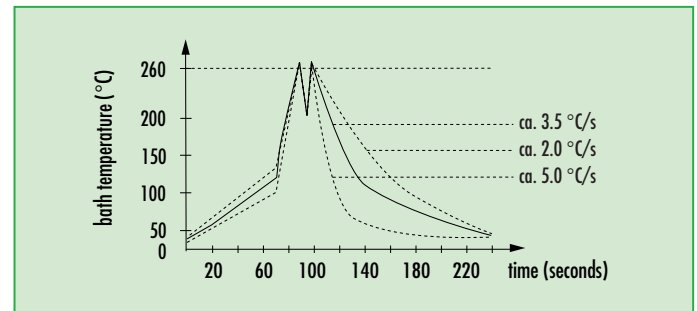
Marking

company code
date code
internal code (optional)

Dimensions

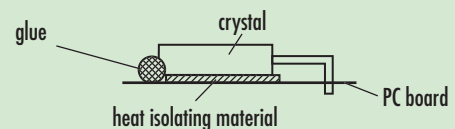


Wave Soldering Profile



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 | MMTF32 | 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-MMTF32-12.5-20-LF (Suffix LF = RoHS compliant / Pb free pads)