# Tuning Fork Crystal

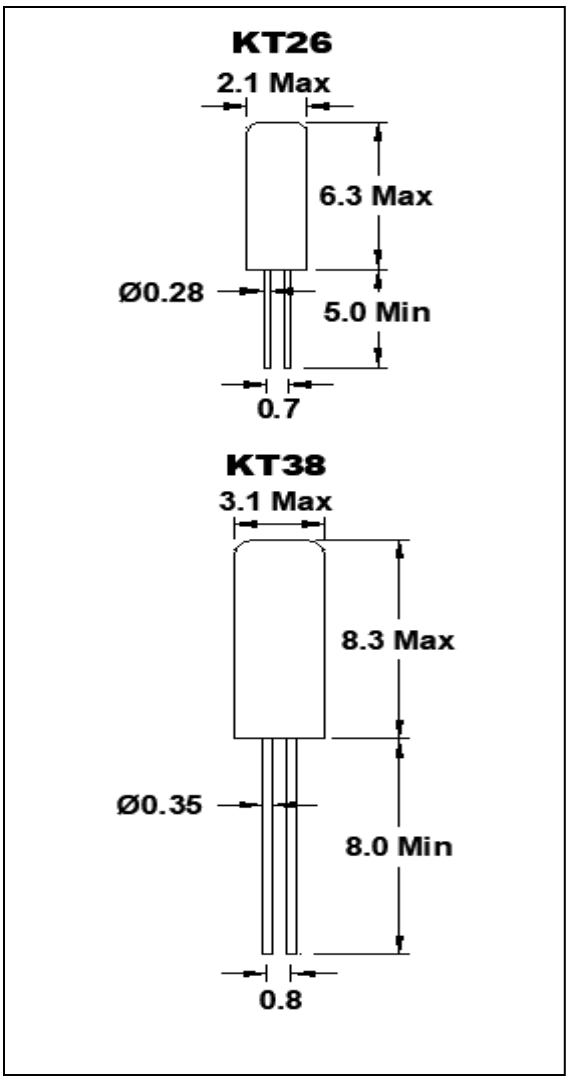
# KT26, KT38

(former NC26LF, NC38LF)

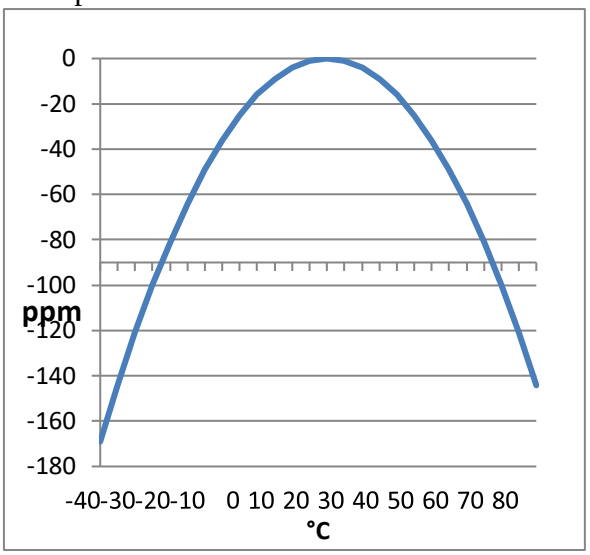
DATASHEET



| STANDARD SPECIFICATIONS | |
|---|---|
| **PARAMETERS** | **MAX** (unless otherwise noted) |
| Frequency | 32.768 kHz |
| Frequency Tolerance @ 25ºC | ±20 PPM |
| Frequency Stability (Temperature Coefficient) | -0.04 PPM / $(\Delta ºC)^2$ |
| Temperature Range<br>Turnover ($T_O$)<br>Operating ($T_{OPR}$)<br>Storage ($T_{STG}$) | <br>+20ºC ~ +30ºC<br>See options on page 2.<br>-40ºC ~ +85ºC |
| Equivalent Series Resistance ($R_S$) | 35 kΩ |
| Load Capacitance ($C_L$) | (See options on page 2) |
| Insulation Resistance @ 100VDC | 500MΩ Min |
| Drive Level | 1.0 µW |
| Aging per year | ±3 PPM |
| Wave Soldering Temp / Time | 300ºC / 5Sec (leads only) |
| Moisture Sensitivity Level (MSL) | 1 |
| Termination Finish | SnCu |
| Lead (Pb) Free | Yes |
| RoHS Compliant | Yes, no exemptions |
| REACH Compliant (latest version) | Yes |




Temperature Coefficient




| | | | |
|---|---|---|---|
| 7/29/2020 – KT26 ESR updated to 35kohms. | **Title / Description:** KT26, KT38 STANDARD SPECIFICATIONS | | |
| | **Drawing Number:** KT26-KT38-DOC-1 | | **Revision:** B |
| | **Part Number:** | | **Cage:** 61429 |
| | **Draftsperson:** BEC | **Approved:** MAJ | **Revision Date:** 10/19/2020 |

## Available Options & Part Identification for KT26, KT38

**F KT26 E I H M 0.032768**

| F | KT26 | E | I | H | M | 0.032768 |
|---|---|---|---|---|---|---|
| **FOX** | **Model Number**<br>**KT26**<br>KT38 | **Tolerance**<br>**E = ±20ppm** | **Stability**<br>**I =-0.04 PPM / (ΔºC)$^2$** | **Load Capacitance**<br>B=6pF<br>**H=12.5pF** | **Operating Temperature**<br>C = 0 ~ +70ºC<br>D = -10 ~ +60ºC<br>Q = -20 ~ +60ºC<br>**M = -40 ~ +85ºC** | **Frequency (MHz)** |

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# Crystal Unit Handling Precautions

## 1) Mounting Precautions

- Structure – Cylinder crystals are hermetically sealed using glass to metal seals (see figs 1 and 2)

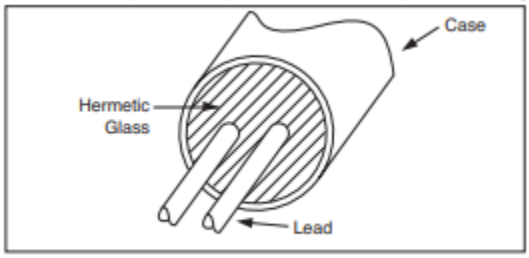

Figure 1

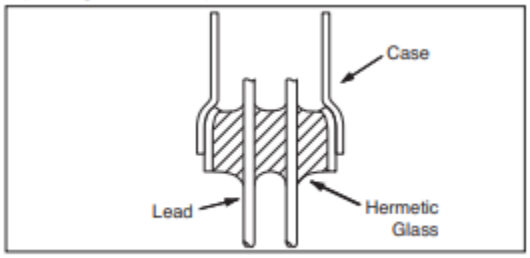

Figure 2

- Unbending the lead

(1) DO NOT pull the lead excessively if unbending a lead or removing a crystal unit. The excessive force may crack the glass and reduce the degree of vacuum. This may eventually result in deterioration of the characteristics and may also break the crystal chip (see Figure 3).

(2) Unbend the lead by pressing on the bent part from both the upper and lower sides while holding the bottom of lead tightly (see Figure 4).

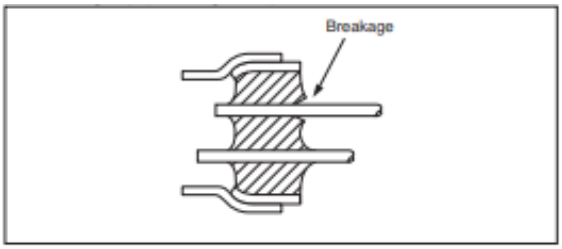

Figure 3

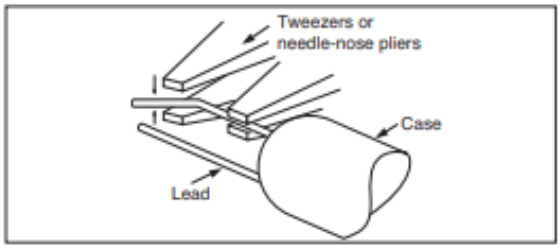

Figure 4

- Bending the lead

(1) Bend the lead so that the lead will remain straight for more than 0.5mm from the case when soldering a crystal unit after bending. If not, the glass may be cracked (see Figures 5 and 6).

(2) Always leave a length greater than 2.0mm when bending a lead after soldering (see Figure 7)

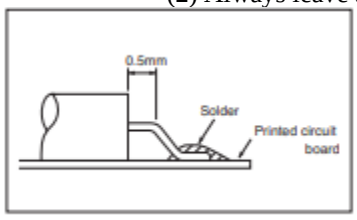

Figure 5

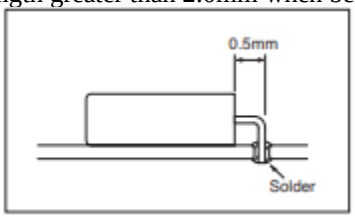

Figure 6

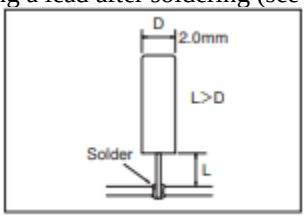

Figure 7

Soldering directly to the case will reduce the degree of vacuum and may result in deterioration of the characteristics and may break the crystal chip.

Make the length from the case to the printed circuit board (L) longer than the case diameter (D) so that the lead wire will not be pulled in case the crystal unit falls over.



| | | | |
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## 2) Soldering

The soldering position must be at the lead wire more than 1.0mm away from the glass seal. Excessive heating time at high temperature may result in deterioration of the characteristics and may break the crystal unit. If crystal unit is unavoidably heated, heat the lead part at 300℃ or lower for 5 seconds or less and please make sure to keep the case below 150℃.

## 3) Cleaning

Since a small, thin crystal chip is used for tuning fork crystal units and the frequency approximates that of an ultrasonic cleaner, the crystal chip may break easily. Therefore, DO NOT perform ultrasonic cleaning.