



# TFNC Series

## Tuning Fork Crystal

### Features

- 32.7680kHz Frequency Reference
- Tuning Fork Crystal Design
- Cylindrical Thru-Hole Package
- Compatible to Citizen CFS Series and Epson C-Type
- Frequency Tolerance,  $\pm 20$ ppm Standard
- Parabolic Temperature Coefficient
- Packaging Bulk in Bag



Part Dimensions:  
 8.3 × 3.1mm • 153.950mg  
 6.2 × 2.1mm • 59.14778mg  
 5.1 × 1.5mm • 29.496mg

**RoHS Compliant in Accordance with EU Directive 2011/65/EU**

- Lead-Free Termination Finish
- Exemption 7(a), Lead [Pb] in high melting temperature type solders

### Applications

- Real Time Clock Reference
- FPGAs & Microcontrollers
- Wireless Communications
- Consumer Electronics
- Computer Peripherals
- IoT Applications
- Instrumentation
- Industrial Electronics

### Description

CTS TFNC Series is ideal for supporting wide range of electronic designs requiring a Real Time Clock reference. This series will support general commercial applications.

### Ordering Information

| Model |           | Frequency Tolerance | Load Capacitance          | Frequency Code [kHz]                |           |
|-------|-----------|---------------------|---------------------------|-------------------------------------|-----------|
| TFNC  | 38        | 2                   | P                         | 32K7680                             |           |
| ↓     |           | ↓                   |                           | ↓                                   |           |
| Code  | Package   | Code                | Capacitance               | Code                                | Frequency |
| 38    | 8.3x3.1mm | P                   | 12.5pF                    |                                     |           |
| 26    | 6.2x2.1mm | T                   | 6pF                       |                                     |           |
| 15    | 5.1x1.5mm | K                   | 8pF [TFNC15 Only]         |                                     |           |
|       |           | Code                | @ +25°C                   |                                     |           |
|       |           | 2                   | $\pm 20$ ppm              |                                     |           |
|       |           | 1                   | $\pm 10$ ppm <sup>1</sup> |                                     |           |
|       |           |                     |                           | Code                                | Frequency |
|       |           |                     |                           | Product Frequency Code <sup>2</sup> |           |

Notes:

- 1] Check factory for availability.
- 2] Frequency is recorded with two leading digits before the 'K' and 4 significant digits after the 'K' [including zeros].

**Not all performance combinations and frequencies may be available.  
 Contact your local CTS Representative or CTS Customer Service for availability.**

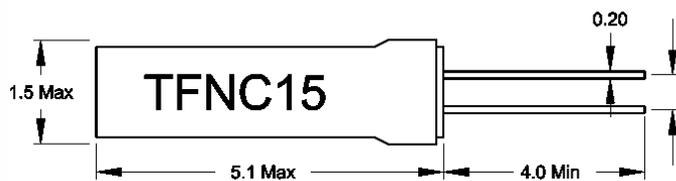
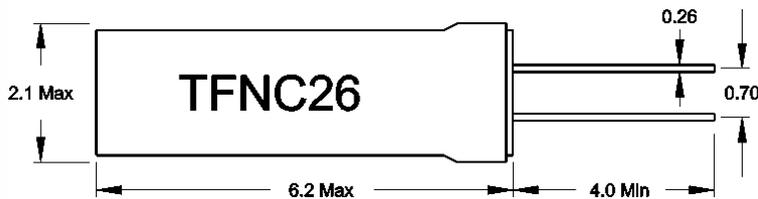
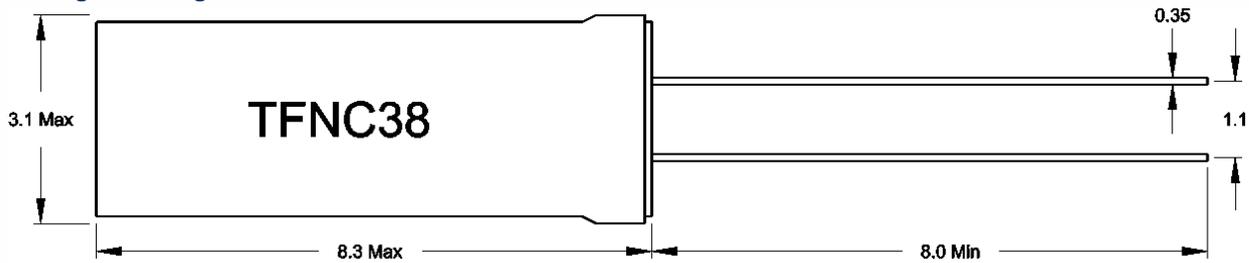
This product is specified for use only in standard commercial applications. Supplier disclaims all express and implied warranties and liability in connection with any use of this product in any non-commercial applications or in any application that may expose the product to conditions that are outside of the tolerances provided in its specification.

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## Mechanical Specifications

### Package Drawing



Key: mm

### Marking Information

Refer to document 016-0071-0, TF Marking Guide, for marking formats by product family.

### Notes

1. JEDEC termination code (e2). Barrier-plating is nickel [Ni] with tin [Sn] copper [Cu] finish.
2. Soldering iron attach; +300°C maximum, 5 seconds.
3. MSL = 1.

## Packaging - Bulk in Bag

### Notes

1. Packaging is bulk in plastic bag.
2. Complete CTS part number, frequency value, date code and manufacturing site code information must appear on reel and carton labels.