



# TFPMN Series Tuning Fork Crystal

## Features

- 32.7680kHz Frequency Reference
- Tuning Fork Crystal Design
- Plastic Molded Surface Mount Package, Narrow Body
- Compatible to Citizen CM310 and Epson MC-146
- Frequency Tolerance,  $\pm 20$ ppm Standard
- Parabolic Temperature Coefficient
- Tape and Reel Packaging, EIA-418



Part Dimensions:  
6.9 × 1.4 × 1.3mm • 28.2603mg

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

## Ordering Information

| Model        |   | Frequency Tolerance | Load Capacitance                    | Frequency Code [kHz] | Packaging      |
|--------------|---|---------------------|-------------------------------------|----------------------|----------------|
| TF           | PMN   | 2                   | P                                   | 32K7680              | R              |
| Code Package |   |                     | Code Capacitance                    |                      | Code Packing   |
| PMN          | 8.0x3.8mm<br>[Plastic Molded Narrow]          |                     | P 12.5pF<br>J 9pF<br>V 7pF          |                      | R 3k pcs./reel |
|              | Code @ +25°C                                  |                     | Code Frequency                      |                      |                |
|              | 2 $\pm 20$ ppm<br>1 $\pm 10$ ppm <sup>1</sup> |                     | 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].

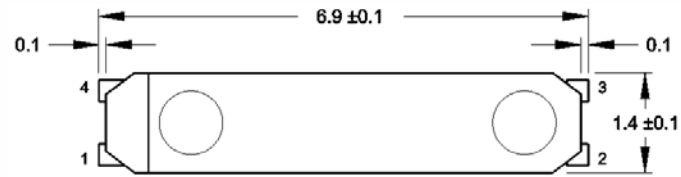
**Not all performance combinations and frequencies may be available.  
Contact your local CTS Representative or CTS Customer Service for availability.**

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.

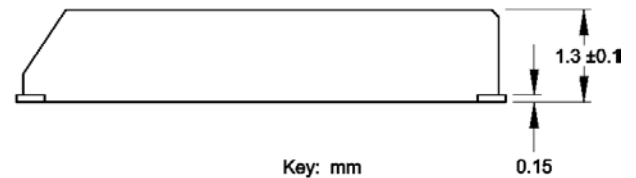
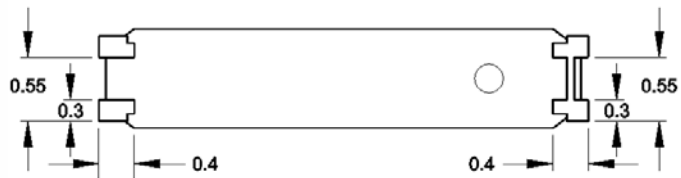
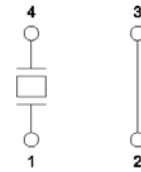


## Mechanical Specifications

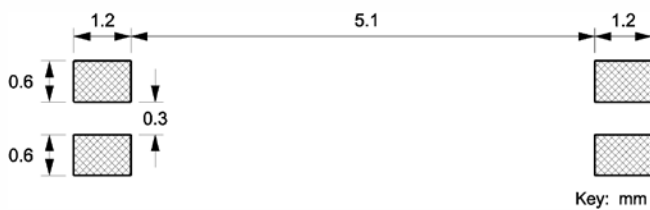
### Package Drawing



### Internal Connection



### Recommended Pad Layout



### Marking Information

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

### Notes

1. JEDEC termination code (e3). Barrier-plating is nickel [Ni] with tin [Sn] plate.
2. Reflow conditions per JEDEC J-STD-020; +260°C maximum, 5 seconds.
3. MSL = 1.