# SMD Tuning Fork Crystal Unit

1.2 mm x 1.0 mm / 32.768 kHz

## **FEATURES**

- The world's smallest 1210 size tuning fork crystal unit (32.768 kHz)
- Ultra-thin (0.35 mm) / ultra-light (0.8 mg) "Crystal Package" made of quartz crystal:
- $\rightarrow$  43 % lighter weight than a ceramic package of the same size
- → Better weather-ability / excellent shock resistance
- → "Metal Diffusion Sealing (MDS)": Robust sealing method using metal diffusion (patent pending)
- Wide operating temperature range of -40 °C to +105 °C available
- · Specifications in conformity with AEC-Q200 available on request

## APPLICATIONS

- · Small wireless-modules, Wearable devices, Hearable devices, and others
- · Smartphones, Medical and Healthcare devices, Automotive electronics, and others

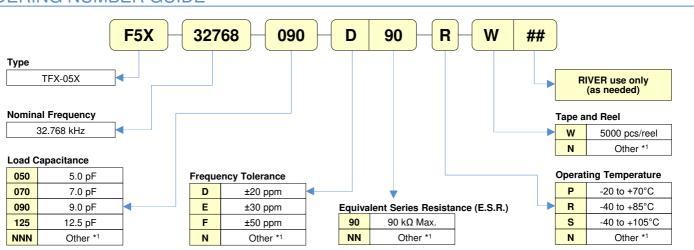
## STANDARD SPECIFICATIONS

Item	Specifications	Unit	Conditions (Remarks)
Nominal frequency	32.768	kHz	-
Frequency tolerance	±20	ppm	@25 °C (See below for more options)
Equivalent series resistance (Max.)	90	kΩ	-
Motional capacitance (Typ.)	7.0	fF	-
Shunt capacitance (Typ.)	1.5	pF	-
Storage temperature	-55 to +125	°C	-
Operating temperature	-40 to +85 -40 to +105	°C	(See below for more options)
Temperature coefficient	-0.03 ± 0.01	ppm/°C <sup>2</sup>	-
Turnover temperature	25 ± 5	°C	-
Load capacitance	5.0, 7.0, 9.0, 12.5	pF	(Other values available)
Drive level (Max.)	0.5	μW	-
Tape and reel	5000	pcs/reel	Reel diameter : ø180 mm

## **GENERAL NOTES**

- · Certain combinations of standard options may be classified as high-spec models.
- · Please consult us for specifications that do not match the standard specifications.
- · The information in this document is subject to change without notice.
- · In case that the product is used in special installation environment, such as in resin mold, please consult us in advance.

## ORDERING NUMBER GUIDE



1. Please consult us for your requirements.

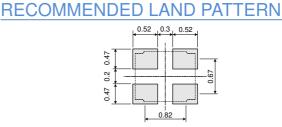
Contacts

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Pin

#1

#2

#3

#4

(Unit: mm)

(Unit: mm) 0.29±0. #4 #3 0.3) C0.13 0.29±0. #2 #1

(0.4)

0.34±0.1

0.34±0.1

Connection

Crystal

Ground

Crystal

No Connection · Pin #2 is connected to the shield (\*1)

OUTLINE DIMENSIONS 0.35 max 1.2±0.05

#3

#2

#3

Shield (\*1)

#4

#1

Internal Connection <Top View>

.0±0.05





# **NEW PRODUCT TFX-05X**