

September 29, 2017  
Nihon Dempa Kogyo Co., Ltd.  
Representative Director &  
Chairman of the Board,  
President and CEO  
Toshiaki Takeuchi

World's smallest(\*1) model(1210 size) for GNSS  
of TCXO(temperature-compensated crystal oscillator) developed

Nihon Dempa Kogyo Co., Ltd. (NDK) has developed the NT1210AA – the world's smallest 1210size low-power-consumption TCXO (temperature-compensated crystal oscillator; 1.2 x 1.0 x 0.35 mm; 0.0015 g).

This product matches the performance of NDK's conventional 1612 size products (frequency/temperature characteristics: Max. +/-  $0.5 \times 10^{-6}$  / -40 to +85 deg C) while also being smaller, lower in profile and lighter, making it ideal for GNSS-enabled hand-held terminals such as smartphones, tablet computers and wearable devices.

Today's hand-held terminals are smaller, lower in profile and lighter than ever before. They also require increasingly low power consumption for extended-period usage of GNSS-based positional information.

To meet these needs, this product features the TCXO traits of highly stable frequency/temperature characteristics and a structure suitable for miniaturization. This is expected to support the reliability of GNSS reference signals and the miniaturization/weight reduction of handheld terminals based on NDK's proprietary structural design and temperature control technology. This is also characterized by low-power-supply voltage (+1.8 V) operation and low power consumption (Max. 1.5 mA) for extended battery life in mobile devices. It supports a frequency range of 19.2 to 52 MHz, with two standard frequencies of 26 and 52 MHz.

(\*1) Based on NDK research as of September 2017

[Appearance]



[Sample / Mass production]

Sample is scheduled for December 2017, and mass production is scheduled to start in June 2018.

[Specifications / Characteristics]

Model	NT1210AA
Dimensions	1.2 x 1.0 x 0.35mm

Absolute Maximum Rating

Supply Voltage	-0.6 to +4.6V DC
Storage Temperature Range	-40 deg C to +85 deg C

Electrical Characteristics

Nominal Frequency	19.2 MHz to 52MHz
Standard Frequency	26 MHz, 52MHz
Supply Voltage (Vcc)	+1.8V +/- 5% (*1)
Load Impedance	10kΩ//10pF
Operating Temperature Range	-40deg C to +85deg C
Current Consumption	Max. 1.5 mA /26MHz
Output Voltage	Min. 0.8 V(p-p) (DC Coupling (*2))
Frequency/Temperature Characteristics	Max. +/- 0.5 x 10 <sup>-6</sup>
Frequency/Voltage Coefficient	Max. +/- 0.1 x 10 <sup>-6</sup> /+1.8±5%
Frequency/Load Coefficient	Max. +/- 0.1 x 10 <sup>-6</sup> / (10kΩ//10pF) +/- 10%
Long-term Frequency Stability	Max. +/- 1.0 x 10 <sup>-6</sup> /year

(\*1) Supports DC +1.7V to +3.3 V.

(\*2) A DC-cut capacitor is not embedded in this product. Connect a DC-cut capacitor (1,000 pF) to the line-out terminal of this product.

Other

\*Surface-mount crystal oscillator. (Reflow soldering is possible.)

\*Lead-free. Meets the requirements for reflow profiling using lead-free solder.

For more information on the product, contact :

**[Contact Info]**

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