



May 24th, 2019
Nihon Dempa Kogyo Co., Ltd.
Representative Director and President
Hiromi Katoh

Development of a compact 9 x 7mm OCXO for 5G base stations compatible with high temperature of +95°C

Nihon Dempa Kogyo Co., Ltd. has developed an ultra-small 9 × 7 mm high-precision OCXO (oven-controlled crystal oscillator) for base stations applications for 5th generation mobile communications (hereinafter, 5G) that is capable of operating up to +95deg.C. Sample shipment will begin in July 2019.

In recent years, high-speed and large-capacity radio base station networks have been required to support the use of large-capacity content such as images and videos. In order to realize ultra-high-speed and large-capacity services, 5G mobile networks need to install a large number of small cells (small base stations) that complement macro-base stations. This small base station is installed in a small space such as an interior of a building or an outdoor utility pole, and internal components are expected to rise in temperature due to high-density mounting and to be affected by external environmental changes. For this reason, there is a need for a compact, high-temperature compatible, high-stability crystal oscillator that has excellent phase noise characteristics as well as good temperature slope characteristics^{*1}, which are less susceptible to temperature changes.

In order to meet these needs, we have developed a dedicated ASIC^{*2} that combines the high-stability, low-noise, and environmental resistant technologies of OCXO that we have cultivated over many years to achieve ±0.5 ppb/deg.C temperature-slope characteristics that support +95deg.C high-temperature operation and greatly reduced micro-jumps in frequencies. In the future, we plan to develop ICs that integrate these technologies into other products, and to further expand our lineup of even smaller OCXO products.

This product will be exhibited at Wireless Technology Park 2019, which will be held at Tokyo Big Sight from Wednesday, May 29 to Friday, May 31. (NDK Booth: West 3 Hall 1931)

(*1) This property indicates the temperature characteristic of a crystal oscillator with respect to a temperature change, and the smaller the numerical value, the smaller the frequency change with the change in ambient temperature.

(*2) Abbreviation of Application Specific Integrated Circuit, a dedicated semiconductor used for specific application.

[Sample/Mass Production]

Sample shipment scheduled for July 2019 and mass production scheduled for December 2019

[Product Model Name]

NH9070WC / NH9070WD

[Appearance]

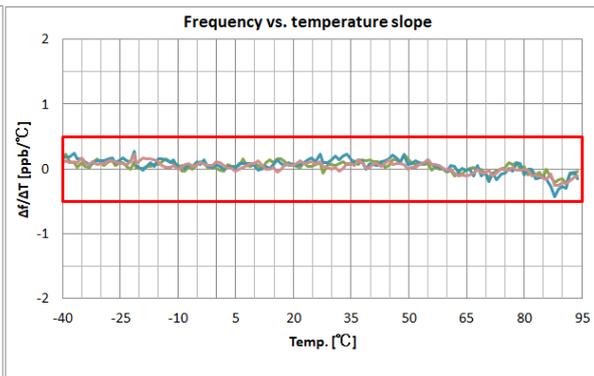
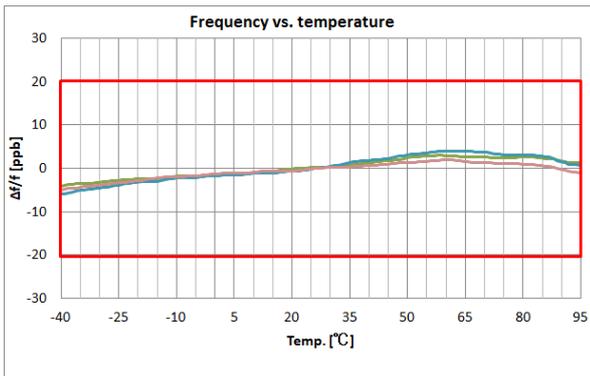


[Product characteristic]

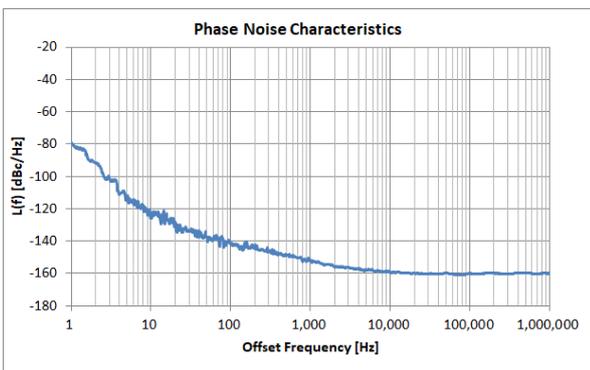
Products sizes	9.5 x 7.3 x 4.1 mm
Nominal Frequency Range	10MHz to 40MHz
Nominal Frequency	20MHz, 30.72MHz
Output	HCMOS
Supply Voltage [Vcc]	DC+3.3 V
Power Consumption (when stable)	Max. 0.6 W
Operating Temperature Range	-40deg.C to +95deg.C
Frequency/Temperature Characteristics	Max. +/-20 x 10 ⁻⁹
Frequency temperature slope characteristic	Typ. +/-0.5 x 10 ⁻⁹ /deg.C

[EXAMPLE OF CHARACTERISTICS]

■ Temperature characteristics (typical example)



■ Phase noise characteristic (reference data of 10 MHz)



For more information on the product, please contact:

[Contact Info]

e-Mail : ndkpr-m@ndk.com