

June 20, 2018
Nihon Dempa Kogyo Co., Ltd.
Representative Director &
Chairman of the Board,
President and CEO
Toshiaki Takeuchi

**Development of the world's smallest industry-leading low g-Sensitive^{*1}
temperature-compensated crystal oscillator**

Nihon Dempa Kogyo (NDK) has begun shipping samples of its new vibration-insensitive, low g-sensitive^{*1} temperature-compensated crystal oscillator. The two models – a compact type (2.0 × 1.6 × 0.7 mm) and a high-precision type supporting Stratum 3 and ITU-T TR-G8262 application (3.2 × 2.5 × 1.1 mm) – the vibration sensitivity performance are 10 times better than conventional oscillators.

Recent remarkable advances in areas of information and telecommunications such as 5G/LTE high-speed communications, 4K/8K video communications, car telecommunication devices and IoT, have created increasing demands for support from highly stable, high-quality oscillators. However, there is a need to address vibration associated with various outdoor operation environments, cooling fans, drones used with communication devices and other sources that may affect oscillators during system usage and impair telecommunication quality. In relation to the various telecommunication systems available, effects on rapidly evolving multilevel modulation systems^{*2} are of particular concern.

To address these needs, NDK has developed a new oscillator with superior anti-vibration performance using photolithographic technology and stress analysis simulation. This product provides low g-sensitivity of 0.1 ppb/G, which is among the lowest in the industry and over 10 times better than conventional temperature-compensated oscillators of the same size. It offers clear superiority over the performance of MEMS oscillators, and supports high-stability, high-quality performance of devices in a wide range of environments.

NDK remains committed to its development efforts in the field of high-quality, high-speed communications based on the broad application of this technology to oscillators and other crystal devices.

*1: Low g-sensitivity

Low acceleration sensitivity expressed as frequency change per unit of gravity acceleration

*2: Multilevel modulation system

A modem application in which data is associated with radio waves or electrical signals based on phase and amplitude. Used in LTE mobile communications, Wi-Fi, optical communications and other fields. The system allows transmission of high volumes of information with superior efficiency, but is sensitive to noise.

[Appearance]

NT2016S[] (Compact type)



NT3225S[] (High-precision type)



[Samples / Mass production]

NT2016S [] (Compact type)

Sample shipment is scheduled to start in June 2018 and mass production in March 2019.

NT3225S [] (High-precision type)

Sample shipment is scheduled to start in September 2018 and mass production in May 2019.

[Specifications / Characteristics]

Model	NT2016S []	NT3225S []
External Dimensions	2.0 × 1.6 × 0.7 mm	3.2 × 2.5 × 1.1 mm

Absolute Maximum Ratings

Supply Voltage	-0.6 to +4.6 V DC	-0.6 to +4.6 V DC
Storage Temperature Range	-40 to +85°C	-40 to +105°C

Electronic Characteristics

Nominal Frequencies	10 to 52 MHz	10 to 52 MHz
Standard Frequencies	25, 26, 40, 50, 52 MHz	25, 26, 50, 52 MHz
Supply Voltage (V _{CC})	+1.8 V ± 5% ^{*1}	+2.5 V ± 5%, +3.3 V ± 10% ^{*2}
Operating Temperature Range	-30 to +85°C	-40 to +105°C
Output Waveform	Clipped sinewave	Clipped sinewave, CMOS
Frequency/Temperature Characteristics	Max. ± 0.5 × 10 ⁻⁶	Max. ± 0.28 × 10 ⁻⁶
g-sensitivity	Max. 0.1 ppb/G	Max. 0.1 ppb/G

*1: Supports DC +1.7 to +3.3 V.

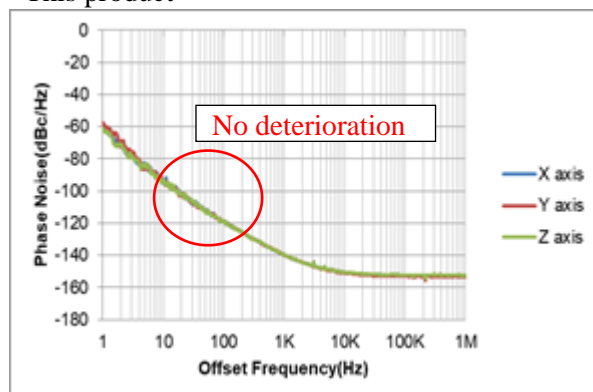
*2: Supports DC +2.5 to +3.63 V.

Other

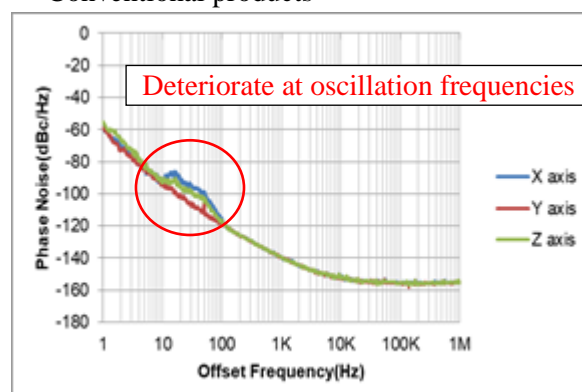
- Surface-mountable (reflow-solderable)
- Lead-free; supports solder profiles for lead-free solders.

[Phase noise during vibration]

•This product



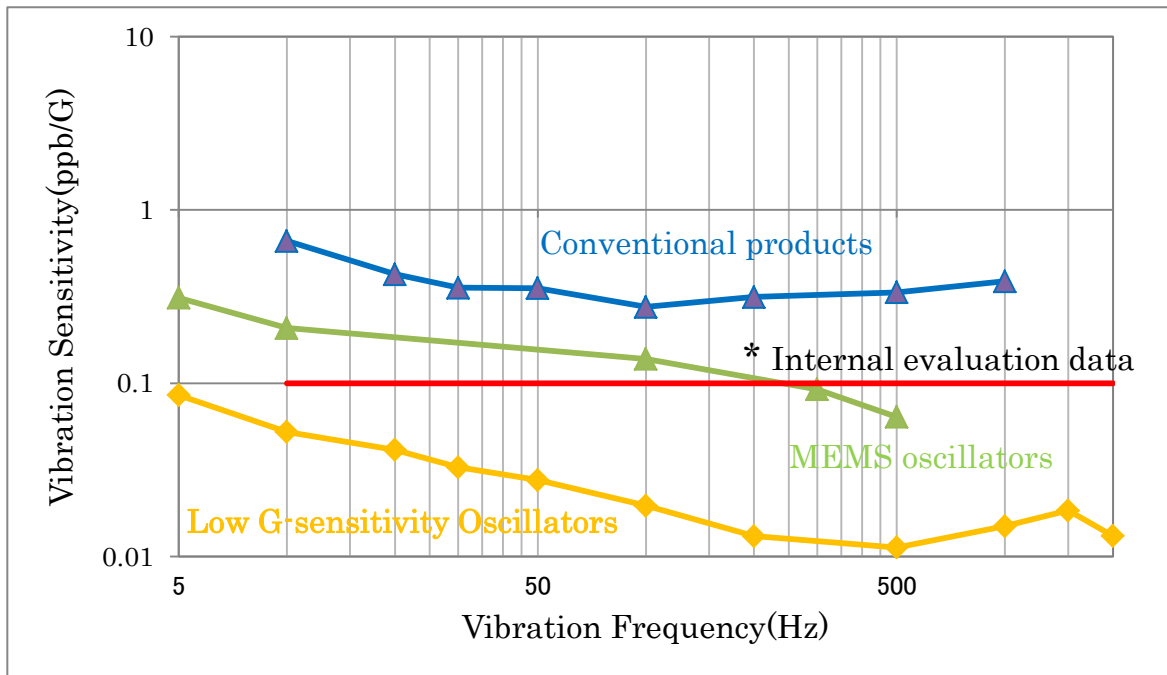
•Conventional products^{*3}



Test conditions: IEC 60068-2-64
5 to 100 Hz random oscillation
2.0 × 1.6mm 26 MHz

*3 Common NDK temperature-compensated crystal oscillators

【Comparison with conventional products*³ and MEMS oscillators】



For more information on the product, please contact:

【Contact Info】

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