May 25th, 2021
Nihon Dempa Kogyo Co., Ltd.
Representative Director and President
Hiromi Katoh

Developed the industry-leading(*1) Low g-Sensitivity (*2) crystal unit

Nihon Dempa Kogyo Co., Ltd. has developed a low-acceleration sensitivity (Low g-Sensitivity) crystal unit that is robust to external vibrations, and has started sample shipments.
Despite its compact size of 3.2×2.5×0.72mm, the vibration resistance against external vibration are approximately 10 times higher than that of conventional crystal unit.

In recent years, in base stations for 5G communication systems, there has been a growing demand for DU/RU (*3) and other devices to be smaller in accordance with the diversification of installation environments. When such a small device is installed in various environments, the impact of the internal crystal resonator due to vibration caused by wind, rain, cooling fan has become a problem. In addition, progress in information and communication technologies such as 4K/8K video communications, automotive communications equipment, and IoT is remarkable. To support these high-reliability communications, a high-stability, high-quality crystal unit with a minimal environmental degradation is required.

To meet these needs, we have developed a new crystal unit with superior vibration resistance using photolithography technology and stress analysis simulation.
This product achieves the industry's highest level of acceleration sensitivity Typ. 0.1ppb/g, which is a very low sensitivity, and achieves approximately 10 times better performance compared to conventional crystal unit of the same size. By using this product, we hope to contribute to the improvement of high-stability, high-quality equipment performance in a wide range of environments in which customers operate.

This product is planned for further frequency expansion, miniaturization, and a lineup that accommodates automotive standard (AEC-Q200). We will continue to contribute to the realization of a safe, secure, and comfortable society through the crystal device business.

[Product appearance]

[Sample timing]
Start of sample shipment in April 2021

[Specifications/Characteristics]

Model	NX3225SP
Dimensions (mm)	3.2×2.5×0.72

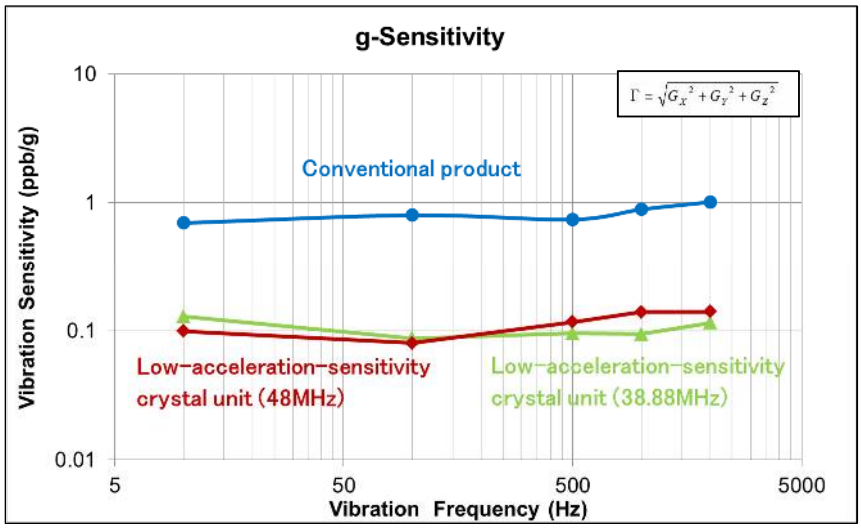
ELECTRICAL CHARACTERISTICS

Nominal Frequency (MHz)	20～52
Overtone Order	Fundamental
Frequency Tolerance (+25±3°C)	$\pm 20 \times 10^{-6}$
Frequency Temperature Characteristics (-40～+85°C)	$\pm 20 \times 10^{-6}$

Operating Temperature Range (℃)	-40～+85
Storage Temperature Range (℃)	-55～+125
Equivalent Series Resistance (Ω)	Max. 50
Level of Drive (μW)	100
Load Capacity (pF)	8
Acceleration Sensitivity (ppb/g)	Max. 0.2 (Typ. 0.1)

Other
・Surface mount compatible product. (Compatible with reflow soldering)
・It is a lead-free product, and it also supports the reflow profile of lead-free soldering.

[Comparison with the conventional product (*4)]



(*1) : Based on our investigation in April 2021.
(*2) : Low acceleration/sensitivity (Low g-Sensitivity)
Refers to low acceleration sensitivity, which is expressed in terms of the change in frequency per gravitational acceleration 1G.
The smaller the value, the less the impact due to vibration.
(*3) : DU (Distributed Unit (5G base station/digital unit))
RU (Radio Unit (5G base station/radio satellite station))
(*4) : Common crystal unit

[Contact]
NIHON DEMPA KOGYO CO., LTD.
e-mail ：newsrelease@ndk.com