

International Crystal Bridge to the Future June 16<sup>th</sup>, 2021 Nihon Dempa Kogyo Co., Ltd. Representative Director and President Hiromi Katoh

Developed the industry-thinnest (\*1) 1.0x0.8mm-sized ultra-low-profile crystal unit

Nihon Dempa Kogyo Co., Ltd. has developed an ultra-low-profile compact crystal unit with a  $1.0 \times 0.8$ mm-size ceramic package (NX1008AB: $1.0 \times 0.8 \times 0.25$ mm Max.) and started shipping samples.

In recent years, wearable devices (watches, wireless earphones, hearing aids, etc.) have been required to be smaller and thinner in line with the evolution of product design, and for this reason, high-density mounting by modularization of internal components is advancing. Such equipment is expected to grow in the future, and at the same time, it is believed that customers will be demand further height reduction, at the about the same cost as conventional crystal devices.

To meet this need, we released an ultra-small-size crystal resonator (NX1008AA:  $1.0 \times 0.8 \times 0.30$ mm Max.) in 2018, but we have now realized this product, which is the lowest height in ceramic package products, and have expanded our product lineup.

This product uses the high-quality synthetic quartz crystal grown in-house to process quartz pieces with high precision using our original photolithography technology and is realized through the technology and experience of assembling ultra-compact products that we have accumulated in mass production.

We will continue to contribute to the realization of a safe, secure and comfortable society through the quartz device business.

(\*1): Based on our survey May 2021 (crystal unit using ceramic package)

[Sample and mass production]

Sample shipment: Started in May 2021, mass production: scheduled for July 2022.

[Product appearance]



| [Specifications / Characteristics]                   |                         |                         |
|--|-------------------------|-------------------------|
| Model  | NX1008AB                |                         |
| Dimensions   | 1.0×0.8×0.25mm Max.     |                         |
| Frequency range                                      | $40 \leq F < 60 MHz$    | $60 \leq F \leq 96 MHz$ |
| Frequency tolerance (+25°C±3°C)                      | ±10×10 <sup>-6</sup>    | ±15×10 <sup>-6</sup>    |
| Frequency Temperature Characteristics<br>(-30~+85°C) | $\pm 10 \times 10^{-6}$ |                         |
| Equivalent series resistance                         | Max. 60Ω                |                         |
| Operating temperature range                          | -30 <b>~</b> +85°C      |                         |

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