

November 19, 2015  
Nihon Dempa Kogyo Co., Ltd.  
Representative Director &  
Chairman of the Board,  
President and CEO  
Toshiaki Takeuchi

**New product:Low noise Jitter Attenuator with built-in Crystal Unit for accurate high-speed data processing with a high-precision clock (6.0 x 6.0 mm)**

Nihon Dempa Kogyo Co., Ltd. (NDK) has developed a low noise Jitter Attenuator with a compact Crystal Unit and a jitter cleaner IC as a package.

This product is expected to contribute to the creation of low-jitter, high-precision oscillation sources for a variety of industrial digital equipment in which accurate high-speed and high-volume data processing is required. These include wireless base stations, optical communication equipment and measuring instruments as well as broadcast equipment for high-definition image data processing.

**【Features】**

- \* Low jitter (Typ. 300 fs / 12 kHz to 20 MHz)
- \* Internal clock source (integrated into the IC molded package rather than external as with existing models)
  - Substrate surface area of only approx. 9 mm<sup>2</sup> for space economy
  - Support for simplification of design work and device miniaturization
  - Fewer parts for lower management costs
- \* The unit features a new PLL loop filter band to allow user optimization of output signal phase noise during design.
- \* With I<sup>2</sup>C and SPI interfaces, the output frequency can be freely set between 2 kHz and 1,400 MHz.
- \* The use of two-bit signals enables selection from among four frequency settings. No programming is needed as long as a single specific frequency is used.

4G/LTE high-speed communications, Gigabit Ethernet and high-speed optical networks are proliferating quickly in today's world, and various industrial digital equipment must be capable of real-time data processing for the delivery of high-definition images. The various industrial digital technologies involved require increasingly higher-speed data processing as the volume of data to be transmitted increases.

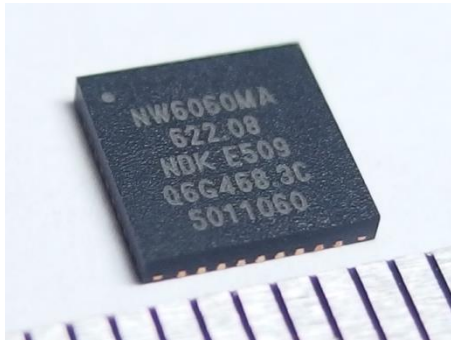
However, such technologies are often affected by data errors during communications, send/receive timing errors or inaccurate sampling due to the noise and jitter characteristics of

their internal oscillation sources, which may inhibit high-precision data processing.

To reduce the jitter of oscillation sources for digital equipment and contribute to the creation of high-precision oscillation sources, NDK has developed a new Jitter Attenuator with low noise and low power consumption. The integration of a compact Crystal unit and a Jitter Cleaner IC into the package also substantially improves design freedom and productivity.

The new Jitter Attenuator is expected to help users create higher-performance devices and reduce cost.

## 【Appearance】



## 【Samples and Mass Production】

Sample delivery has already begun, and mass production is scheduled to start in November 2015.

## 【Price】

Samples are priced at 2,000 yen per piece, and the price for mass production is 1,000 yen per piece (each lot contains 1,000 pieces).

Evaluation kits are priced at 20,000 yen each.

## 【Product Specifications】

Model		NW6060MA
Dimensions		6.0 x 6.0 x 0.9 mm
Package		36-QFN
Frequency	Input	2 kHz to 850 MHz
	Output	2 kHz to 933.33 MHz, 1,050 to 1,400 MHz
Outputs level		LVDS, LVPECL, CML, HCSL, LVCMOS
Jitter (12 kHz to 20 MHz)		Typ. 300 fs (max. 420 fs)
PLL loop filter band		10 Hz to 8.4 kHz
Supply voltage [V <sub>CC</sub> ]		+2.5V, +3.3V
Current consumption		Typ. 255 mA
International environmental certification		Pb-free, RoHS compliant

\* Evaluation kit specifically designed for NDK Jitter Attenuators are available for product assessment and system engineering.



\* For more information on the product, contact:

## 【Contact Info】

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