

October 12, 2012

Nihon Dempa Kogyo Co., Ltd.

President: Hiroshi Takeuchi

Compact, high-stability TCXO
for indoor small base stations (femtocells) developed

Nihon Dempa Kogyo Co., Ltd. has developed a compact high-stability temperature compensated crystal oscillator (TCXO) for use in small mobile base stations (femtocells) installed indoors or in underground shopping malls (dimensions 5.0×3.2×2.0 mm, Hold over frequency stability(*) max. ±100 ppb / -10°C to +70°C).

To support high-speed, high-capacity data communications using mobile communication terminals as specified in new telecommunication standards including Long Term Evolution (LTE), higher frequencies for higher-volume data transmission must be available. However, higher frequencies are more likely to travel in a straight line and are thereby less likely to turn around obstacles. For this reason indoor spaces such as residential houses and underground shopping malls eventually include places where radio waves cannot be reached (i.e., blind spots). What complements this macrocell network with blind spots associated with it are independent smaller base stations called femtocells. Even blind spots in the macrocell network can reliably receive radio waves with a femtocell nearby. Femtocells are expected to become more and more popular to reduce the load of macrocell network stations suffering from increasingly busy communications traffic.

The newly developed TCXO features compactness, low power consumption (typ. 12 mW) and quick start-up after power-on based on an assumption that the product is used in ordinary houses. NDK has made full use of its own expertise in high-stability oscillating circuits to successfully develop this TCXO satisfying the required frequency stability as a reference oscillator for a base station in spite of its compactness. The new product will contribute to the elimination of blind spots of the macrocell network through introduction of more and more femtocell base stations as well as lower communications traffic in macrocell base stations.

Delivery of product samples is planned to be launched in October 2012 and mass production in January 2013.

(*) Hold over frequency stability : including frequency temperature characteristics, stability, supply voltage change and aging of 24 hours.



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* For sample requests, please contact NDK sales personnel or send an e-mail to the address above.

The detailed specifications are shown below:

Specifications

Model	NT5032BA
Nominal frequency	14.4 MHz, 19.2 MHz, 20 MHz, 26 MHz
Hold over frequency stability (*)	Max. $\pm 100 \times 10^{-9}$
Operating temperature range	-10 to +70°C
Long-term frequency stability	Max. $\pm 3 \times 10^{-6}$ /10 years
Supply voltage	+3.3V $\pm 5\%$
Current consumption	Max. 15mA
Variable frequency range	Min. $\pm 5 \times 10^{-6}$ /+1.65V ± 1.65 V
Output waveform	LVC MOS

(*)Hold over frequency stability: including temperature stability, supply voltage change and aging of 24 hours.

External Dimensions

