

Development of Miniature High-Precision SMD TCXO for GPS

March 25, 2008

DAISHINKU Corporation (President: Sohei Hasegawa) announces the development of the DSB321SDA/DSB221SDA, a Miniature High-Precision Temperature Compensated Crystal Oscillator (TCXO), for GPS related applications. Samples of the DSB321SDA/DSB221SDA are available now.

A high precision SMD TCXO is typically used in the receiver section of a GPS related product. GPS related products require a very high precision and high performance TCXO to minimize its TTFF (Time To First Fix) and to maximize performance especially in weak-signal environments.

DAISHINKU Corporation currently produces High-precision SMD TCXO, DSB321SD, which provides frequency temperature stability of $\pm 0.5\text{ppm} / -30\text{ degree C to }+85\text{ degree C}$, for the GPS related products.

At this time, the phase noise performance of the output signal is improved with the new TCXO (DSB321SDA/DSB221SDA) to enhance the sensitivity of the GPS receivers with the same frequency temperature stability of $\pm 0.5\text{ppm} / -30\text{ degree C to }+85\text{ degree C}$.

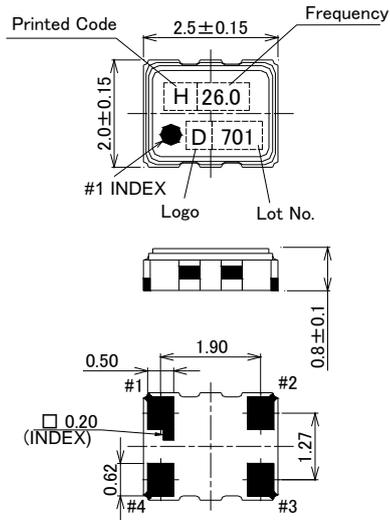
At the same time, the available supply voltage range has also been lowered down to $+1.7\text{V} \sim +3.6\text{V}$ to enable the GPS receivers to use the TCXO at $+1.8\text{V}$. This has been strongly required by the industry. The new TCXO can also be used at the existing supply voltage anywhere in the $+1.7\text{V to }+3.6\text{V}$ range. (The available supply voltage range of the existing product: $+2.3\text{V} \sim +5.5\text{V}$)

In addition to these above features, a build-in standby function (also called an “on-off”, or “enable-disable”) is also integrated into the new TCXO as an optional function. The standby function controls the switching of the TCXO by the external standby signals. With the conventional TCXOs, the power supply to the TCXO is typically controlled by external power management ICs or external LDOs (Low dropout regulators) in the system.

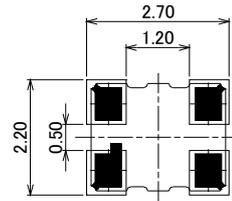
The new TCXO (DSB321SDA/DSB221SDA) can be easily controlled by just applying standby signal from the system. In addition, the standby function of the new TCXO is eliminating the need for the external power management circuitry and significantly simplifying the design around the TCXO with the minimum board space as well as the reduced numbers of BOM (about 4 components can be eliminated with the TCXO compare to the conventional system using the current TCXO and the LDOs)

The DSB321SDA (3.2 x 2.5 x 0.9mm) and the DSB221SDA (2.5 x 2.0 x 0.8mm) were developed based on these new technologies. These products adopted the single packaged structure, as well as the existing KDS TCXO products, and enabled our manufacturing line to share the production equipment to produce the new product more flexibly and efficiently to support the expanding market need in the GPS related applications (Navigation systems, PNDs and Cell phones etc).

DSB221SDA (TCXO)



Land Pattern <TOP View>



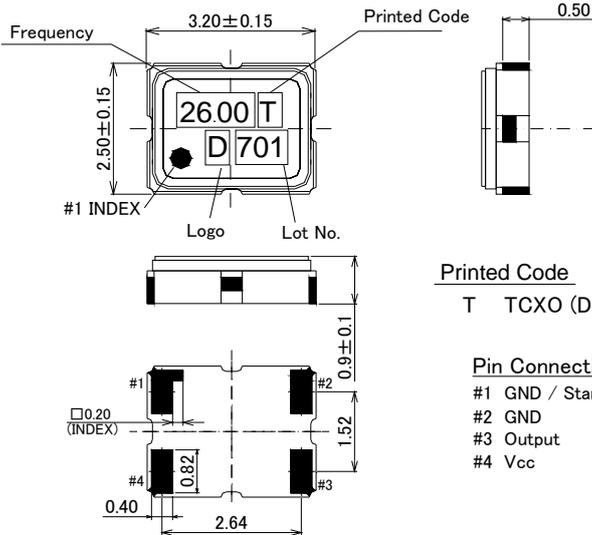
Printed Code

H TCXO (DSB221SDA)

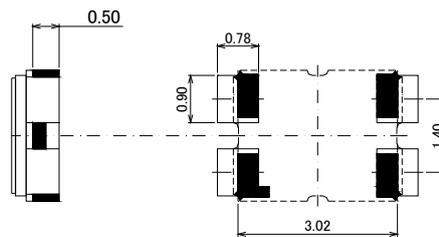
Pin Connections

- #1 GND / Stand-by(Optional)
- #2 GND
- #3 Output
- #4 Vcc

DSB321SDA (TCXO)



Land Pattern <TOP View>



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T TCXO (DSB321SDA)

Pin Connections

- #1 GND / Stand-by(Optional)
- #2 GND
- #3 Output
- #4 Vcc

<Product Photography>

