

DAISHINKU develops the DSO221SW crystal oscillator, achieving narrower tolerances over wider temperature ranges

May 26, 2009

DAISHINKU CORP. (President: Sohei Hasegawa) announces development of the DSO221SW, a small-size crystal oscillator (SPXO)(size: 2520) that achieves narrower tolerances over wider temperature ranges.

In recent years, electronic devices continue to reduce in size while achieving ever higher performance and functionality. Demand continues growing for electronic components making up these devices to meet this trend. In the field of short-distance wireless communications, especially, improved communication speeds and high precision are top priorities. Meanwhile, enhanced multifunctionality has accompanied increased device density as well as additional heat from the ICs, which raises concern about higher temperatures in product sets. For these reasons, it is imperative that electronic components ensure high precision over broader operational temperature ranges.

The DSO221SW crystal oscillator has been developed to meet these challenges. This product achieves narrow tolerances over wider temperature ranges(e.g., $\pm 10 \times 10^{-6}$ at -20 to +70 deg.C, and $\pm 30 \times 10^{-6}$ at -40 to +105 deg.C). Its volume (2.5*2.0*0.8mm externally) is approximately 45% smaller than that of the conventional DSO321 series (3.2*2.5*0.9mm). Thus, the DSO221SW meets the needs of smaller size and enhanced multifunctionality in short-distance wireless modules.

Narrower tolerances have been achieved compared with conventional SPXOs by taking advantage of the frequency control technology used in temperature-compensated crystal oscillators (TCXOs).

With operation guaranteed at temperatures up to +105 deg.C, the DSO221SW is well suited for car electronics applications. Featuring a broad frequency range (3 to 54 MHz), the DSO221SW is operable from low (+1.8V) to high(+3.3V) voltages.

The DSO221SW also boasts excellent environmental performance that meets the lead-free requirements and RoHS Directive in Europe.

[Product]

DSO221SW

[Features]

2520size (2.5*2.0*0.8mm)

Offers Narrow deviation: $\pm 10 \times 10^{-6}$ / -20 to +70 deg.C , $\pm 12 \times 10^{-6}$ / -30 to +85 deg.C

$\pm 15 \times 10^{-6}$ / -40 to +85 deg.C , $\pm 30 \times 10^{-6}$ / -40 to +105 deg.C

Output Frequency Range: 3 to 54 MHz

Supply Voltage: +1.8 to +3.3V

Output: C-MOS

[Applications]

WiLAN, WiMAX, PLC, SSD, UWB, MIDs, Medical instruments, Mobile phones, visual applications, and automotive electronics

[Mass Production date]

June, 2009

[Sample price]

700 yen sample are available now.

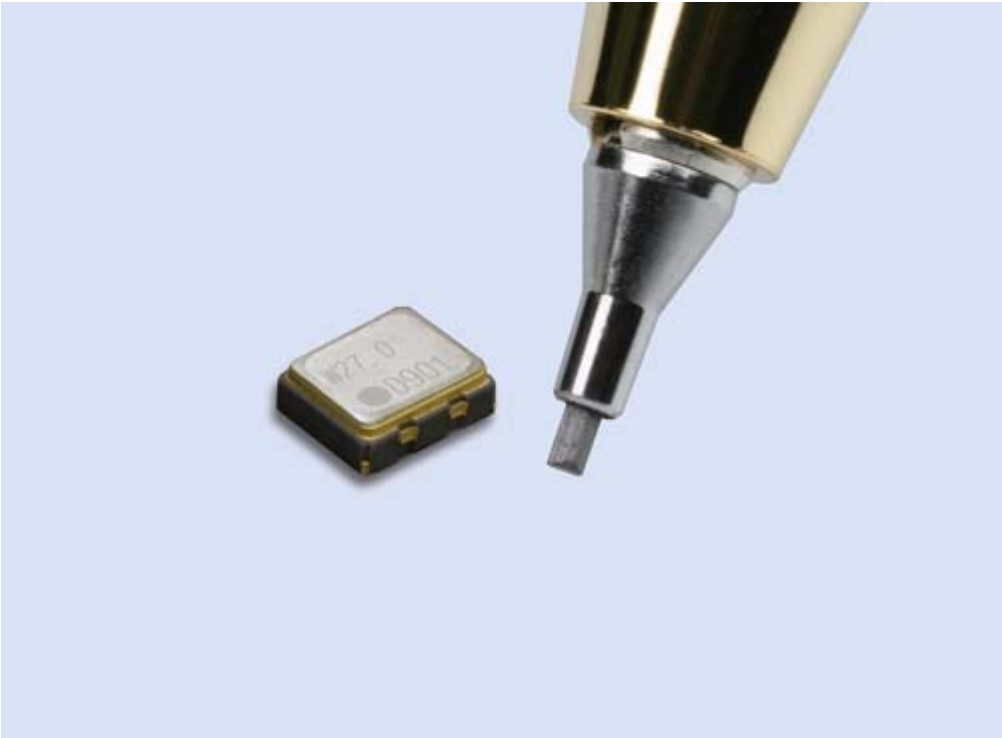
[Manufacturing capacity]
1million/month

[Electrical Specification]

| Item | Symbol | Spec. | | | Unit | Condition | | |
|-----------------------------|-----------------------|--------|---------|-------|-------------------|-----------|---------------------|---------|
| | | MIN | TYP | MAX | | | | |
| Supply Voltage | Vdd | +1.6 | +1.8 | +2.0 | V | - | - | |
| | | +2.25 | +2.5 | +2.75 | | | | |
| | | +2.6 | +2.8 | +3.0 | | | | |
| | | +3.0 | +3.3 | +3.3 | | | | |
| Operating Temperature Range | T-use | -40 | - | +105 | deg.C | - | - | |
| Frequency Tolerance | F-to11 | -10 | - | +10 | *10 ⁻⁶ | - | Topr=-20to+70deg.C | |
| | F-to12 | -12 | - | +12 | | - | Topr=-30to+85deg.C | |
| | F-to13 | -15 | - | +15 | | - | Topr=-40to+85deg.C | |
| | F-to14 | -30 | - | +30 | | - | Topr=-40to+105deg.C | |
| Current Consumption | 3.0 ≤ F0 ≤ 26 (MHz) | Idd | - | - | 2.0 | mA | Vdd=+1.8V | No Load |
| | | | - | - | 2.5 | | Vdd=+2.5V | |
| | | | - | - | 2.8 | | Vdd=+2.8V | |
| | | | - | - | 3.0 | | Vdd=+3.3V | |
| | 26 < F0 ≤ 54 (MHz) | | - | - | 4.0 | | Vdd=+1.8V | |
| | | | - | - | 4.5 | | Vdd=+2.5V | |
| | | | - | - | 5.0 | | Vdd=+2.8V | |
| | | | - | - | 5.5 | | Vdd=+3.3V | |
| Stand-byCurrent | Output Disable | I-std | - | - | 10 | uA | #1pin"L"Level | - |
| Symmetry | 0.5*Vdd | SYM | 45 | 50 | 55 | % | - | - |
| Output | 0Level Output voltage | Vol | - | - | Vdd*0.1 | V | - | - |
| | 1Level Output voltage | Voh | Vdd*0.9 | - | - | | | |
| | Rise Time | Tr | - | - | 10 | ns | Vdd*0.1 -Vdd*0.9 | - |
| | Fall Time | Tf | - | - | 10 | | | |
| | Output Load | L-CMOS | 15 | | | pF | - | - |
| #1pin Input | 0Level Input Current | Iil | - | - | -0.01 | mA | - | - |
| | 1Level Input Current | Iih | - | - | 0.01 | | | |
| | 0Level Input Voltage | Vil | - | - | Vdd*0.2 | V | - | - |
| | 1Level Input Voltage | Vih | Vdd*0.8 | - | - | | | |
| Output Disable Time | Tplz | - | - | 150 | ns | - | - | |
| Output Enable Time | Tpzl | - | - | 5 | ms | - | - | |

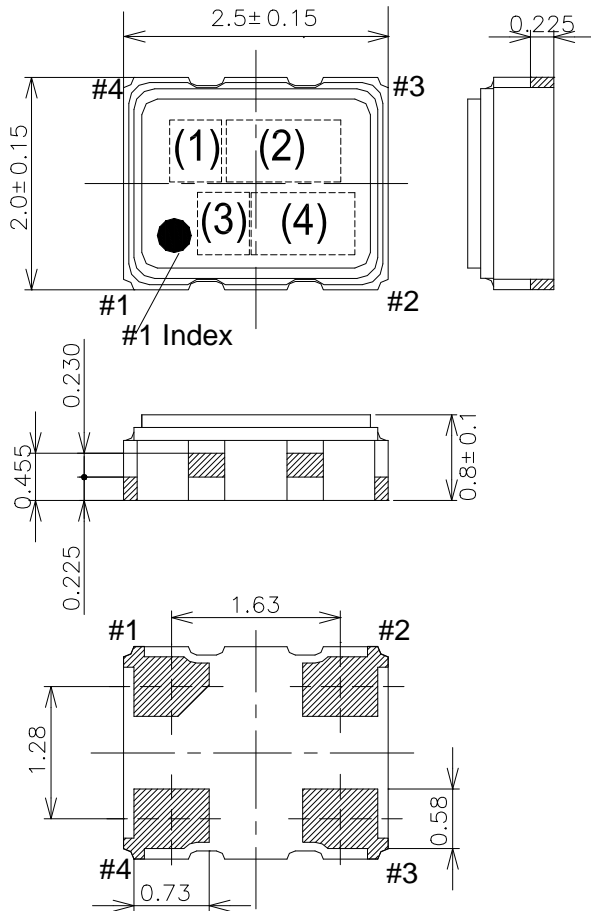
*Consult our sales representative for other specifications.

[Product Photograph]



[Dimensions]

DSO221SW



Pin Connections

| Pin No. | Connection |
|---------|------------|
| #1 | OE |
| #2 | GND. |
| #3 | OUTPUT |
| #4 | Vdd |

Marking

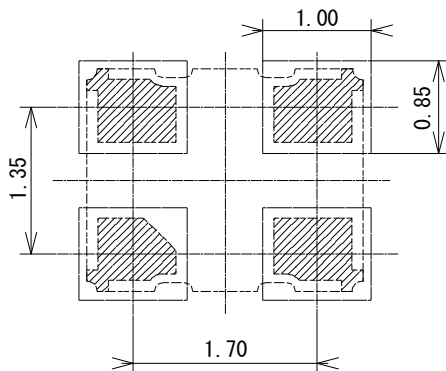
- (1) Model Code W
- (2) Frequency 27.0(MHz, 4digits)
- (3) Logo D
- (4) Lot No. Year(1digit)+Week(2digits)
e.g. 2009/01/01 -> 901

unit:mm

Dimensional Tolerance: ± 0.15

(Unless otherwise noted)

**Recommended Land Pattern
[TOP VIEW]**



unit : mm