DAISHINKU develops Non-PLL/differential output crystal oscillators

August 3, 2010

DAISHINKU CORP. (President: Sohei Hasegawa) announces development of DSO323SK/SJ/SD, three models of the Non-PLL/differential output crystal oscillator series.

Recently, network capacities have been growing and digital device intercommunication speeds have been increasing, due to the popularization of sophisticated information terminals (including smartphones) and the expansion of cloud computing. Low-amplitude differential digital signals are used between communication devices to ensure accurate high-speed signal transmission. DSO533SK/SJ of the 5032 (5.0 × 3.2 mm) size were designed to meet such needs. DAISHINKU has developed new products of the 3225 (3.2 × 2.5 mm) size, with enhanced performances such as wider operating frequency range and lower power consumption, as compared with conventional models. The external dimensions of DSO323SK/SJ/SD are equivalent to those of the 3225 size (3.2 × 2.5 × 1.1 mm), which makes DSO323SK/SJ/SD the smallest Non-PLL/differential output crystal oscillators in the world*[1]. The volume is 0.0088 cc, 50% less than the conventional 5032 size (0.0176 cc). The mounting area is 8 mm^2, 50% less than the 5032 size (16 mm^2), thus enabling high-density mounting.

The DSO323 series is designed to meet all three major standards for differential digital signals, thereby ensuring high levels of usability: DSO323SK for LV-PECL, DSO323SJ for LVDS and DSO323SD for HCSL.

The operating frequency range is 13.5 ~ 170 MHz, significantly wider than that of conventional models (100 ~ 160 MHz). Low-jitter operation is also ensured, thanks to newly developed high frequency fundamental crystal oscillators (developed using high-precision machining technologies) and Non-PLL oscillation output (generated by single-chip oscillation circuits smaller than conventional ones). Power consumption has also been reduced by more than 80%, from the 150 mW of conventional models to 24 mW in the LVDS model*[2].

The DSO323SK/SJ/SD also boasts excellent environmental performance that meets the lead-free requirements and RoHS Directive in Europe.

*[1] Source: survey by DAISHINKU CORP. on Non-PLL/differential output crystal oscillators, valid as of August 3, 2010

*[2] Comparison of actual power consumption values of LVDS models

<Product>

DSO323SK/ DSO323SJ/ DSO323SD

<Features>

- 3225size(3.2 ×2.5 ×1.1mm)
- Designed to operate with three types of differential digital signals
- Output Frequency Range: 13.5 to 170 MHz
- Low-jitter operation due to Non-PLL oscillation output
- Supply Voltage: +2.5V/ +3.3V
- Lead-free and RoHS compliant

<Main applications>

Servers, optical transmission systems (including GE-PON), trunk-line communication base stations and WiMAX base stations

<Mass Production date>
Oct. ,2010

<Sample price>
500 yen sample are available now.

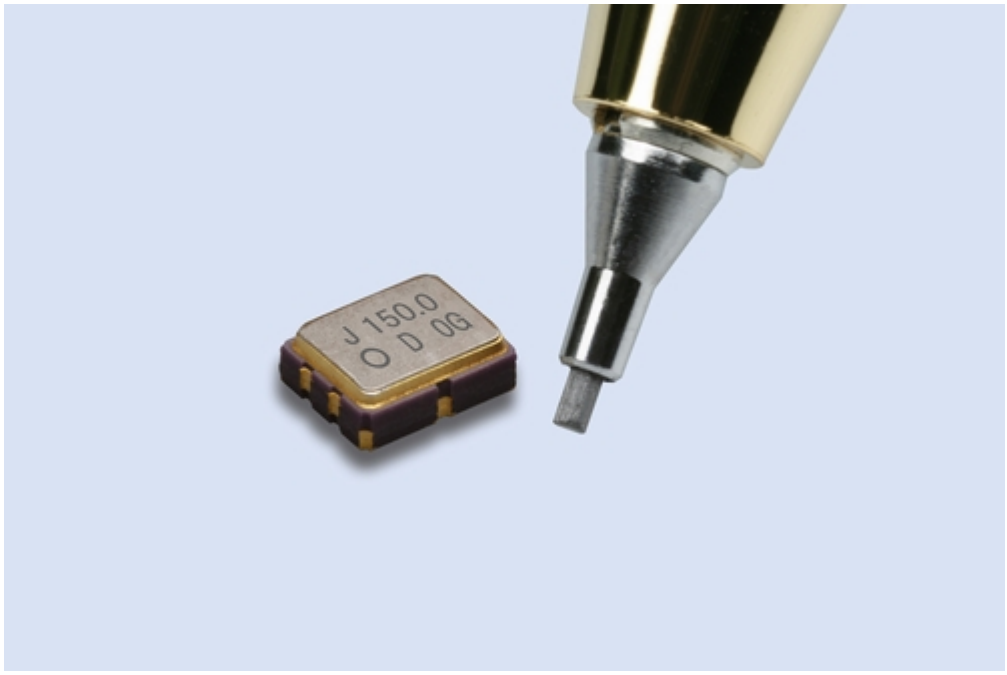
<Manufacturing capacity>
1million/month

<Electrical Specification>

Item	Specification	Condition
Output Specification	DSO323SK : LV-PECL DSO323SJ : LVDS DSO323SD : HCSL	
Output Frequency Range	13.5 ~ 170MHz	
Supply Voltage	3.3V±0.15V or 2.5V±0.125V	
Operating Temperature Range	-10 deg.C ~ +70 deg.C or -40 deg.C ~ +85 deg.C	
Frequency Tolerance	$\pm 50 \times 10^{-6}$ or $\pm 100 \times 10^{-6}$	Includes frequency tolerance at room temperature, frequency characteristics over temperature, frequency stability vs. aging
Current Consumption	SK:45mA max. SJ:20mA max. SD:35mA max.	OE="OPEN" or "H" Vdd=3.3V
Standby Current	10μA max.	OE="L"
RMS Jitter	2.5ps typ.	
Peak to Peak Jitter	22ps typ.	
Total Jitter	36ps typ.	BER=1 $\times 10^{-12}$
Phase Jitter	1ps max.	Offset 12kHz~20MHz
Start Up Time	2ms	
Standby function	3-state function	

Consult our sales representative for other specifications.

<Product Photograph>



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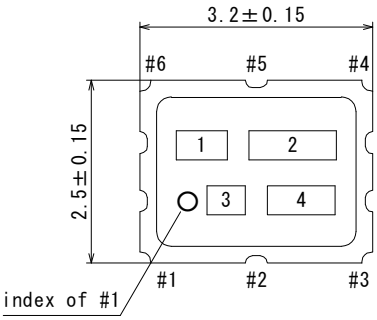

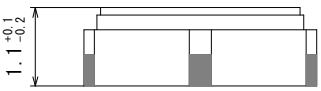

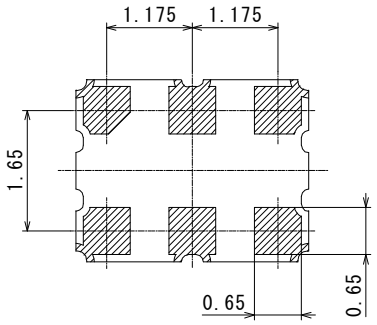

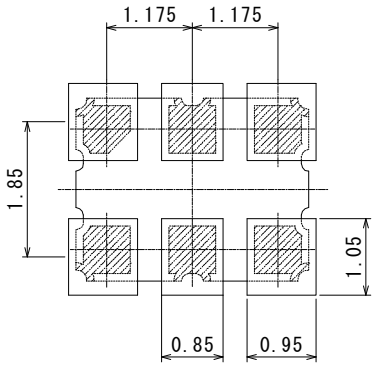

Pin Connections

Pin No.	Connections
#1	OE
#2	NC
#3	GND
#4	OUT
#5	OUTN
#6	Vdd

Function

OE(#1) input	#4,#5output condition
OPEN or "H"	Oscillation out
"L"	High Z

MARKING

1.Type	K / J / D
2.Freq.	Frequency
3.KDS LOGO	D
4.LOT No.	Refer to 【LOT No.】

【LOT No. 】(Last digit of Year) (Month)

e.g. Jan.2010 0A

Month	1	2	3	4	5	6	7	8	9	10	11	12
Code	A	B	C	D	E	F	G	H	J	K	L	M