

**VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR (VCXO)**

**OUTPUT : LV-PECL**



Product Number (Please contact us)

VG-4513CB: X1G004151xxxxxx

VG-4513CA: X1G004141xxxxxx

**VG-4513CB**  
**VG-4513CA**

- Frequency range : 100 MHz to 250 MHz
- Supply voltage : 3.3 V
- Absolute pull range :  $\pm 30 \times 10^{-6}$  Min,  $\pm 50 \times 10^{-6}$  Min,  $\pm 100 \times 10^{-6}$  Min
- Function : Output Enable(OE)  
Active High or Low
- Output : LV-PECL



VG-4513CB  
(5.0 × 3.2 × 1.3 mm)



VG-4513CA  
(7.0 × 5.0 × 1.6 mm)

Actual size

VG-4513CB

VG-4513CA

**Specifications (characteristics)**

Item	Symbol	Specifications	Conditions / Remarks
Output frequency range	f <sub>o</sub>	100.000 MHz to 250.000 MHz	Please contact us about available frequencies.
Supply voltage	V <sub>cc</sub>	3.3 V ± 0.165 V	
Storage temperature range	T <sub>stg</sub>	-55 °C to +125 °C	
Operating temperature range	T <sub>use</sub>	-40 °C to +85 °C	
Current consumption	I <sub>cc</sub>	65 mA Max.	
Frequency tolerance	f <sub>tol</sub>	100 MHz ≤ f <sub>o</sub> ≤ 200 MHz : ±50 × 10 <sup>-6</sup> Max. 200 MHz < f <sub>o</sub> ≤ 250 MHz : ±70 × 10 <sup>-6</sup> Max.	Includes initial tolerance, temperature change, V <sub>cc</sub> change and 10years aging
Absolute pull range	APR	120 MHz ≤ f <sub>o</sub> ≤ 200 MHz ±30 × 10 <sup>-6</sup> Min. ±50 × 10 <sup>-6</sup> Min. ±100 × 10 <sup>-6</sup> Min. 100 MHz ≤ f <sub>o</sub> < 120 MHz, 200 MHz < f <sub>o</sub> ≤ 250 MHz ±30 × 10 <sup>-6</sup> Min. ±50 × 10 <sup>-6</sup> Min.	V <sub>c</sub> = 1.65 V ± 1.65 V
Input resistance	R <sub>in</sub>	100 kΩ Min.	DC level
Output load condition	L <sub>ECL</sub>	50Ω at V <sub>cc</sub> -2.0V	
High output voltage	V <sub>OH</sub>	V <sub>cc</sub> -1.1 V Min.	
Low output voltage	V <sub>OL</sub>	V <sub>cc</sub> -1.5 V Max.	
Symmetry	SYM	40 % to 60 %	at V <sub>cc</sub> -1.30 V, V <sub>c</sub> =1/2V <sub>cc</sub>
Rise/Fall times	t <sub>r</sub> /t <sub>f</sub>	0.5 ns Max.	at 20 % to 80 % output swing
High input voltage	V <sub>IH</sub>	70% V <sub>cc</sub> Min.	
Low input voltage	V <sub>IL</sub>	30% V <sub>cc</sub> Max.	
Oscillation start up time	t <sub>str</sub>	10ms Max.	

Item	Offset frequency	122.88 MHz	153.6 MHz	245.76 MHz
Phase noise (Typical value) APR ±50 × 10 <sup>-6</sup> Min.	10 Hz	-75 dBc/Hz	-70 dBc/Hz	-64 dBc/Hz
	100 Hz	-105 dBc/Hz	-100 dBc/Hz	-94 dBc/Hz
	1 kHz	-129 dBc/Hz	-124 dBc/Hz	-118 dBc/Hz
	10 kHz	-147 dBc/Hz	-143 dBc/Hz	-138 dBc/Hz
	100 kHz	-151 dBc/Hz	-152 dBc/Hz	-149 dBc/Hz

Product Name VG-4513CA - 122.880000 - G F C T

(Standard form) ① ② ③ ④⑤⑥⑦

①Model ②Package type ③Frequency(MHz) ④Operating temperature range ⑤Absolute pull range

⑥Supply voltage (C: 3.3V Typ.) ⑦OE function

④Operating temperature	
G	-40 to +85°C
J	-20 to +70°C
K	0 to +70°C

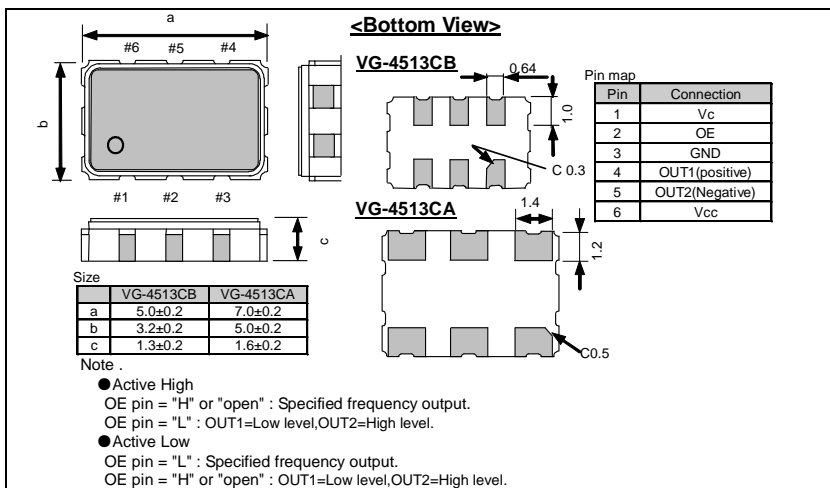
⑤Absolute pull range	
H*	±100 × 10 <sup>-6</sup> Min.
G	±50 × 10 <sup>-6</sup> Min.
F	±30 × 10 <sup>-6</sup> Min.

⑦OE function	
T	Active High
L	Active Low

\*Only 120 MHz ≤ f<sub>o</sub> ≤ 200 MHz are available.

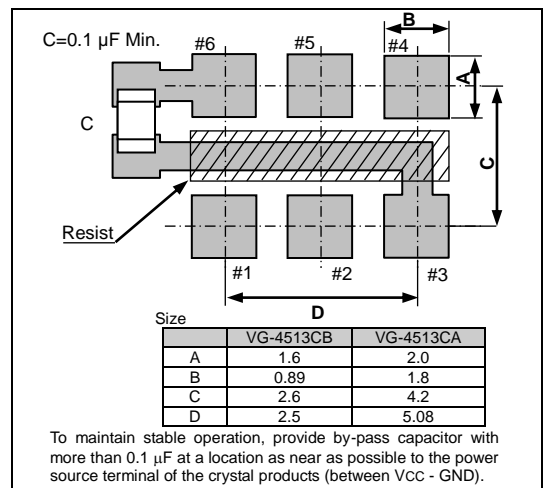
**External dimensions**

(Unit : mm)



**Footprint (Recommended)**

(Unit : mm)



## PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

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	► Pb free.
	► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
	► Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
	► Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc ).

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Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

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Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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