

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

Item	Offset frequency	122.88 MHz	153.6 MHz	245.76 MHz
Phase noise (Typical value) APR ±50 × 10 ⁻⁶ 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

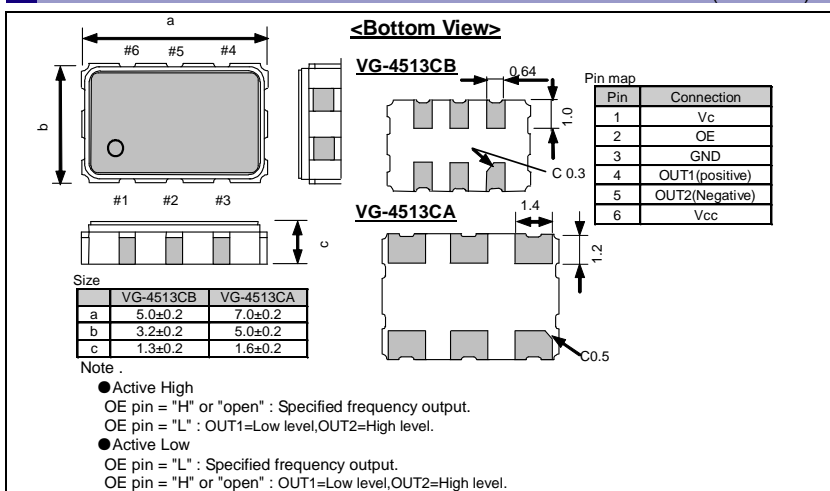
⑤Absolute pull range	
H*	±100 × 10 ⁻⁶ Min.
G	±50 × 10 ⁻⁶ Min.
F	±30 × 10 ⁻⁶ Min.

⑦OE function	
T	Active High
L	Active Low

*Only 120 MHz ≤ f_o ≤ 200 MHz are available.

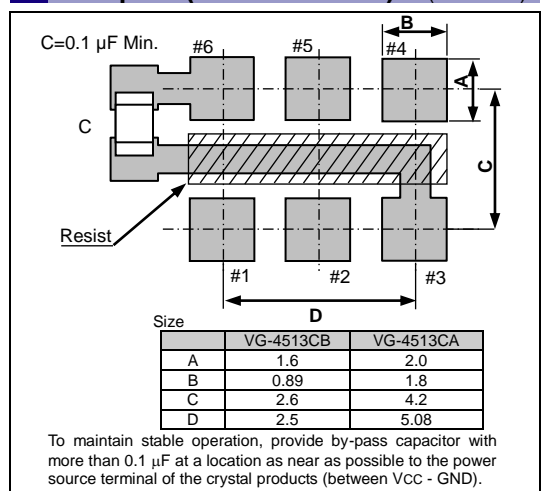
External dimensions

(Unit : mm)



Footprint (Recommended)

(Unit : mm)



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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.

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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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Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

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