

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 \pm 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 $\leq f_o \leq$ 200 MHz : $\pm 50 \times 10^{-6}$ Max. 200 MHz $< f_o \leq$ 250 MHz : $\pm 70 \times 10^{-6}$ Max.	Includes initial tolerance, temperature change, V_{cc} change and 10years aging
Absolute pull range	APR	120 MHz $\leq f_o \leq$ 200 MHz $\pm 30 \times 10^{-6}$ Min. $\pm 50 \times 10^{-6}$ Min. $\pm 100 \times 10^{-6}$ Min. 100 MHz $\leq f_o <$ 120 MHz, 200 MHz $< f_o \leq$ 250 MHz $\pm 30 \times 10^{-6}$ Min. $\pm 50 \times 10^{-6}$ Min.	$V_c = 1.65$ V ± 1.65 V
Input resistance	R_{in}	100 k Ω Min.	DC level
Output load condition	L_{ECL}	50 Ω at $V_{cc} - 2.0$ V	
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 $\pm 50 \times 10^{-6}$ 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

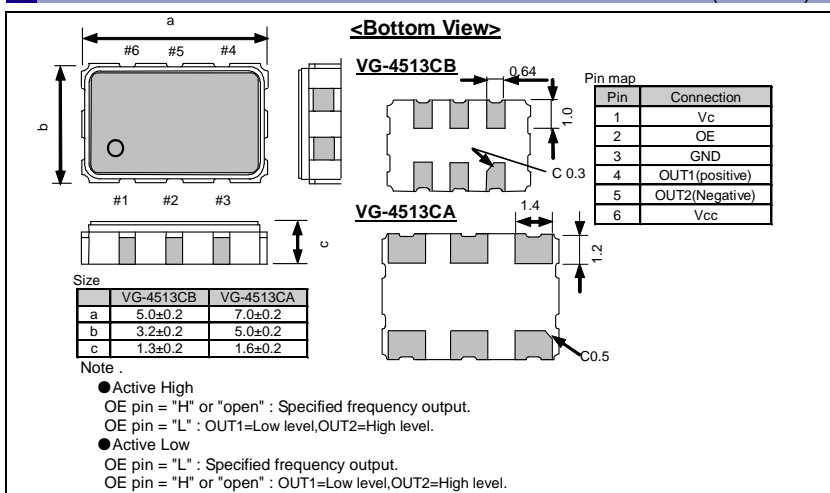
⑤Absolute pull range	
H*	$\pm 100 \times 10^{-6}$ Min.
G	$\pm 50 \times 10^{-6}$ Min.
F	$\pm 30 \times 10^{-6}$ Min.

⑦OE function	
T	Active High
L	Active Low

*Only 120 MHz $\leq f_o \leq$ 200 MHz are available.

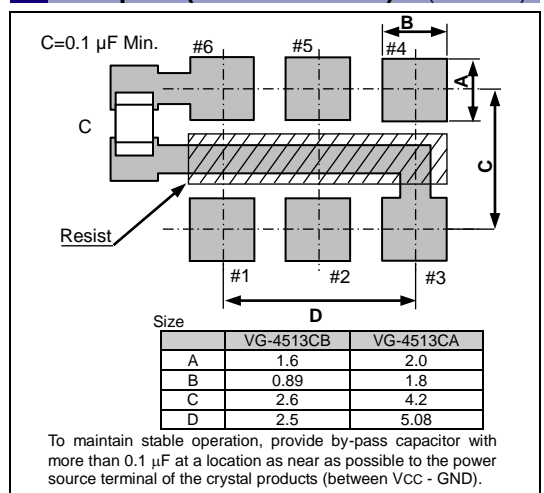
External dimensions

(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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