VOLTAGE -CONTROLLED CRYSTAL OSCILLATOR (VCXO)

OUTPUT : LV-PECL

VG-4513CB
VG-4513CA

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

Pb Free RoHS Compliant

Product Number (Please contact us)
VG-4513CB: X1G004151xxxxxx
VG-4513CA: X1G004141xxxxxx

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_0	100.000 MHz to 250.000 MHz	Please contact us about available frequencies.
Supply voltage	Vcc	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	Icc	65 mA Max.	
Frequency tolerance	f_tol	100 MHz ≤ f_0 ≤ 200 MHz : ±50 × 10^{-6} Max. 200 MHz < f_0 ≤ 250 MHz : ±70 × 10^{-6} Max.	Includes initial tolerance, temperature change, Vcc change and 10years aging
Absolute pull range	APR	120 MHz ≤ f_0 ≤ 200 MHz ±30 × 10^{-6} Min. ±50 × 10^{-6} Min. ±100 × 10^{-6} Min. 100 MHz ≤ f_0 < 120 MHz, 200 MHz < f_0 ≤ 250 MHz ±30 × 10^{-6} Min. ±50 × 10^{-6} Min.	Vc= 1.65 V ±1.65 V
Input resistance	Rin	100 kΩ Min.	DC level
Output load condition	L_ECL	50Ω at Vcc -2.0V	
High output voltage	VOH	Vcc-1.1 V Min.	
Low output voltage	VOL	Vcc-1.5 V Max.	
Symmetry	SYM	40 % to 60 %	at Vcc-1.30 V, Vc=1/2Vcc
Rise/Fall times	tr/tf	0.5 ns Max.	at 20 % to 80 % output swing
High input voltage	VIH	70% Vcc Min.	
Low input voltage	VIL	30% Vcc 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 (Standard form) VG-4513 CA – 122.880000 - G F C T
① ② ③ ④⑤⑥⑦

①Model ②Package type ③Frequency(MHz) ④Operating temperature range ⑤Absolute pull range
⑥Supply voltage (C: 3.3V Typ.) ⑦OE function

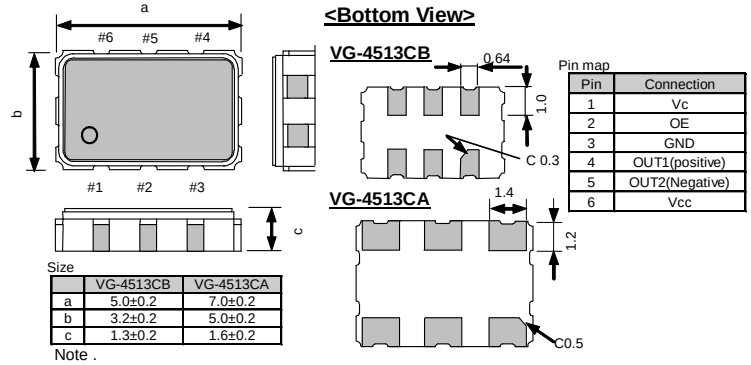
④Operating temperature	
G	-40 to +85°C
J	-20 to +70°C
K	0 to +70°C

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_0 ≤ 200 MHz are available.

External dimensions (Unit :mm)

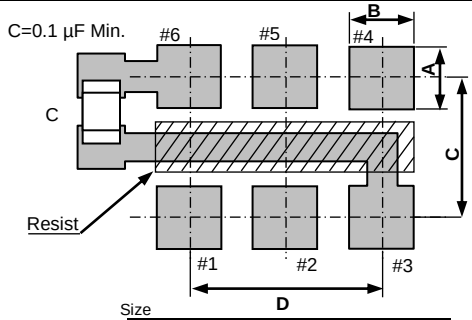


Size

	VG-4513CB	VG-4513CA
a	5.0±0.2	7.0±0.2
b	3.2±0.2	5.0±0.2
c	1.3±0.2	1.6±0.2

Note .
●Active High
OE pin = "H" or "open" : Specified frequency output.
OE pin = "L" : OUT1=Low level,OUT2=High level.
●Active Low
OE pin = "L" : Specified frequency output.
OE pin = "H" or "open" : OUT1=Low level,OUT2=High level.

Footprint (Recommended) (Unit :mm)



Size

	VG-4513CB	VG-4513CA
A	1.6	2.0
B	0.89	1.8
C	2.6	4.2
D	2.5	5.08

To maintain stable operation, provide by-pass capacitor with more than 0.1 µF at a location as near as possible to the power source terminal of the crystal products (between Vcc - GND).

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.

WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

►Explanation of the mark that are using it for the catalog

Pb Free	►Pb free.
RoHS Compliant	►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.)
For Automotive	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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