



## VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR (VCXO) OUTPUT : CMOS

# VG-4501CA VG-4502CA

- Frequency range : 80 MHz to 170 MHz (VG-4501CA)  
: 80 MHz to 125 MHz (VG-4502CA)
- Supply voltage : 3.3 V
- Absolute pull range :  $\pm 50 \times 10^{-6}$  Min./  $\pm 100 \times 10^{-6}$  Min.
- External dimensions: 7.0 × 5.0 × 1.6 mm
- Function : Output enable (OE), Active High



Product Number (please contact us)

VG-4501CA :

X1G003771xxxx00 ( $f_o \leq 125\text{MHz}$ )X1G004191xxxx00 ( $125\text{MHz} < f_o$ )

VG-4502CA :

X1G003751xxxx00



Actual size



### Specifications (characteristics)

Item	Symbol	VG-4501CA	VG-4502CA	Conditions / Remarks
Output frequency range	$f_o$	80.000 to 170.000 MHz	80.000 to 125.000 MHz	Please contact us about available frequencies.
Supply voltage	$V_{cc}$	3.3 V $\pm 0.165$ V		
Storage temperature	$T_{stg}$	-55 °C to +125 °C		Storage as single product.
Operating temperature	$T_{use}$	G: -40 to +85°C, J: -20 to +70°C, K: 0 to +70°C		
Frequency tolerance	$f_{tol}$	$\pm 50 \times 10^{-6}$ Max.		-40 °C to +85 °C
Current consumption	$I_{cc}$	25 mA Max. ( $f_o \leq 125\text{MHz}$ ) 35 mA Max. ( $125\text{MHz} < f_o$ )	25 mA Max.	$L_{CMOS} = 15\text{pF}$
Absolute pull range*1	APR	G: $\pm 50 \times 10^{-6}$ Min. (80 MHz $\leq f_o \leq 170\text{MHz}$ ) H: $\pm 100 \times 10^{-6}$ Min. (125 MHz $< f_o$ )	H: $\pm 100 \times 10^{-6}$ Min.	$V_c = 1.65\text{V} \pm 1.65\text{V}$
Input resistance	$R_{in}$	80 k $\Omega$ Min.		DC level
Frequency change polarity	—	Positive slope		$V_c = 0$ to 3.3 V
Symmetry	SYM	45 % to 55 %		50 % $V_{cc}$ level
Output voltage	$V_{OH}$ $V_{OL}$	90 % $V_{cc}$ Min. 10 % $V_{cc}$ Max.		$I_{OH} = -0.8\text{mA}$ $I_{OL} = 3.2\text{mA}$
Output load condition (CMOS)	$L_{CMOS}$	15 pF Max.		
Input voltage	$V_{IH}$ $V_{IL}$	70 % $V_{cc}$ Min. 30 % $V_{cc}$ Max.		
Rise time / Fall time	$t_r / t_f$	4 ns Max. ( $f_o \leq 125\text{MHz}$ ) 2 ns Max. ( $125\text{MHz} < f_o$ )	4 ns Max.	20 % $V_{cc}$ to 80 % $V_{cc}$ level
Start-up time	$t_{str}$	10 ms Max.		Time at minimum supply voltage to be 0 s
Frequency aging	$f_{aging}$	This is included Absolute pull range		+25 °C, $V_{cc} = 3.3\text{V}$ , 20 years

\*1 Absolute pull range = Frequency control range - Frequency tolerance

\* Please keep  $V_c$  pin open or ground while powering up  $V_{cc}$ .

Product Name VG-4501CA - 122.880000 - G G C T

(Standard form) ① ② ③ ④⑤⑥⑦

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

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

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

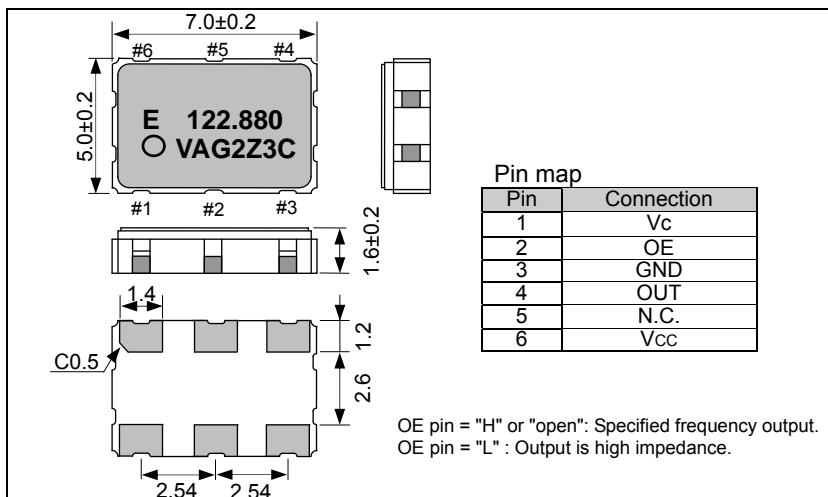
⑤ Absolute pull range	
H	$\pm 100 \times 10^{-6}$ Min.
G	$\pm 50 \times 10^{-6}$ Min.

\*As for VG-4502 only H is available

⑦ OE function	
T	Active High

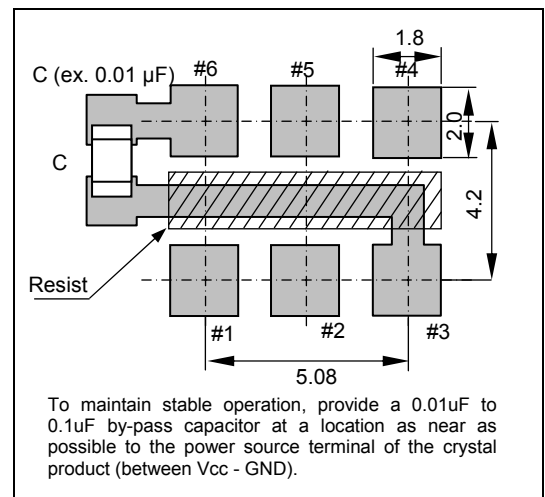
### External dimensions

(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.

## 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.
	► 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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