VOLTAGE -CONTROLLED CRYSTAL OSCILLATOR (VCXO)

VG-4513CB

NEW

- Frequency range : 100 MHz to 500 MHz
- Supply voltage : 3.3 V
- Absolute pull range : 30 × 10^{-6}, 50 × 10^{-6}, 100 × 10^{-6}
- External dimensions : 5.0 × 3.2 × 1.3 t (mm) Typ.
- Function : Output Enable(OE) Active High
- Output : LV-PECL

Pb Free
RoHS Compliant

Product Number (please contact us)
X1G004151xxxx00

Actual size

Absolute Maximum ratings

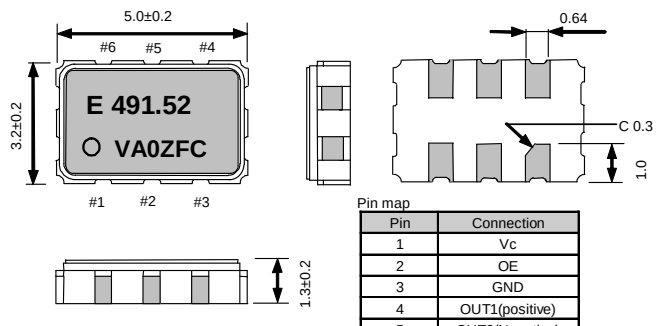
Item	Symbol	Specifications	Conditions / Remarks
Supply voltage	Vcc	-0.5 V to 5.0 V	
Control voltage	Vc	-0.5V to Vcc+0.5 V	
Operating temperature range	T_use	-40 °C to +85 °C	
Storage temperature range	T_stg	-55 °C to +125 °C	

Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks
Output frequency range	fo	100.000 MHz to 500.000 MHz	
Supply voltage	Vcc	3.3 V ±0.165 V	
Current consumption	Icc	65 mA Max.	
Frequency tolerance (includes 10years aging)	f_tol	fo≦200MHz : ±50 × 10^{-6} Max. fo＞200MHz : ±70 × 10^{-6} Max.	Includes 10years aging
Absolute pull range	APR	±30 × 10^{-6} Min. ±50 × 10^{-6} Min. ±100 × 10^{-6} Min.	Vc= 0 V to 3.3 V
Pull range	PR	fo≦200MHz ±80 × 10^{-6} to ±160 × 10^{-6} (APR ±30 × 10^{-6} Min.) ±100 × 10^{-6} to ±200 × 10^{-6} (APR ±50 × 10^{-6} Min.) ±150 × 10^{-6} to ±300 × 10^{-6} (APR ±100 × 10^{-6} Min.) fo＞200MHz ±100 × 10^{-6} to ±200 × 10^{-6} (APR ±30 × 10^{-6} Min.) ±120 × 10^{-6} to ±240 × 10^{-6} (APR ±50 × 10^{-6} Min.) ±170 × 10^{-6} to ±340 × 10^{-6} (APR ±100 × 10^{-6} Min.)	Vc= 0 V to 3.3 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 V
Rise/Fall times	Tr/Tf	0.5 ns Max.	At 20 % to 80 % output swing
High input voltage	VIH	70% Vcc	VIH or OPEN => Enable
Low input voltage	VIH	30% Vcc	VIL or GND => Disable
Oscillation start up time	toec	10ms Max.	

Item	Offset frequency	122.88 MHz	153.6 MHz	245.76 MHz	368.64 MHz	491.52 MHz
Phase noise (Typical value) APR ±50 × 10^{-6} Min.	10 Hz	-75 dBc/Hz	-70 dBc/Hz	-64 dBc/Hz	-57 dBc/Hz	-55 dBc/Hz
	100 Hz	-105 dBc/Hz	-100 dBc/Hz	-94 dBc/Hz	-87 dBc/Hz	-85 dBc/Hz
	1 kHz	-129 dBc/Hz	-124 dBc/Hz	-118 dBc/Hz	-114 dBc/Hz	-110 dBc/Hz
	10 kHz	-147 dBc/Hz	-143 dBc/Hz	-138 dBc/Hz	-137 dBc/Hz	-132 dBc/Hz
	100 kHz	-151 dBc/Hz	-152 dBc/Hz	-149 dBc/Hz	-152 dBc/Hz	-150 dBc/Hz

External dimensions (Unit :mm)

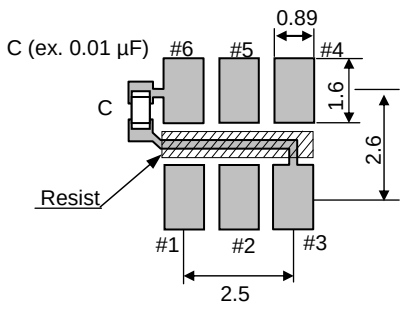


Pin map

Pin	Connection
1	Vc
2	OE
3	GND
4	OUT1(positive)
5	OUT2(Negative)
6	Vcc

Note
OE pin = "H" or "open" : Specified frequency output.
OE pin = "L" : Output is high impedance, oscillation stops

Footprint (Recommended) (Unit :mm)



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	►The products have been designed for high reliability applications such as Automotive.

Notice

- This material is subject to change without notice.
- Any part of this material may not be reproduced or duplicated in any form or any means without the written permission of Seiko Epson.
- The information about applied circuitry, software, usage, etc. written in this material is intended for reference only. Seiko Epson does not assume any liability for the occurrence of infringing on any patent or copyright of a third party. This material does not authorize the licensing for any patent or intellectual copyrights.
- When exporting the products or technology described in this material, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
- You are requested not to use the products (and any technical information furnished, if any) for the development and/or manufacture of weapon of mass destruction or for other military purposes. You are also requested that you would not make the products available to any third party who may use the products for such prohibited purposes.
- These products are intended for general use in electronic equipment. When using them in specific applications that require extremely high reliability, such as the applications stated below, you must obtain permission from Seiko Epson in advance.
  / Space equipment (artificial satellites, rockets, etc.) / Transportation vehicles and related (automobiles, aircraft, trains, vessels, etc.) / Medical instruments to sustain life / Submarine transmitters / Power stations and related / Fire work equipment and security equipment / traffic control equipment / and others requiring equivalent reliability.
- All brands or product names mentioned herein are trademarks and/or registered trademarks of their respective.