

VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR (VCXO)
OUTPUT : CMOS



Product Number (please contact us)
 VG-4231CA: Q3614CA00xxxx00
 VG-4232CA: X1G003921xxxx00

VG-4231CA
VG-4232CA

- Frequency range : 1 MHz to 80 MHz
- Supply voltage : 3.3 V / 5.0V ... VG-4231CA
 3.3 V ... VG-4232CA
- Absolute pull range : $\pm 80 \times 10^{-6}$, $\pm 65 \times 10^{-6}$... VG-4231CA
 $\pm 50 \times 10^{-6}$... VG-4232CA
- External dimensions : 7.0 x 5.0 x 1.4 mm



Actual size



Specifications (characteristics)

Item	Symbol	VG-4231CA	VG-4232CA	Conditions / Remarks
Output frequency range	f _o	1.000 MHz to 60.000 MHz	60.001 MHz to 80.000 MHz	Please contact us about available frequencies.
Supply voltage	V _{cc}	H:5.0 V ± 0.5 V, C:3.3 V ± 0.3 V	C:3.3 V ± 0.165 V	
Control voltage	V _c	H:2.5 V ± 2.0 V, C:1.65 V ± 1.5 V	1.65 V ± 1.65 V	
Storage temperature	T _{stg}	-40 °C to +125 °C	-55 °C to +125 °C	Storage as single product.
Operating temperature	T _{use}	As per table below		
Frequency tolerance	f _{tol}	As per table below		V _c =2.5 V(**H), V _c =1.65 V(**C)
Current consumption	I _{cc}	H:20 mA Max., C: 10 mA Max.	35mA Max.	No load condition
Disable current	I _{dis}	H:15 mA Max., C: 7 mA Max.	25mA Max.	OE=GND
Frequency control range	F _{cont}	$\pm 130 \times 10^{-6}$		
Absolute pull range *1	APR	$\pm 80 \times 10^{-6}$ Min., $\pm 65 \times 10^{-6}$ Min.	$\pm 50 \times 10^{-6}$ Min.	
Modulation characteristics	BW	15 kHz Min.	5 kHz Min.	± 3 dB (at 1 kHz)
Input resistance	R _{in}	50 k Ω Min.	80 k Ω Min.	F or T Type
		H: — , C:10 M Ω Min.	—	M or Z Type
Frequency change polarity	—	Positive polarity		
Symmetry	SYM	40 % to 60 %	45 % to 55 %	CMOS load: 50 % V _{cc} level
Output voltage	V _{OH}	V _{cc} -0.4 V Min.	90 % V _{cc} Min.	I _{OH} =-4 mA(**H), I _{OH} =-0.8 mA(**C)
	V _{OL}	0.4 V Max.	10 % V _{cc} Max.	I _{OL} =4 mA(**H), I _{OL} =3.2 mA(**C)
Output load condition	L _{CMOS}	15 pF Max.		CMOS load
Input voltage	V _{IH}	70 % V _{cc} Min.		OE terminal
	V _{IL}	30 % V _{cc} Max.		
Rise time and Fall time	t _r / t _f	4 ns Max.	5 ns Max.	CMOS load: 20 % V _{cc} to 80 % V _{cc} level
Start-up time	t _{str}	10 ms Max.		Time at 90 % V _{cc} to be 0s
Frequency aging	f _{aging}	$\pm 10 \times 10^{-6}$ Max.*2	Included in Frequency tolerance.	+25 °C, 10 years

*1 Absolute pull range = Frequency control range- (Frequency tolerance + 10 years Aging + Free fall + Vibration) *2 50 MHz < f_o \leq 60 MHz : $\pm 15 \times 10^{-6}$ Max.

* Please keep VC pin open or ground while powering up V_{cc}.

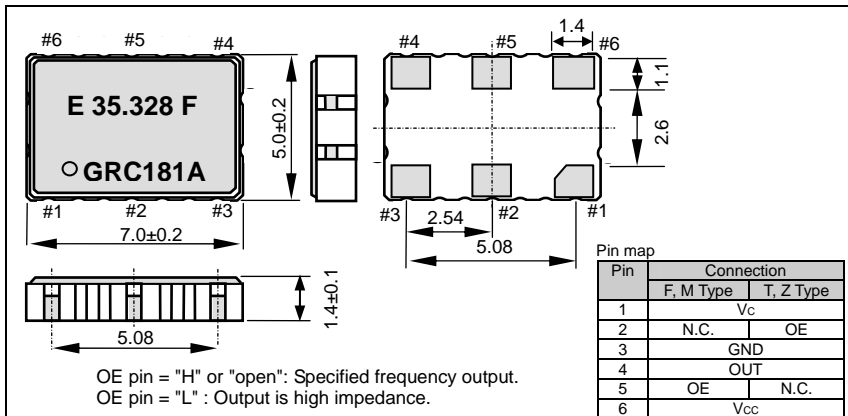
Product Name VG-4231 CA 35.328000MHz G R C - F VG-4232 CA 65.000000MHz J G C - F
 (Standard form) ① ② ③ ④⑤⑥ ⑦ ① ② ③ ④⑤⑥ ⑦

- ①Model ②Package type ③Frequency ④Frequency tolerance / Operating temperature / (Absolute pull range)(Only VG-4231)
- ⑤Frequency control range(VG-4231), Absolute pull range(VG-4232) ⑥Supply voltage
- ⑦Input resistance / OE pin# (Refer to specification table and Pin map)

Model	④Frequency tolerance / Operating temperature / Absolute pull range		⑤Frequency control range	⑥Supply voltage	
	G	D		H	C
4231	G	$\pm 50 \times 10^{-6} / -40$ to $+85$ °C / $\pm 65 \times 10^{-6}$ Min.	R	H	5.0V Typ.
	D	$\pm 35 \times 10^{-6} / -20$ to $+70$ °C / $\pm 80 \times 10^{-6}$ Min.		C	3.3 V Typ.
Model	④Frequency tolerance / Operating temperature		⑤ Absolute pull range		
	G	$\pm 50 \times 10^{-6} / -40$ to $+85$ °C	G	$\pm 50 \times 10^{-6}$ Min.	
	J	$\pm 50 \times 10^{-6} / -20$ to $+70$ °C			
K	$\pm 50 \times 10^{-6} / 0$ to $+70$ °C				

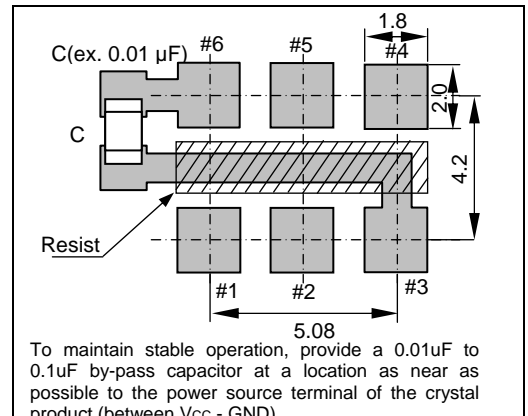
External dimensions

(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.)

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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Epson:

[VG-4231CA 12.2880M-TDRC](#) [VG-4231CA 25.0000M-FGRC3](#)