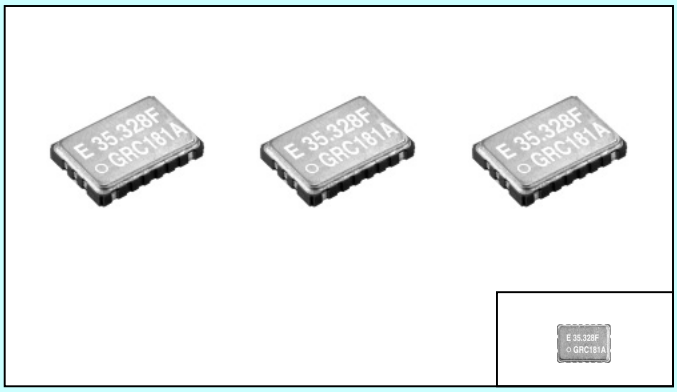
VOLTAGE –CONTROLLED CRYSTAL OSCILLATOR
VCXO (Wide pull range)

VG - 4231CA

Product number (please contact us)
Q3614CA00xxxx00

- •Frequency range : 1 MHz to 75 MHz
- •Operating voltage : 3.3 V (DRC,GRC)
  5.0 V (DRH,GRH)
- •Pull range : ±130 × 10^{-6}
- •Thickness : 1.4 mm Typ.
- •Lead(Pb)-free : Complies with EU RoHS directive
  (Lead free completely)



Actual size

■ Specifications (characteristics)

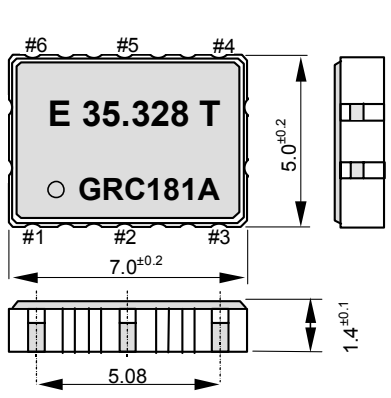
Item		Symbol	Specifications		Remarks
			DRH / GRH	DRC / GRC	
Output frequency range		f0	1.000 MHz to 60.000 MHz	1.000 MHz to 75.000 MHz	Please contact us for inquiries regarding available frequencies.
Power source voltage	Operating voltage	VDD	H:5.0 V ±0.5 V	C:3.3 V ±0.3 V	
Temperature range	Storage temperature	TSTG	-40 °C to +125 °C		Stored as bare product after unpacking
	Operating temperature	TOPR	As per below table		
Frequency stability		Δf/f0	As per below table		VC=2.5 V(DRH,GRH)/ VC=1.65 V(DRC,GRC)
Current consumption		IOP	20 mA Max.	10 mA Max.	No load condition
Output disable current		IOE	15 mA Max.	7 mA Max.	OE=GND
Pull range		Δfc	R:±130 × 10^{-6} (1 MHz<f0≤42 MHz) Q:±120 × 10^{-6} (42 MHz<f0≤75 MHz)		VC=2.5 V±2.0 V(DRH,GRH) VC=1.65 V±1.5 V(DRC,GRC)
Absolute pull range *1		APR	DR:±80 × 10^{-6} Min., GR:±65 × 10^{-6} Min.		Pull range:±130 × 10^{-6}
Modulation characteristics		BW	15 kHz Min.		± 3 dB (at 1kHz)
Input resistance		ZIN	50 kΩ Min.		DC Level
Frequency change polarity			Positive polarity		VC=0.5 V to 4.5 V(**H) , 0.15 V to 3.15 V(**C)
Duty		tw/t	40 % to 60 %		CMOS load:50 % VDD level
High output voltage		VOH	VDD-0.4 V Min.		IOH=-0.8 mA(DRC,GRC),IOH=-4 mA(DRH,GRH)
Low output voltage		VOL	0.4 V Max.		IOL= 3.2 mA(DRC,GRC),IOL= 4 mA(DRH,GRH)
Output load condition		CL	15 pF Max.		CMOS load
Output enable / disable input voltage		VIH	70 % VDD Min.		OE Terminal
		VIL	30 % VDD Max.		
Output rise and fall time		tR / tF	4 ns Max.		CMOS load: 20 % VDD level to 80 % VDD level
Oscillation start up time		tOSC	10 ms Max.		Time at 90%VDD to be 0 s
Aging		fa	±10 × 10^{-6} Max. *2		Ta=+25 °C, 10 years

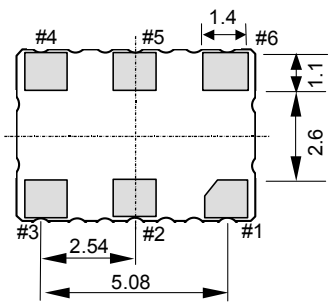
*1 Absolute pull range = Pull range - (Frequency stability + 10 years Aging + Free fall + Vibration)
*2 50 MHz < f0 ≤ 75 MHz : ±15 × 10^{-6} Max.

■ Stability / Temperature range

	Stability	Temperature range
DRC / DRH / DQC	±35 × 10^{-6}	-20 °C to +70 °C
GRC / GRH / GQC	±50 × 10^{-6}	−40 °C to +85 °C

■ External dimensions (Unit:mm)

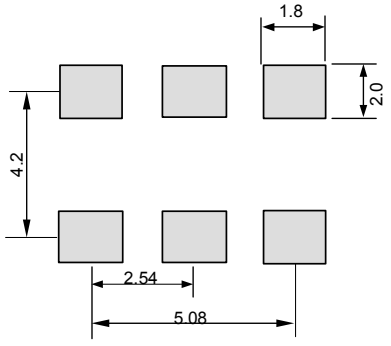




No.	Pin terminal	
	F Type	T Type
1	VC	
2	N.C.	OE
3	GND	
4	OUT	
5	OE	N.C.
6	VDD	

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

■ Recommended soldering pattern (Unit:mm)



ENERGY SAVING EPSON

EPSON offers effective savings to its customers through a wide range of electronic devices, such as semiconductors, liquid crystal display (LCD) modules, and crystal devices. These savings are achieved through a sophisticated melding of three different efficiency technologies.

Power saving technology provides low power consumption at low voltages.

Space saving technology provides further reductions in product size and weight through super-precise processing and high-density assembly technology.

Time saving technology shortens the time required for design and development on the customer side and shortens delivery times.

Our concept of Energy Saving technology conserves resources by blending the essence of these three efficiency technologies. The essence of these technologies is represented in each of the products that we provide to our customers.

In the industrial sector, leading priorities include measures to counter greenhouse effect by reducing CO_2,measures to preserve the global environment, and the development of energy-efficient products. Environmental problems are of global concern, and although the contribution of energy-saving products by our customers through the utilization of our electronic devices. EPSON is committed to the conservation of energy, both for the sake of people and of the planet on which we live.

WORKING WITH ENVIRONMENTAL ISSUES

In 1988, Seiko Epson led in working to abolish CFCs, and perfect abolition of those ozone layer-destroying substances was achieved in 1992. In 1998, the 10th year of start of the CFC-free activity,Seiko Epson set this year as the "Second Environmental Benchmark Year" And established a new corporate General Environment Policy. Seiko Epson is tackling with environmental issues comprehensively.

At the end of Fiscal 1988,Seiko Epson succeeded in abolishing chloric solvents doubted to be harmful to human body. In fiscal 1999, Seiko Epson started the activity with a goal of abolishing lead solder Pointed out possibility of environmental pollutant.

Co-existence Mark

The environmental mark symbolizing Epson's basic stance of "Co-existence With Nature". The design incorporates a fish,flower,and water,representing mutually supportive co-existence.

PROMOTION OF ENVIRONMENT MANAGEMENT SYSTEM CONFORMING INTERNATIONAL STANDARD

At 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.
In May 2001, all of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.
In the future, new Group companies will be expected to acquire the certification around the third year of operations.

ISO14000 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

Seiko-Epson quickly began working to aquire company-wide ISO9000 series certification, and has acquired ISO9001 or ISO 9002 certification with all targeted products manufactured in Japanese and overseas plants.

The Quarts Device Operations Division (Ina Japan,EPM and SZE) have acquired QS-9000 certification, which are of higher Level.

QS-9000 is an enhanced standard for quality assurance systems formulated by leading U.S.automobile manufacturers based on the international ISO 9000 series.

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