VOLTAGE -CONTROLLED CRYSTAL OSCILLATOR (VCXO)
WIDE PULL RANGE

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 : ±80 × 10^{-6}, ±65 × 10^{-6} ··· VG-4231CA
  ±50 × 10^{-6} ··· VG-4232CA
- External dimensions : 7.0 × 5.0 × 1.4 mm

Pb Free RoHS Compliant

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

Actual size

Specifications (characteristics)

Item	Symbol	VG-4231CA	VG-4232CA	Conditions / Remarks
Output frequency range	f_0	1.000 MHz to 60.000 MHz	60.001 MHz to 80.000 MHz	Please contact us for inquiries regarding available frequencies.
Supply voltage	Vcc	H:5.0 V ±0.5 V, C:3.3 V ±0.3 V	C:3.3 V ±0.165 V	
Control voltage	Vc	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	Store as bare product.
Operating temperature	T_use	As per below table		
Frequency tolerance	f_tol	As per below table		Vc=2.5 V(**H), Vc=1.65 V(**C)
Current consumption	Icc	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	R:±130 × 10^{-6}	—	
Absolute pull range *1	APR	D:±80 × 10^{-6} Min., G:±65 × 10^{-6} Min.	±50 × 10^{-6} Min.	
Modulation characteristics	BW	15 kHz Min.	5 kHz Min.	±3 dB (at 1 kHz)
Input resistance	Rin	50 kΩ Min.	80 kΩ Min.	F or T Type / DC Level
		H: — , C:10 MΩ Min.	—	M or Z Type / DC Level
Frequency change polarity	—	Positive polarity		
Symmetry	SYM	40 % to 60 %	45 % to 55 %	CMOS load: 50 % Vcc level
Output voltage	V_{OH}	Vcc-0.4 V Min.	90 % Vcc Min.	I_{OH}=-4 mA(**H), I_{OH}=-0.8 mA(**C)
	V_{OL}	0.4 V Max.	10 % Vcc 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 % Vcc Min.		OE terminal
	V_{IL}	30 % Vcc Max.		OE terminal
Rise time and Fall time	t_r / t_f	4 ns Max.	5 ns Max.	CMOS load: 20 % Vcc to 80 % Vcc level
Start-up time	t_str	10 ms Max.		Time at 90 % Vcc to be 0s
Frequency aging	f_aging	±10 × 10^{-6} Max.*2	Included in Frequency tolerance.	+25 °C, 10 years

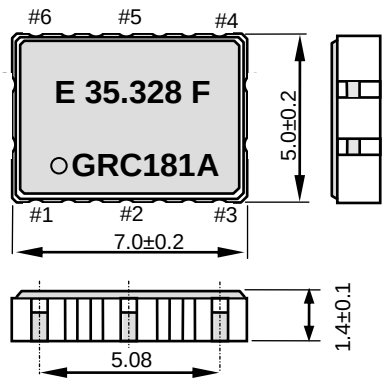
*1 Absolute pull range = Frequency control range- (Frequency tolerance + 10 years Aging + Free fall + Vibration)
*2 50 MHz < f_0 ≤ 60 MHz : ±15 × 10^{-6} Max.
* Please keep Vc pin open or ground while powering up Vcc.

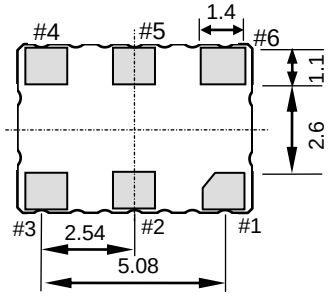
Frequency tolerance / Operating temperature

VG-4231CA		Frequency tolerance	Operating temperature
GRC / GRH	G	±50 × 10^{-6}	−40 °C to +85 °C
DRC / DRH	D	±35 × 10^{-6}	-20 °C to +70 °C

VG-4232CA		Frequency tolerance	Operating temperature
GGC	G	±50 × 10^{-6}	−40 °C to +85 °C
JGC	J	±50 × 10^{-6}	-20 °C to +70 °C
KGC	K	±50 × 10^{-6}	0 °C to +70 °C

External dimensions (Unit: mm)



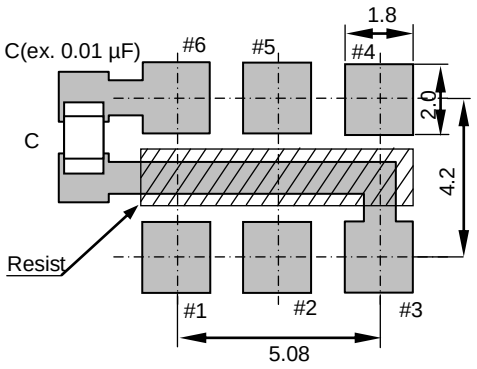


OE pin = "H" or "open": Specified frequency output.
OE pin = "L" : Output is high impedance.

Pin map

Pin	Connection F Type / M Type	Connection T Type / Z Type
1	Vc	
2	N.C.	OE
3	GND	
4	OUT	
5	OE	N.C.
6	Vcc	

Footprint (Recommended) (Unit: mm)



To maintain stable operation, provide a 0.01uF to 0.1uF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between Vcc - GND).