VOLTAGE –CONTROLLED CRYSTAL OSCILLATOR (VCXO)

OUTPUT : CMOS

VG - 4231CE

- •Frequency range : 3 MHz to 60 MHz
- •Supply voltage : 3.3 V (PSCM / CSCM)
  2.8 V (PSBM / CSBM)
  1.8 V (PQEM / CQEM)
- •Frequency control range : ±140 × 10^{-6} (*SCM / *SBM)
  ±120 × 10^{-6} (*QEM)
- •Low current consumption : 1.0 mA Typ. (27 MHz , 3.3 V)
- •External dimensions : 3.2 × 2.5 × 1.05 mm

Pb Free RoHS Compliant

Product Number (please contact us)
Q3614CE00xxxx00

Actual size

Specifications (characteristics)

Item	Symbol	Specifications			Conditions / Remarks
		PSCM / CSCM	PSBM / CSBM	PQEM / CQEM	
Output frequency range	f_0	3 MHz to 60 MHz		24 MHz to 30 MHz	Please contact us about available frequencies.
Supply voltage	V_{CC}	3.3 V ±0.3 V	2.8 V ±0.2 V	1.8 V ±0.2 V	
Storage temperature	T_stg	-40 °C to +125 °C			Storage as single product.
Operating temperature	T_use	As per below table			
Frequency tolerance	f_tol	As per below table			C : V_C=1.65 V / B : V_C=1.40 V / E : V_C=0.90 V
Current consumption	I_{CC}	7 mA Max.	6.2 mA Max.	1.2 mA Max.	No load condition
Frequency control range	f_cont	S:± 140 × 10^{-6} Min.		Q:± 120 × 10^{-6} Min.	V_C = 1/2 V_{CC} ± 1/2 V_{CC}
Modulation characteristics	BW	15 kHz Min.			± 3 dB (at 1 kHz)
Input resistance	Rin	M : 5 MΩ Min.			DC level
Frequency change polarity	—	Positive polarity			V_C=0 V to V_{CC}
Symmetry	SYM	40 % to 60 %			CMOS load:50 % V_{CC} level
Output voltage	V_{OH}	V_{CC}-0.4 V Min.			I_{OH}=-3.0 mA
	V_{OL}	0.4 V Max.			I_{OL}= 3.0 mA
Output load condition (CMOS)	L_CMOS	15 pF Max.			CMOS load
Rise time and Fall time	t_r / t_f	4 ns Max.		6 ns Max.	CMOS load: 20 % V_{CC} to 80 % V_{CC} level
Start-up time	t_str	5 ms Max.			Time at 90 % V_{CC} to be 0 s
Frequency aging	f_aging	± 5 × 10^{-6} Max.			+25 °C, 5 years

Please keep V_C pin open or ground while powering up V_{CC}.

Product Name (Standard form): VG-4231 CE 27.000000MHz C S C - M (⑤⑥:SE,QC,QB are not available)
① ② ③ ④⑤⑥ ⑦

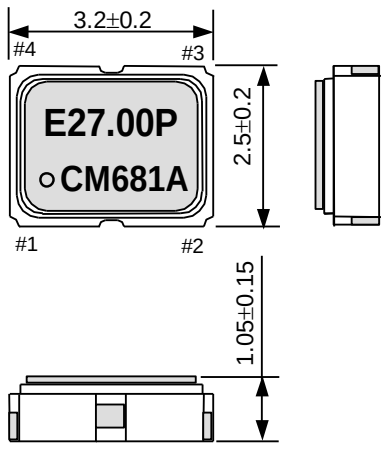
①Model ②Package type ③Frequency ④Frequency tolerance / Operating temperature
⑤Frequency control range ⑥Supply voltage ⑦Input resistance (M: 5 MΩ Min.)

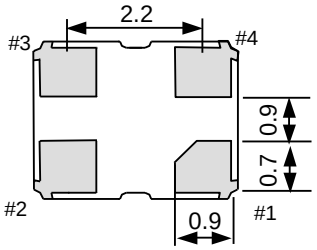
④⑤	④Frequency tolerance / Operating temperature		⑤Frequency control range (Absolute pull range*)	
CS	C	±30 × 10^{-6} / −20 to +70 °C	S	±140 × 10^{-6} Min. (±100 × 10^{-6} Min.)
PS	P	±37 × 10^{-6} / −40 to +85 °C	S	±140 × 10^{-6} Min. (±95 × 10^{-6} Min.)
CQ	C	±30 × 10^{-6} / −20 to +70 °C	Q	±120 × 10^{-6} Min. (±80 × 10^{-6} Min.)
PQ	P	±37 × 10^{-6} / −40 to +85 °C	Q	±120 × 10^{-6} Min. (±75 × 10^{-6} Min.)

⑥Supply voltage	
E	1.8 V Typ.
B	2.8 V Typ.
C	3.3 V Typ.

* Absolute pull range = Frequency control range- (Frequency tolerance + 5 years Aging + Free fall + Vibration)

External dimensions (Unit:mm)

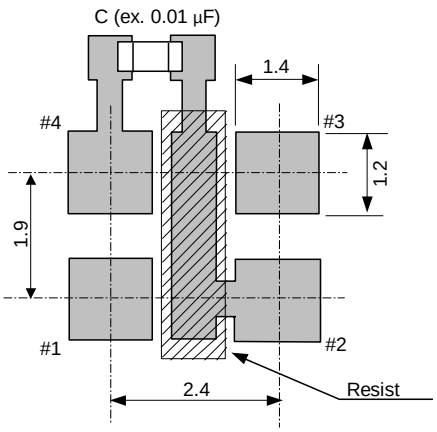




Pin map

Pin	Connection
1	V_C
2	GND
3	OUT
4	V_{CC}

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).