



VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR (VCXO)

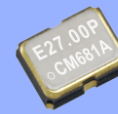
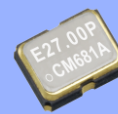
MINIATURE SIZE LOW PROFILE, WIDE PULL RANGE

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 : $\pm 140 \times 10^{-6}$ (*SCM / *SBM)
 $\pm 120 \times 10^{-6}$ (*QEM)
- Low current consumption : 1.0 mA Typ. (27 MHz, 3.3 V)
- External dimensions : $3.2 \times 2.5 \times 1.05$ mm



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_o	3 MHz to 60 MHz			Please contact us for inquiries regarding other 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			Store as bare 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}	$S: \pm 140 \times 10^{-6}$ Min.			$Q: \pm 120 \times 10^{-6}$ Min. $V_c = 1/2 V_{cc} \pm 1/2 V_{cc}$
Modulation characteristics	BW	15 kHz Min.			± 3 dB (at 1 kHz)
Input resistance	R_{in}	$M: 5 M\Omega$ 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}	$\pm 5 \times 10^{-6}$ Max.			+25 °C, 5 years

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

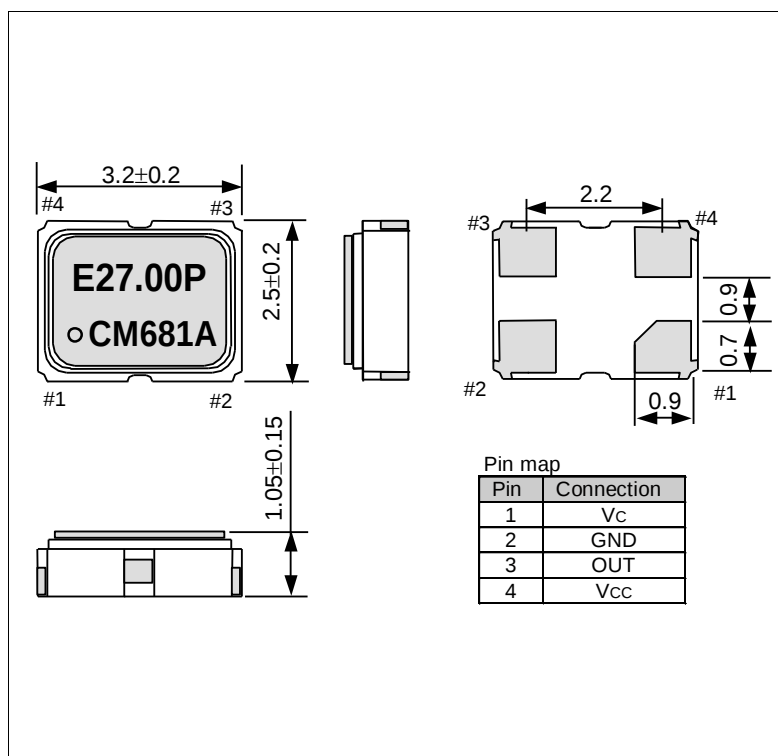
Frequency tolerance / Temperature range / Absolute pull range

	Frequency tolerance	Temperature range	Absolute pull range
CSCM / CSBM / CQEM	C $\pm 30 \times 10^{-6}$	-20 °C to +70 °C	S : $\pm 100 \times 10^{-6}$ / Q : $\pm 80 \times 10^{-6}$
PSCM / PSBM / PQEM	P $\pm 37 \times 10^{-6}$	-40 °C to +85 °C	S : $\pm 95 \times 10^{-6}$ / Q : $\pm 75 \times 10^{-6}$

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

External dimensions

(Unit:mm)



Footprint (Recommended)

(Unit:mm)

