



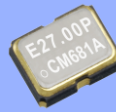
VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR (VCXO) MINIATURE SIZE LOW PROFILE, WIDE PULL RANGE

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 x 2.5 x 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		24 MHz to 30 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 Ω 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} .

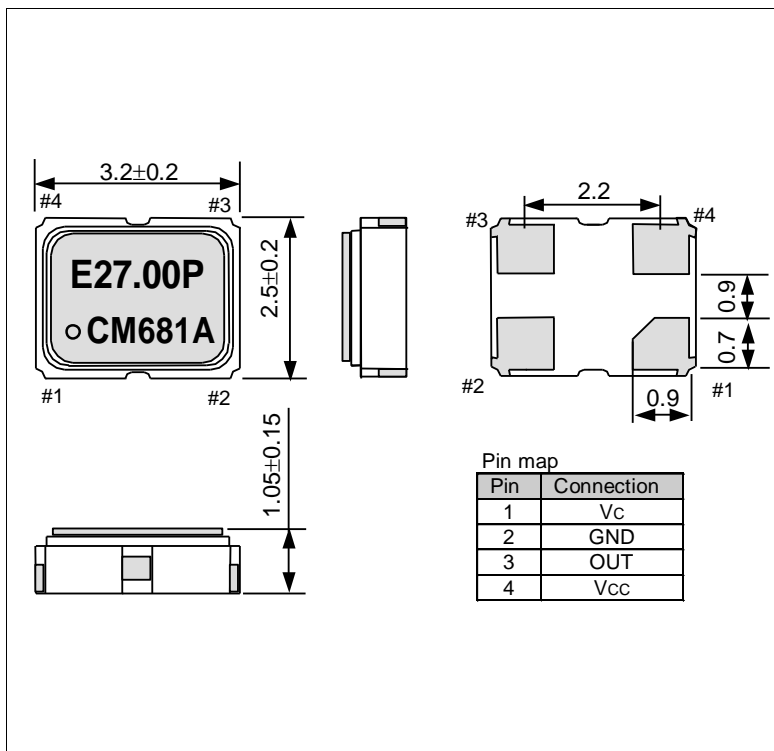
Frequency tolerance / Temperature range / Absolute pull range

	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)

