

CRYSTAL OSCILLATOR

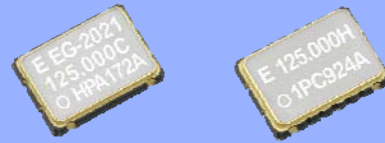
LOW-JITTER SAW OSCILLATOR

EG - 2021 / 2001CA series

- Frequency range : 62.5 MHz to 250 MHz
- Supply voltage : 2.5 V/ EG-2021CA
3.3 V/ EG-2001CA
- Output : CMOS
- Function : Output enable(OE)
- External dimensions : 7.0 × 5.0 × 1.2 mm
- Very low jitter and low phase noise by SAW unit.



Product Number (please contact us)
EG-2021CA: Q3807CA00xxxx00
EG-2001CA: Q3801CA00xxxx00



Actual size

EG-2021CA

EG-2001CA



Specifications (characteristics)

Item	Symbol	Specifications		Remarks
		EG-2021CA	EG-2001CA	
Output frequency range	f_0	62.500 MHz to 170.000MHz	170.001MHz to 250.000MHz	106.250 MHz to 170.000 MHz
Supply voltage	V_{cc}	2.5 V \pm 0.125 V		3.3 V \pm 0.3 V
Temperature range	Storage temperature	-40 °C to +100 °C		Store as bare product after unpacking
	Operating temperature	P: 0 °C to +70 °C R: -5 °C to +85 °C		
Frequency tolerance	f_{tol}	G: $\pm 50 \times 10^{-6}$ H: $\pm 100 \times 10^{-6}$		Z: $\pm 50 \times 10^{-6}$ Y,H: $\pm 100 \times 10^{-6}$ P:0 °C to 70 °C,R:-5 °C to +85 °C *1
Current consumption	I_{cc}	25 mA Max.	30 mA Max.	50 mA Max.
Disable current	I_{dis}	600 μ A Max.		10 μ A Max.
Symmetry	SYM	45 % to 55 %	40 % to 60 %	45 % to 55 %
High output voltage	V_{OH}	V_{cc} -0.35 V Min.		V_{cc} -0.4 V Min.
Low output voltage	V_{OL}	0.35 V Max.		0.4 V Max.
Output load condition	L_{CMOS}	15 pF Max.		Max. frequency and Max. supply voltage range
High input voltage	V_{IH}	70 % V_{cc} Min.		OE terminal
Low input voltage	V_{IL}	30 % V_{cc} Max.		OE terminal
Rise time / Fall time	t_r / t_f	2 ns Max.		CMOS load :between 20% V_{cc} and 80% of V_{cc} leve
Start-up time	t_{str}	10 ms Max.		Time at minimum supply voltage to be 0 s
Jitter *2	t_{DJ}	0.2 ps Typ.		Deterministic Jitter
	t_{RJ}	3 ps Typ.		Random Jitter
	t_{RMS}	3 ps Typ.		σ (RMS of total distribution)
	t_{p-p}	25 ps Typ.		Peak to Peak
	t_{acc}	4 ps Typ.		Accumulated Jitter(σ) n=2 to 50000 cycles
Phase Jitter	t_{PJ}	1 ps Max.		Offset frequency: 12 kHz to 20 MHz
Frequency aging*3	f_{aging}	$\pm 10 \times 10^{-6}$ / year Max.	$\pm 5 \times 10^{-6}$ / year Max.	+25 °C, First year, V_{cc} =2.5 V,3.3 V

*1 As per below table

*2 Based on DTS-2075 Digital timing system made from WAVECREST with jitter analysis software VISI6.

*3 Except:CHPA,CHRA,PCH

Model	EG-2021CA		
	Details of frequency tolerance	A *4	N *5
Frequency tolerance	HP: $\pm 100 \times 10^{-6}$ (0°C to +70°C)	CHPA	CHPN
	HR: $\pm 100 \times 10^{-6}$ (-5°C to +85°C)	CHRA	CHRN
	GP: $\pm 50 \times 10^{-6}$ (0°C to +70°C)	—	CGPN
	GR: $\pm 50 \times 10^{-6}$ (-5°C to +85°C)	—	CGRN*7

Model	EG-2001CA	
	Output mode	P: Symmetry 50 \pm 5 %
Frequency tolerance	H: $\pm 100 \times 10^{-6}$ (0°C to +70°C) *4	PCH
	Y: $\pm 100 \times 10^{-6}$ (0°C to +70°C) *5	PCY
	Z: $\pm 50 \times 10^{-6}$ (0°C to +70°C) *6	PCZ

*4 This includes initial frequency tolerance, temperature variation, supply voltage variation, load variation, reflow drift, and aging(+25 °C,10 years).

*5 This includes initial frequency tolerance, temperature variation, supply voltage variation, load variation, and reflow drift.(except aging)

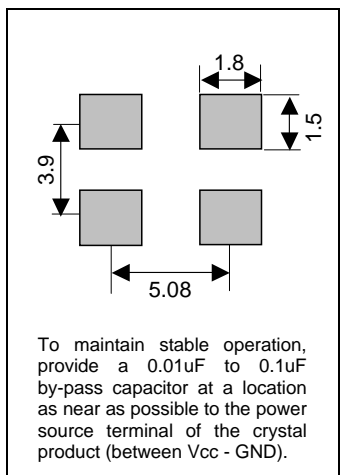
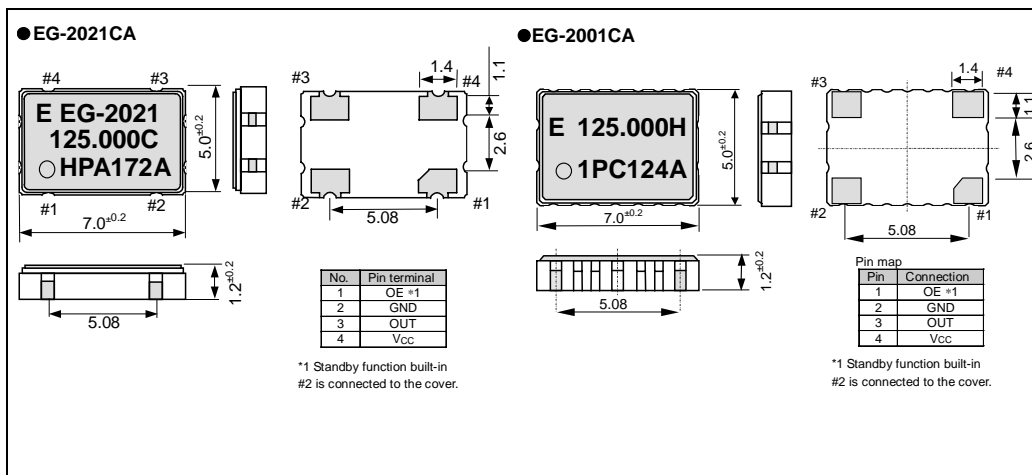
*6 This includes initial frequency tolerance, and temperature variation.(except reflow drift, supply voltage variation, load variation and aging)

*7 Please contact us for inquiries.

External dimensions

(Unit:mm)

Footprint (Recommended) (Unit:mm)



“QMEMS” EPSON TOYOCOM

In order to meet customer needs in a rapidly advancing digital, broadband and ubiquitous society, we are committed to offering products that are one step ahead of the market and a rank above the rest in quality. To achieve our goals, we follow a “3D (three device) strategy” designed to drive both horizontal and vertical growth. We will to grow our three device categories of “Timing Devices”, “Sensing Devices” and “Optical Devices”, and expand vertical growth through a combination of products from these categories.

A Quartz MEMS is any high added value quartz device that exploits the characteristics of quartz crystal material but that is produced using MEMS (micro-electro-mechanical system) processing technology.

Market needs are advancing faster than previously imagined toward smaller, more stable crystal products, but we will stay ahead of the curve by rolling out products that exceed market speed and quality requirements. We want to further accelerate the 3D strategy by QMEMS.

Quartz devices have become crucial in the network environment where products are increasingly intended for broadband, ubiquitous applications

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	► Pb free.
	► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
	► The products have been designed for high reliability applications such as Automotive.

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