



LOW-JITTER SAW OSCILLATOR (SPSO)

OUTPUT : CMOS

EG - 2021 / 2001CA

- 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		Conditions / Remarks	
		EG-2021CA			EG-2001CA
Output frequency range	f _o	62.500 MHz to 170.000MHz	170.001MHz to 250.000MHz	106.250 MHz to 170.000 MHz	Please contact us about available frequencies.
Supply voltage	V _{cc}	2.5 V± 0.125 V		3.3 V± 0.3 V	
Storage temperature	T _{stg}	-40 °C to +100 °C			Storage as single product.
Operating temperature	T _{use}	P: 0 °C to +70 °C R: -5 °C to +85 °C		0 °C to +70° C	
Frequency tolerance	f _{tol}	G: ± 50 × 10 ⁻⁶ H: ± 100 × 10 ⁻⁶		Z: ± 50 × 10 ⁻⁶ Y,H: ±100 × 10 ⁻⁶	
Current consumption	I _{cc}	25 mA Max.	30 mA Max.	50 mA Max.	OE=V _{CC} , No load condition
Disable current	I _{dis}	600 μA Max.		10 μA Max.	OE=GND
Symmetry	SYM	45 % to 55 %	40 % to 60 %	45 % to 55 %	50 % V _{CC} level, L _{CMOS} ≤ Max.
Output voltage	V _{OH}	V _{CC} -0.35 V Min.		V _{CC} -0.4 V Min.	I _{OH} = -8 mA
	V _{OL}	0.35 V Max.		0.4 V Max.	I _{OL} = 8 mA
Output load condition (CMOS)	L _{CMOS}	15 pF Max.			
Input voltage	V _{IH}	70 % V _{CC} Min.			OE terminal
	V _{IL}	30 % V _{CC} Max.			
Rise time / Fall time	t _r / t _f	2 ns Max.			Between 20% V _{CC} and80% V _{CC} level, L _{CMOS} ≤ Max.
Start-up time	t _{str}	10 ms Max.			Time at minimum supply voltage to be 0 s
Jitter *1	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	f _{aging}	± 10 × 10 ⁻⁶ / year Max.		± 5 × 10 ⁻⁶ / year Max.	+25 °C, First year, V _{CC} =2.5 V,3.3 V

*1 Tested using a DTS-2075 Digital timing system made by WAVECREST with jitter analysis software VISI6.

Product Name EG-2021 CA 125.000000MHz C H P A (⑤⑥⑦: GPA, GRA are not available)

(Standard form)

① ② ③ ④⑤⑥⑦

①Model ②Package type ③Frequency

④Output(C:CMOS)

⑤Frequency tolerance ⑥Operating temperature

⑦Frequency aging (A*2: Frequency tolerance include aging, N*3: Frequency tolerance exclude aging)

⑤Frequency tolerance		⑥Operating temp.	
G	±50 × 10 ⁻⁶	P	0 to +70°C
H	±100 × 10 ⁻⁶	R	-5 to +85°C

Product Name EG-2001 CA 125.000000MHz P C H

(Standard form)

① ② ③ ④⑤⑥

①Model ②Package type ③Frequency

④Symmetry (P: 50±5%) ⑤Supply voltage

⑥Frequency tolerance / Operating temperature

⑤Supply voltage		⑥Frequency tolerance / Operating temperature	
C	3.3 V Typ.	H*2	±100 × 10 ⁻⁶ / 0 to +70°C
		Y*3	±100 × 10 ⁻⁶ / 0 to +70°C
		Z*4	±50 × 10 ⁻⁶ / 0 to +70°C

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

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

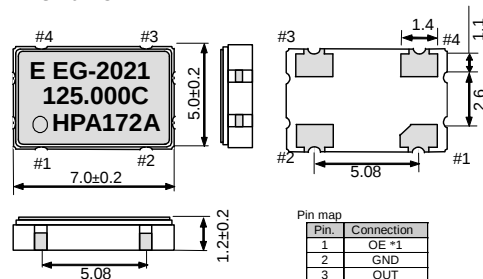
*4 This includes initial frequency tolerance, and temperature variation.(except reflow drift, supply voltage variation, load variation and aging)

External dimensions

(Unit:mm)

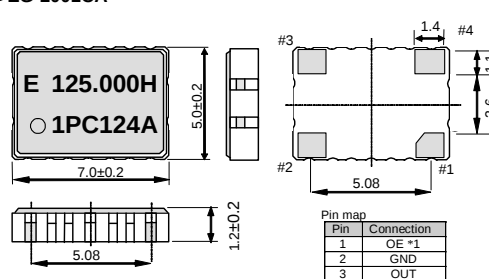
Footprint (Recommended) (Unit:mm)

●EG-2021CA



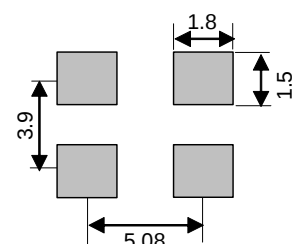
*1 Standby function built-in
#2 is connected to the cover.

●EG-2001CA



OE pin = HIGH : Specified frequency output.
OE pin = LOW : Output is high impedance

*1 Standby function built-in
#2 is connected to the cover.



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