LOW-JITTER SAW OSCILLATOR (SPSO)
OUTPUT : CMOS

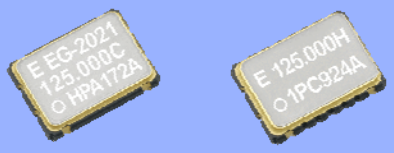
EG - 2021 / 2001CA

- 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.

Pb Free RoHS Compliant

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_0	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 (Standard form): EG-2021 CA 125.000000MHz C H P A (⑤⑥⑦: GPA, GRA are not available)
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	
G	±50 × 10^{-6}
H	±100 × 10^{-6}

⑥Operating temp.	
P	0 to +70°C
R	-5 to +85°C

Product Name (Standard form): EG-2001 CA 125.000000MHz P C H
① ② ③ ④⑤⑥
①Model ②Package type ③Frequency
④Symmetry (P: 50±5%) ⑤Supply voltage
⑥Frequency tolerance / Operating temperature

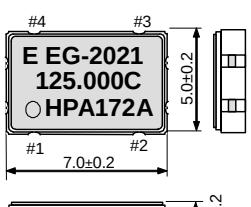
⑤Supply voltage	
C	3.3 V Typ.

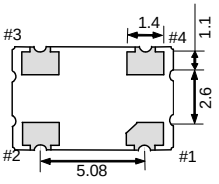
⑥Frequency tolerance / Operating temperature	
H*2	±100 × 10^{-6} / 0 to +70°C
Y*3	±100 × 10^{-6} / 0 to +70°C
Z*4	±50 × 10^{-6} / 0 to +70°C

*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)

●EG-2021CA



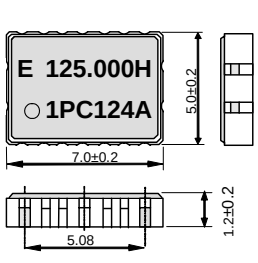


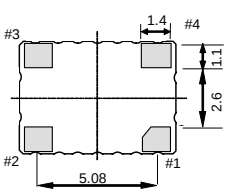
Pin map

Pin.	Connection
1	OE *1
2	GND
3	OUT
4	Vcc

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

●EG-2001CA





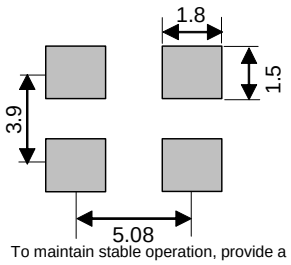
Pin map

Pin	Connection
1	OE *1
2	GND
3	OUT
4	Vcc

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

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

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).

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

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For Automotive	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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