LOW-JITTER SAW OSCILLATOR (SPSO)
OUTPUT : CMOS

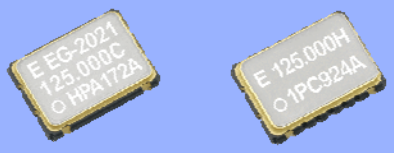
EG - 2021 / 2001CA

- 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 EG-2021CA		Specifications EG-2001CA	Conditions / Remarks
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=Vcc, 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 % Vcc level, L_CMOS≤ Max.
Output voltage	V_{OH}	Vcc-0.35 V Min.		Vcc-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 % Vcc Min.			OE terminal
	V_{IL}	30 % Vcc Max.			
Rise time / Fall time	t_r / t_f	2 ns Max.			Between 20% Vcc and80% Vcc 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, Vcc=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

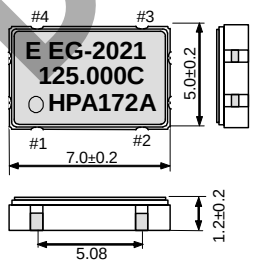
⑤Supply voltage	
C	3.3 V Typ.

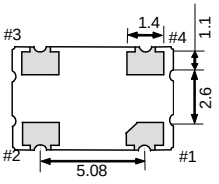
⑥Frequency tolerance / Operating temperature	
H*2	±100 × 10^{-6} / 0 to +70°C
Y*3	±100 × 10^{-6} / 0 to +70°C
Z*4	±50 × 10^{-6} / 0 to +70°C

*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



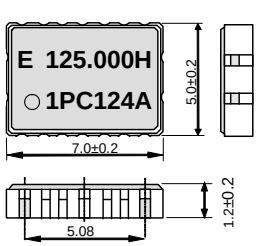


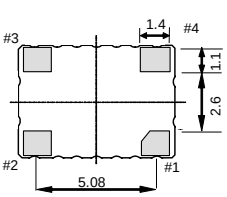
Pin map

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

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

●EG-2001CA





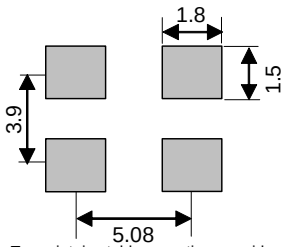
Pin map

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

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

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►Explanation of the mark that are using it for the catalog

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RoHS Compliant	►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.)
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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