



LOW-JITTER SAW OSCILLATOR (SPSO)

OUTPUT : LV-TTL

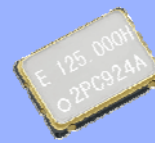
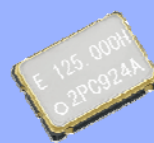
EG - 2002CA

- Frequency range : 62.5 MHz to 170 MHz
- Operating voltage : 3.3 V
- Output : LV-TTL
- 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)
Q3802CA00xxxx00



Actual size



Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks
Output frequency range	f _o	62.500 MHz to 170.000 MHz	Please contact us about available frequencies.
Supply voltage	V _{cc}	3.3 V ± 0.3 V	
Storage temperature	T _{stg}	-40 °C to +100 °C	Storage as single product.
Operating temperature	T _{use}	0 °C to +70 °C	
Frequency tolerance	f _{tol}	F,Z: ±50 × 10 ⁻⁶ , H,Y: ±100 × 10 ⁻⁶	
Current consumption	I _{cc}	60 mA Max.	OE=V _{cc} , No load condition
Disable current	I _{dis}	25 mA Max.	OE=GND
Symmetry	SYM	45 % to 55 %	1.4 V level, L _{CMOS} ≤ Max.
Output voltage	V _{OH}	2.4 V Min.	I _{OH} = -8 mA
	V _{OL}	0.4 V Max.	I _{OL} = 8 mA
Output load condition (CMOS)	L _{CMOS}	25 pF Max.	f _o = 62.5 MHz
		15 pF Max.	f _o > 62.5 MHz
Input voltage	V _{IH}	70 % V _{cc} Min.	OE terminal
	V _{IL}	30 % V _{cc} Max.	
Rise time / Fall time	t _r / t _f	1.5 ns Max.	Between 0.8 V and 2.0 V 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}	± 5 × 10 ⁻⁶ / year Max.	+25 °C, First year, V _{cc} =3.3 V

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

Product Name **EG-2002 CA 125.000000MHz P C H** (④⑤⑥: As for PCF only 125MHz is available, DCF is not available)

(Standard form)

- ① Model ② Package type ③ Frequency
④ Frequency range(MHz)
⑤ Supply voltage(C: 3.3 V Typ.)
⑥ Frequency tolerance / Operating temperature

④Frequency range(MHz)	
P	125 to 170
D	62.5 to 124.999

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
F*3	±50 × 10 ⁻⁶ / 0 to +70°C

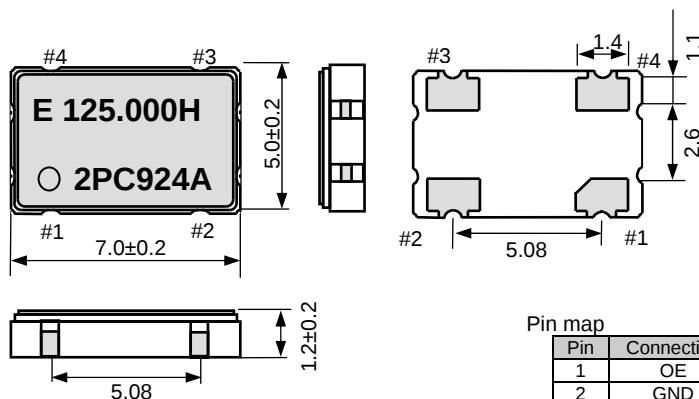
*2 This includes initial frequency tolerance, temperature variation, supply voltage variation, load variation, reflow drift, and 10 years aging(+25 °C,10 years).

*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 supply voltage variation, load variation, reflow drift, and aging).

External dimensions

(Unit:mm)



Pin map

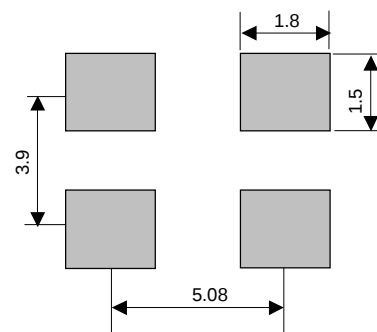
Pin	Connection
1	OE
2	GND
3	OUT
4	Vcc

#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).

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

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

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