

PROGRAMMABLE HIGH-FREQUENCY CRYSTAL OSCILLATOR

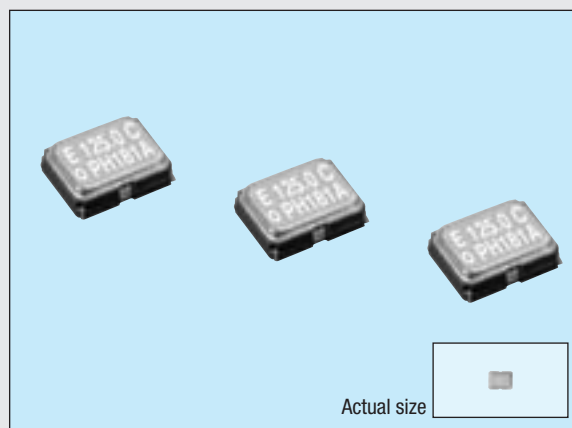
SG-8002CE series

Product number (please refer to page 2)

Q3321CExxxxx00

- Wide frequency output by PLL technology.
- Short lead mass production time.
- Excellent shock resistance and environmental capability.
- Output enable function (OE) and stand-by function (ST) can be used for low current consumption applications.
- Available for lead (Pb)-free soldering.
- Complete lead (Pb)-free product.

SG-Writer available to purchase.
Please contact EPSON or local sales representative.



Specifications (characteristics)

Item	Symbol	Specifications *2			Remarks
		PT / ST	PH / SH	PC / SC	
Output frequency range	f _o	1.0000 MHz to 125.0000 MHz			Refer to page 50. "Frequency range"
Power source voltage	Max. supply voltage	V _{DD} -GND -0.5 V to +7.0 V			
	Operating voltage	V _{DD} 5.0 V ±0.5 V		3.3 ± 0.3 V	2.7 V to 3.6 V : f _o ≤ 66.7 MHz (PC / SC)
Temperature range	Storage temperature	T _{STG} -40 °C to +125 °C			Stored as bare product after unpacking
	Operating temperature	T _{OPR} -20 °C to +70 °C (-40 °C to +85 °C)		-40 °C to +85 °C	Refer to page 50. "Frequency range"
Frequency stability	Δf/f _o	B: ±50 x 10 ⁻⁶ C: ± 100 x 10 ⁻⁶ M: ±100 x 10 ⁻⁶ *3			B, C : -20 °C to +70 °C, M : -40 °C to +85 °C
Current consumption	I _{OP}	40 mA Max.		28 mA Max.	No load condition, Max. frequency range
Output disable current	I _{OE}	30 mA Max.		16 mA Max.	OE = GND (PT, PH, PC)
Standby current	I _{ST}	50 μA Max.			ST = GND (ST, SH, SC)
Duty *1	t _w / t	-		40 % to 60 %	CMOS load: 1/2 V _{DD} level
		40 % to 60 %		-	TTL load: 1.4 V level
High output voltage	V _{OH}	V _{DD} -0.4 V Min.			I _{OH} = -16 mA (PT / ST, PH / SH), -8 mA (PC / SC)
Low output voltage	V _{OL}	0.4 V Max.			I _{OL} = 16 mA (PT / ST, PH / SH), 8 mA (PC / SC)
Output load *1 condition (fan out)	TTL	N		5 TTL Max.	Max. frequency and Max. operating voltage range
	CMOS	CL		15 pF Max.	
Output enable / disable input voltage	V _{IH}	2.0 V Min.		0.7 V _{DD} Min.	ST, OE terminal
	V _{IL}	0.8 V Max.		0.2 V _{DD} Max.	
Output rise time *1	CMOS level	-		3 ns Max.	CMOS load: 20 % → 80 % V _{DD}
	TTL level	4 ns Max.		-	TTL load: 0.4 V → 2.4 V
Output fall time *1	CMOS level	-		3 ns Max.	CMOS load: 80 % → 20 % V _{DD}
	TTL level	4 ns Max.		-	TTL load: 2.4 V → 0.4 V
Oscillation start up time	t _{OSC}	10 ms Max.			Time at minimum operating voltage to be 0 s
Aging	f _a	±5 x 10 ⁻⁶ / year Max.			T _a = +25 °C, V _{DD} = 5.0 V / 3.3 V, First year

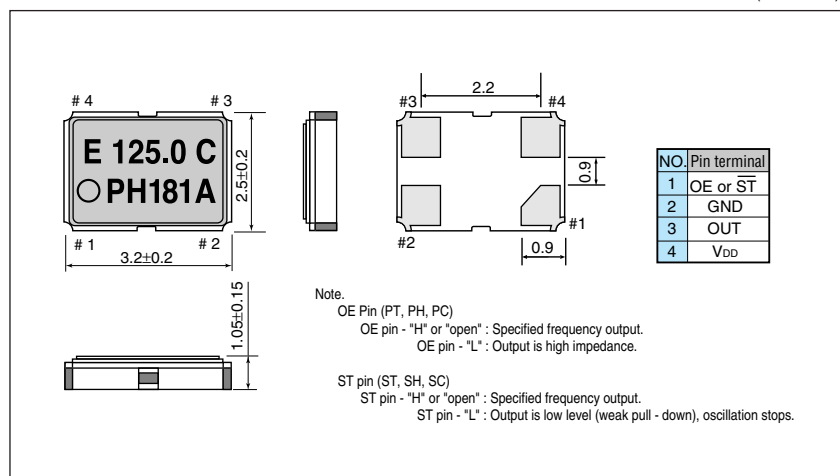
*1 Operating temperature (-40 °C to +85 °C), the available frequency, duty and output load conditions, please refer to page 50, 51.

*2 PLL-PLL connection & Jitter specification, please refer to page 52.

*3 PT / ST and PH / SH for "M" stability will be available up to 27 MHz.

External dimensions

(Unit: mm)



Recommended soldering pattern

(Unit: mm)

