

PROGRAMMABLE HIGH-FREQUENCY CRYSTAL OSCILLATOR

SG-8002CA series

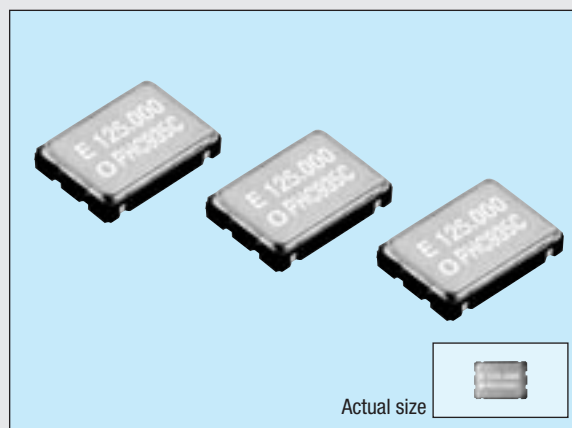
Product number (please refer to page 2)

Q3309CAxxxxxx00

- Wide frequency output by PLL technology.
- Quick delivery of samples and short lead mass production time.
- Excellent environmental capability.
- Output enable function (OE) and stand-by function (\overline{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 \pm 0.5 V		3.3 \pm 0.3 V	2.7 V to 3.6 V : $f_o \leq 66.7$ MHz (PC / SC)	
Temperature range	Storage temperature	TSTG -55 °C to +125 °C			Stored as bare product after unpacking	
	Operating temperature	TOPR -20 °C to +70 °C (-40 °C to +85 °C)		-40 °C to +85 °C	Refer to page 50. "Frequency range"	
Frequency stability	$\Delta f/f_o$	B: $\pm 50 \times 10^{-6}$ C: $\pm 100 \times 10^{-6}$			B, C : -20 °C to +70 °C	
		M: $\pm 100 \times 10^{-6}$			M : -40 °C to +85 °C	
Current consumption	I_{op}	45 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 μ A 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.	25 pF Max. 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	t_r	-		4 ns Max.	CMOS load: 20 % \rightarrow 80 % V_{DD}
	TTL level		4 ns Max.		-	TTL load: 0.4 V \rightarrow 2.4 V
Output fall time *1	CMOS level	t_f	-		4 ns Max.	CMOS load: 80 % \rightarrow 20 % V_{DD}
	TTL level		4 ns Max.		-	TTL load: 2.4 V \rightarrow 0.4 V
Oscillation start up time	t_{osc}	10 ms Max.			Time at minimum operating voltage to be 0 s	
Aging	f_a	$\pm 5 \times 10^{-6}$ / year Max.			$T_a = +25$ °C, $V_{DD} = 5.0$ V / 3.3 V, First year	
Shock resistance	S.R.	$\pm 20 \times 10^{-6}$ Max.			Three drops on a hard board from 750 mm or excitation test with 29400 m/s ² x 0.3 ms x 1/2sine wave in 3 directions	

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

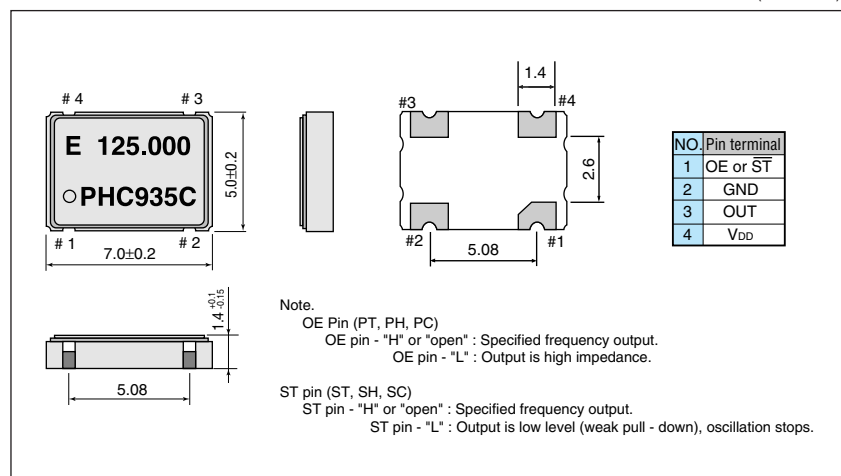
*2 PLL - PLL connection & Jitter specification, please refer to page 52.

Checking possible by the Frequency Checking Program.

<http://www.epsondevice.com/domcfg.nsf>

External dimensions

(Unit: mm)



Recommended soldering pattern

(Unit: mm)

