

PROGRAMMABLE HIGH-FREQUENCY CRYSTAL OSCILLATOR

SG-8002CA series

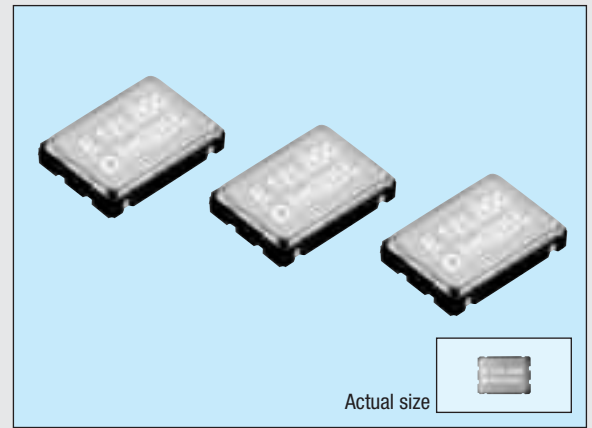
Product number (please refer to page 2)

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		fo	1.0000 MHz to 125.0000 MHz			Refer to page 50. “Frequency range”
Power source voltage	Max. supply voltage	VDD-GND	-0.5 V to +7.0 V			
	Operating voltage	VDD	5.0 V ±0.5 V		3.3 ± 0.3 V	2.7 V to 3.6 V : fo ≤ 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		Δf/fo	B: ±50 x 10 ⁻⁶ C: ± 100 x 10 ⁻⁶			B, C : -20 °C to +70 °C
			M: ±100 x 10 ⁻⁶			M : -40 °C to +85 °C
Current consumption		Iop	45 mA Max.		28 mA Max.	No load condition, Max. frequency range
Output disable current		IoE	30 mA Max.		16 mA Max.	OE = GND (PT, PH, PC)
Standby current		Ist	50 μA Max.			ST = GND (ST, SH, SC)
Duty *1	tw/ t		—	40 % to 60 %		CMOS load: 1/2 VDD level
		40 % to 60 %	—		TTL load: 1.4 V level	
High output voltage		VOH	VDD -0.4 V Min.			IOH = -16 mA (PT / ST, PH / SH), -8 mA (PC / SC)
Low output voltage		VOL	0.4 V Max.			IOL = 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		VIH	2.0 V Min.		0.7 VDD Min.	ST, OE terminal
		VIL	0.8 V Max.		0.2 VDD Max.	
Output rise time *1	CMOS level	tr	—	4 ns Max.		CMOS load: 20 % → 80 % VDD
	TTL level		4 ns Max.	—		TTL load: 0.4 V → 2.4 V
Output fall time *1	CMOS level	tf	—	4 ns Max.		CMOS load: 80 % → 20 % VDD
	TTL level		4 ns Max.	—		TTL load: 2.4 V → 0.4 V
Oscillation start up time		tosc	10 ms Max.			Time at minimum operating voltage to be 0 s
Aging		fa	±5 x 10 ⁻⁶ / year Max.			Ta = +25 °C, VDD = 5.0 V / 3.3 V, First year
Shock resistance		S.R.	±20 x 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

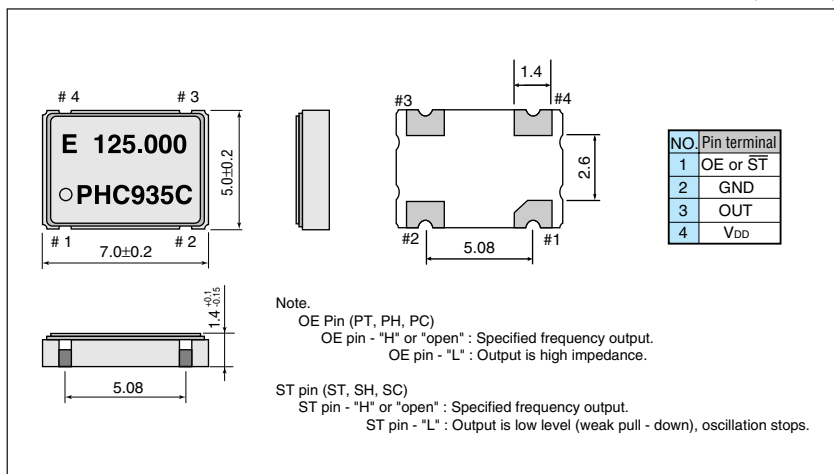
*1 Operating temperature (-40 °C to +85 °C), the available frequency, duty and output load conditions, please refer to page 50, 51.

*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)

