

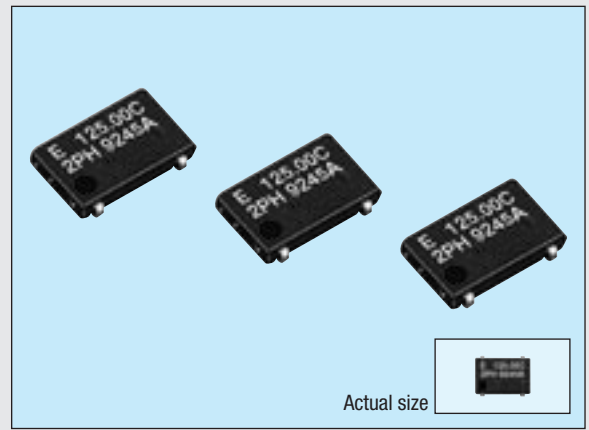
# PROGRAMMABLE HIGH-FREQUENCY CRYSTAL OSCILLATOR

## SG-8002JF series

Product number (please refer to page 2)

**Q3308JFxxxxxx00**

- 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.
- Pin compatible with ceramic package crystal oscillator (7 x 5)
- Available for lead (Pb)-free soldering.
- Available for lead (Pb)-free terminal.



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 $\mu$ 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.		
	CMOS	CL		15 pF Max.	Max. frequency and Max. operating voltage range	
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	-		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	-		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 <sup>2</sup> 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.

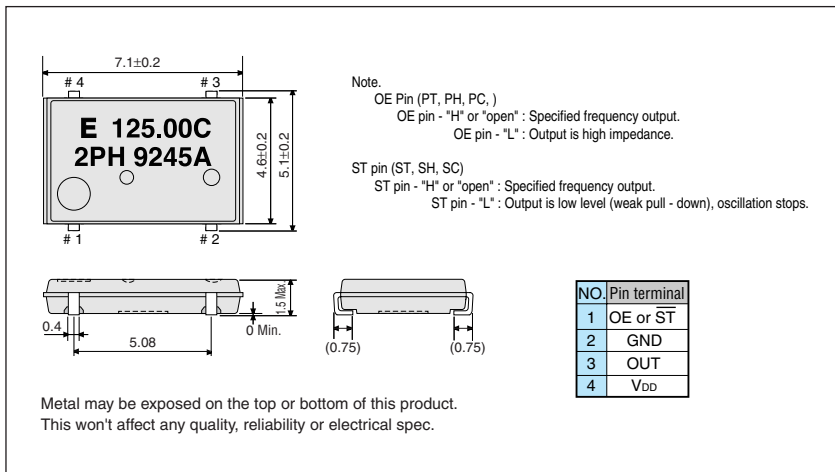
\*2 PLL - PLL connection & Jitter specification, please refer to page 52.

Checking possible by the Frequency Checking Program.

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

### External dimensions

(Unit: mm)



### Recommended soldering pattern

(Unit: mm)

