CRYSTAL OSCILLATOR
PROGRAMMABLE

SG-8002JF / CA series

- Frequency range : 1 MHz to 125 MHz
- Supply voltage : 3.3 V / 5.0 V
- Function : Output enable(OE) or Standby($\overline{ST}$)
- External dimensions : 7.0 × 5.0 × 1.4 t (mm) ···SG-8002CA
- Pin compatible with ceramic package crystal oscillator (7 × 5) : SG-8002JF
- Short mass production lead time by PLL technology.
- SG-Writer available to purchase.
  Please contact Epson Toyocom or local sales representative.

Pb Free RoHS Compliant

CA Type JF,CA Type

Product Number (please contact us)
SG-8002JF : Q3308JFx1xxxx00
SG-8002CA : Q3309CAx0xxxx00

Actual size

SG-8002JF

SG-8002CA

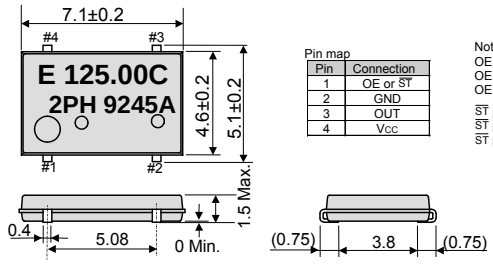
Specifications (characteristics)

Item		Symbol	Specifications *2 PT / ST	PH / SH	PC / SC	Remarks
Output frequency range		f_0	1 MHz to 125 MHz		—	V_{CC}=4.5 V to 5.5 V
			—		1 MHz to 125 MHz	V_{CC}=3.0 V to 3.6 V
			—		1 MHz to 66.7 MHz	V_{CC}=2.7 V to 3.6 V
Supply voltage		V_{CC}	4.5 V to 5.5 V		2.7 V to 3.6 V	
Temperature range	Storage temperature	T_stg	-55 °C to +125 °C			Store as bare product after unpacking
	Operating temperature	T_use	-20 °C to +70 °C (-40 °C to +85 °C)		-40 °C to +85 °C	Refer to "Outline specifications" (Frequency range)
Frequency tolerance		f_tol	B: ±50 × 10^{-6} ,C: ±100 × 10^{-6}			-20 °C to +70 °C
			M: ±100 × 10^{-6}			-40 °C to +85 °C *3
Current consumption		I_{CC}	45 mA Max.		28 mA Max.	No load condition, Max. frequency range
Disable current		I_dis	30 mA Max.		16 mA Max.	OE=GND(PT,PH,PC)
Stand-by current		I_std	50 µA Max.			$\overline{ST}$ =GND(ST,SH,SC)
Symmetry*1		SYM	—	40 % to 60 %		CMOS load:50 % V_{CC} level, Max. load condition
			40 % to 60 %	—		TTL load: 1.4 V level, Max. load condition
High output voltage		V_{OH}	V_{CC}-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 condition (TTL) *1		L_TTL	5TTL Max.	—		f_0≤90 MHz,Max. supply voltage
Output load condition (CMOS) *1		L_CMOS	15 pF Max.	15 pF Max. (CA:25 pF Max.)	15 pF Max.	Max. frequency and Max. supply voltage
Output enable / disable input voltage		V_{IH}	2.0 V Min.		70 % V_{CC} Min.	$\overline{ST}$ terminal or OE terminal
		V_{IL}	0.8 V Max.		20 % V_{CC} Max.	
Rise time / Fall time *1		t_r / t_f	—	3 ns Max.		CMOS load: 20 % V_{CC} to 80 % V_{CC} level
			4 ns Max.	—		TTL load: 0.4 V to 2.4 V level
Start-up time		t_str	10 ms Max.			Time at minimum supply voltage to be 0 s
Frequency aging		f_aging	±5 × 10^{-6} / year Max.			+25 °C, V_{CC}=5.0 V/ 3.3 V (PC / SC) First year

*1 Operating temperature (-40 °C to +85 °C), the available frequency, symmetry and output load conditions, please refer to "Outline specifications" page.
*2 PLL-PLL connection & Jitter specification, please refer to "Jitter specifications and characteristics chart" page.
*3 PT / ST and PH / SH for "M" tolerance will be available up to 55 MHz. (JF:40 MHz)
Checking possible by the Frequency Checking Program.

External dimensions (Unit:mm)

● **SG-8002JF**



Pin map

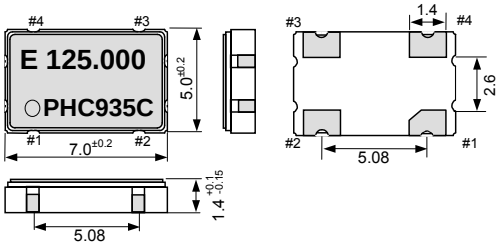
Pin	Connection
1	OE or $\overline{ST}$
2	GND
3	OUT
4	V_{CC}

Note.
OE Pin (PT, PH, PC)
OE pin = "H" or "open" : Specified frequency output.
OE pin = "L" : Output is high impedance.

$\overline{ST}$ pin (ST, SH, SC)
$\overline{ST}$ pin = "H" or "open" : Specified frequency output.
$\overline{ST}$ pin = "L" : Output is low level (weak pull - down), oscillation stops.

Metal may be exposed on the top or bottom of this product. This will not affect any quality, reliability or electrical spec.

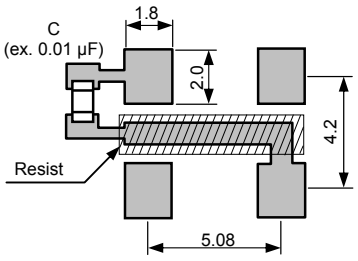
● **SG-8002CA**



Pin map

Pin	Connection
1	OE or $\overline{ST}$
2	GND
3	OUT
4	V_{CC}

Footprint (Recommended) (Unit:mm)



To maintain stable operation, provide by-pass capacitor with more than 0.1 µF at a location as near as possible to the power source terminal of the crystal products (between V_{CC} - GND).