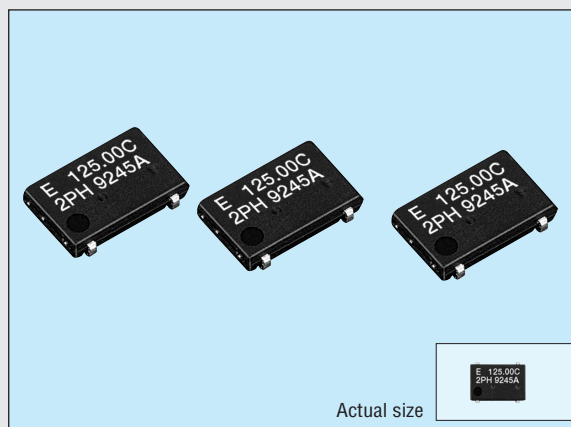


# PROGRAMMABLE HIGH-FREQUENCY CRYSTAL OSCILLATOR

## SG-8002JF series

- Wide frequency output by PLL technology.
- Quick delivery of samples and 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.

8002 PROM Writer available to purchase.(Type:PRW-8000A3-M01)  
Please contact EPSON or local sales representative.



### Specifications (characteristics)

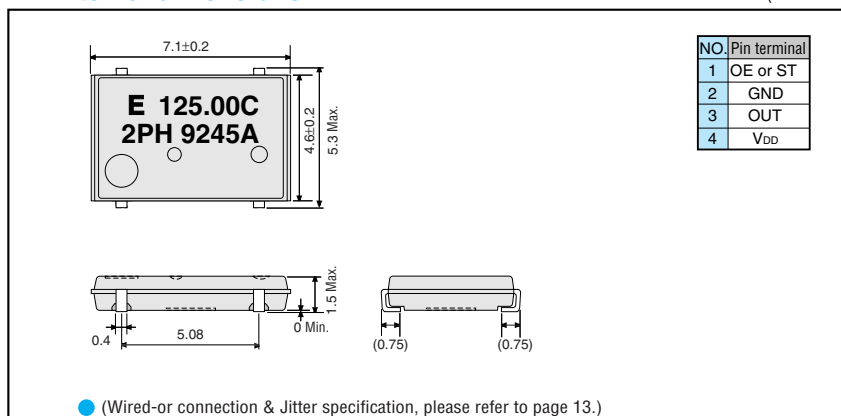
| Item                                | Symbol                | PT/ST  | PH/SH                               | PC/SC            | Remarks  |
|-------------------------------------|-----------------------|--|-------------------------------------|------------------|--|
|                                     |                       | Specifications   |                                     |                  |  |
| Output frequency range              | $f_0$                 | 1.0000 MHz to 125.0000 MHz   |                                     |                  |  |
| 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  | 3.0 V $\pm$ 0.3 V: $f_0 \leq 66.7$ MHz(PC/SC)  |
| Temperature range                   | Storage temperature   | $T_{STG}$  | -55 °C to +125 °C                   |                  |  |
|                                     | Operating temperature | $T_{OPR}$  | -20 °C to +70 °C (-40 °C to +85 °C) | -40 °C to +85 °C | Refer to page 4."Frequency range"  |
| Soldering condition                 | $T_{SOL}$             | Twice at under +260 °C within 10 s or under +230 °C within 3 min.                  |                                     |                  |  |
| Frequency stability                 | $\Delta f/f_0$        | B: $\pm 50 \times 10^{-6}$ C: $\pm 100 \times 10^{-6}$ M: $\pm 100 \times 10^{-6}$ |                                     |                  | B,C: -20 °C to +70 °C, 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                                | $t_w/t$               | —  | 40 % to 60 %                        |                  | C-MOS 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 condition (fan out)     | TTL                   | $N$  | 5 TTL Max.                          |                  | Max. frequency and Max. operating voltage range  |
|                                     | C-MOS                 | $C_L$  | 15 pF Max.                          |                  |  |
| Output enable/disable input voltage |                       | $V_{IH}$   | 2.0 V Min.                          |                  | $\overline{ST}$ , OE terminal  |
|                                     |                       | $V_{IL}$   | 0.8 V Max.                          |                  |  |
| Output rise time                    | C-MOS level           | $t_{rLH}$  | —                                   |                  | C-MOS load: 20 % $\rightarrow$ 80 % $V_{DD}$   |
|                                     | TTL level             |  | 4 ns Max.                           |                  |  |
| Output fall time                    | C-MOS level           | $t_{fHL}$  | —                                   |                  | C-MOS load: 80 % $\rightarrow$ 20 % $V_{DD}$   |
|                                     | TTL level             |  | 4 ns Max.                           |                  |  |
| 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(PC/SC)  |
| 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 |

Note: • Please contact us for inquiries about operating temperature(-40 °C to +85 °C), usable frequencies, duty and output load conditions. Checking possible by the Frequency Checking Program.

<http://www.epson.co.jp/CRYSTAL/>

### External dimensions

(Unit: mm)



### Recommended soldering pattern

(Unit: mm)

