

# CRYSTAL OSCILLATOR (SPXO)

## OUTPUT : LV-PECL

# SG3225 / 7050EEN

- Frequency range : 25 MHz to 200 MHz
- Supply voltage : 2.5 V , 3.3 V
- Output : LV-PECL
- Function : Output enable (OE)
- Phase jitter : 50 fs Typ. ( $f_0 = 156.25\text{MHz}$ )
- Operating temperature : -40 °C to +85 °C
- : -40 °C to +105 °C



Product Number (please contact us)  
**SG3225EEN** X1G005221xxxxxx  
**SG7050EEN** X1G005131xxxxxx



Actual size

SG3225EEN

SG7050EEN

## Specifications (characteristics)

| Item                      | Symbol                          | Specifications                                                               | Conditions / Remarks                                                                              |
|---------------------------|---------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Output frequency range    | $f_0$                           | 25 MHz to 200 MHz                                                            | Please contact us for inquiries regarding available frequencies.                                  |
| Supply voltage            | V <sub>cc</sub>                 | D : 2.5 V $\pm 0.125$ V , C : 3.3 V $\pm 0.165$ V                            |                                                                                                   |
| Storage temperature       | T <sub>stg</sub>                | -55 °C to +125 °C                                                            | Store as bare product.                                                                            |
| Operating temperature     | T <sub>use</sub>                | G : -40 °C to +85 °C , H : -40 °C to +105 °C                                 |                                                                                                   |
| Frequency tolerance       | f <sub>tol</sub>                | D : $\pm 25 \times 10^{-6}$ Max.<br>(Not available H : -40 °C to +105 °C)    | Includes initial tolerance, temperature change, V <sub>cc</sub> change and 5 years aging(+25 °C)  |
|                           |                                 | J : $\pm 50 \times 10^{-6}$ Max.                                             | Includes initial tolerance, temperature change, V <sub>cc</sub> change and 10 years aging(+25 °C) |
|                           |                                 | L : $\pm 100 \times 10^{-6}$ Max.                                            | Includes initial tolerance, temperature change, V <sub>cc</sub> change and 10 years aging(+25 °C) |
| Current consumption       | I <sub>cc</sub>                 | 75 mA Max.                                                                   | OE= V <sub>cc</sub> , with output load                                                            |
| Disable current           | I <sub>dis</sub>                | 25 mA Max.                                                                   | OE=GND                                                                                            |
| Symmetry                  | SYM                             | 45 % to 55 %                                                                 | At outputs crossing point                                                                         |
| Output voltage            | V <sub>OH</sub>                 | V <sub>cc</sub> -1.1 V Min.                                                  | DC characteristics                                                                                |
|                           | V <sub>OL</sub>                 | V <sub>cc</sub> -1.5 V Max.                                                  |                                                                                                   |
| Output load condition     | L <sub>ECL</sub>                | 50 $\Omega$                                                                  | Terminated to V <sub>cc</sub> -2.0V                                                               |
| Input voltage             | V <sub>IH</sub>                 | 70 % V <sub>cc</sub> Min.                                                    | OE terminal                                                                                       |
|                           | V <sub>IL</sub>                 | 30 % V <sub>cc</sub> Max.                                                    |                                                                                                   |
| Rise/Fall times           | T <sub>r</sub> / T <sub>f</sub> | 300 ps Max. (V <sub>cc</sub> : 3.3V)<br>350 ps Max. (V <sub>cc</sub> : 2.5V) | 20% ~ 80% (V <sub>OH</sub> - V <sub>OL</sub> )                                                    |
| Oscillation start up time | t <sub>str</sub>                | 10 ms Max.                                                                   | Time at minimum supply voltage to be 0 s                                                          |

## Phase jitter

|                                                           | 100 MHz | 125 MHz | 156.25 MHz | 200 MHz |
|-----------------------------------------------------------|---------|---------|------------|---------|
| Phase jitter Typ. [fs]<br>(Offset frequency 12k to 20MHz) | 75      | 60      | 50         | 40      |

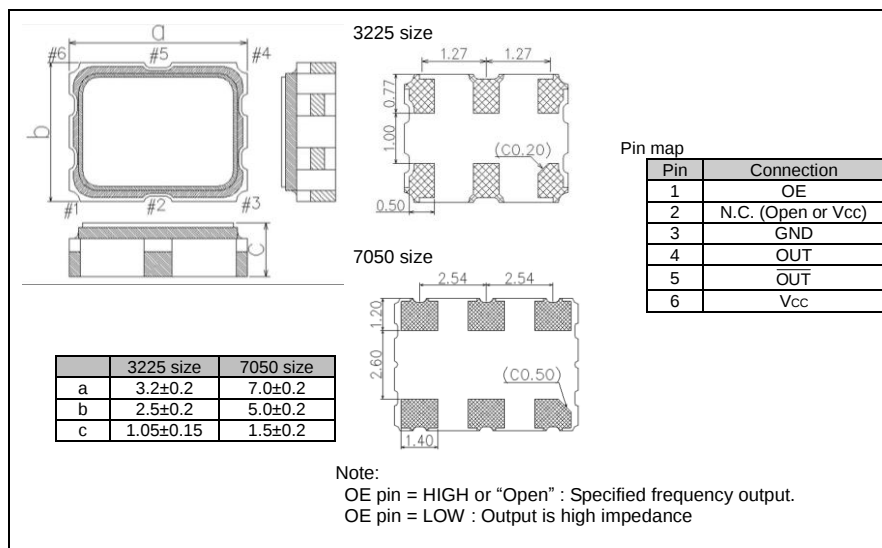
Product Name **SG3225 EEN 156.250000MHz C D G A** (⑤⑥: Not Available code DH)

(Standard form)

- ① Model ② Output (E: LV-PECL) ③ Frequency ④ Supply voltage (C: 3.3 V Typ. D: 2.5 V Typ.)  
 ⑤ Frequency tolerance (D:  $\pm 25 \times 10^{-6}$  Max. J:  $\pm 50 \times 10^{-6}$  Max. L:  $\pm 100 \times 10^{-6}$  Max.)  
 ⑥ Operating temperature (G: -40 to +85°C , H: -40 to +105°C) ⑦ Internal identification code("A" is default)

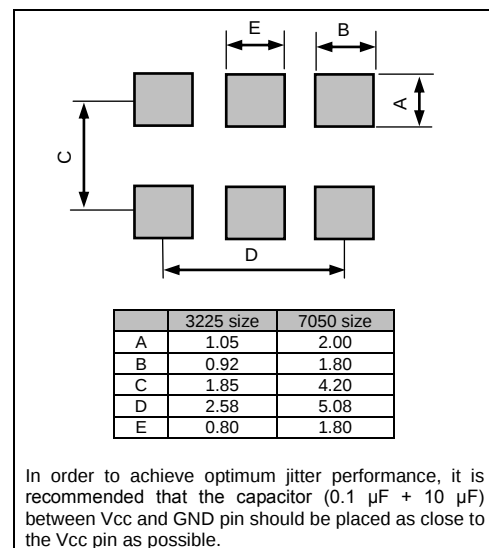
## External dimensions

(Unit:mm)



## Footprint (Recommended)

(Unit:mm)



## PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

## WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

### ► Explanation of the mark that are using it for the catalog

|                                                                                     |                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | ► Pb free.                                                                                                                                                                                                                      |
|  | ► Complies with EU RoHS directive.<br>*About the products without the Pb-free mark.<br>Contains Pb in products exempted by EU RoHS directive.<br>(Contains Pb in sealing glass, high melting temperature type solder or other.) |
|  | ► Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.                                                                                                                      |
|  | ► Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc ).                                                                                                                      |

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