

# CRYSTAL OSCILLATOR (SPXO)

## OUTPUT : CMOS

### SG5032CAN / CBN / CCN

### SG7050CAN / CBN / CCN



Product Number (please contact us)  
 SG5032CAN: X1G004451xxxx00  
 SG5032CBN: X1G004461xxxx00  
 SG5032CCN: X1G004471xxxx00  
 SG7050CAN: X1G004481xxxx00  
 SG7050CBN: X1G004491xxxx00  
 SG7050CCN: X1G004501xxxx00

- Frequency range : CAN 1 to 75 MHz (Fundamental mode)  
 : CBN 80 to 170 MHz (Fundamental mode)  
 : CCN 2.5 to 50 MHz (Fundamental mode)
- Supply voltage : CAN / CBN 1.8 V to 3.6 V Typ.  
 : CCN 5.0 V Typ.
- Function : CAN / CBN Standby( $\overline{ST}$ )  
 : CCN Output enable(OE)
- Output : CMOS



### Specifications (characteristics)

| Item                   | Symbol      | Specifications  |   |  | Conditions / Remarks   |
|------------------------|-------------|---|---|--|--|
|                        |             | SG5032CAN<br>SG7050CAN  | SG5032CBN<br>SG7050CBN                  | SG5032CCN<br>SG7050CCN                 |  |
| Output frequency range | $f_0$       | 1 MHz to 75 MHz<br>T: 1.6 V to 3.63 V<br>T: 1.71 V to 3.63 V<br>K: 2.25 V to 3.63 V | 80 MHz to 170 MHz<br>T: 1.6 V to 3.63 V | 2.5 MHz to 50 MHz<br>H: 4.5 V to 5.5 V | Please contact us about available frequencies.<br>1 MHz $\leq f_0 \leq$ 60 MHz See<br>60 MHz $< f_0 \leq$ 75 MHz, +85 °C Max. *1<br>60 MHz $< f_0 \leq$ 75 MHz, +105 °C Max. (CAN) |
| Supply voltage         | $V_{CC}$    |   |   |  |  |
| Storage temperature    | $T_{stg}$   | -40 °C to +125 °C   |   |  | Storage as single product.   |
| Operating temperature  | $T_{use}$   | B: -20 °C to +70 °C, G: -40 °C to +85 °C<br>H: -40 °C to +105 °C                    |   |  | See of figure *1 (CAN)   |
| Frequency tolerance    | $f_{tol}$   | D ( Only CAN type ) : $\pm 25 \times 10^{-6}$ , J : $\pm 50 \times 10^{-6}$         |   |  | -20 °C to +70 °C   |
|                        |             | J : $\pm 50 \times 10^{-6}$   |   |  | -40 °C to +85 °C   |
|                        |             | L : $\pm 100 \times 10^{-6}$  |   |  | -40 °C to +105 °C  |
|                        |             |   |   |  |  |
| Current consumption    | $I_{CC}$    | 3.0 mA Max.   | 11 mA Max.                              | 20 mA Max.                             | No load condition Maximum frequency.   |
| Stand-by current       | $I_{std}$   | 2.7 $\mu$ A Max.  | 10 $\mu$ A Max.                         | -                                      | $\overline{ST}$ = GND  |
| Disable current        | $I_{dis}$   | -   | -                                       | 10 mA Max.                             | OE = GND   |
| Symmetry               | SYM         | 45 % to 55 %  |   | 40 % to 60 %                           | 50 % $V_{CC}$ level, $L_{CMOS} \leq 15$ pF   |
| Output voltage         | $V_{OH}$    | $V_{CC} - 0.4$ Min.   |   |  |  |
|                        | $V_{OL}$    | 0.4 V Max.  |   |  |  |
| Output load condition  | $L_{CMOS}$  | 15 pF Max.  |   | 50 pF Max.                             | CMOS load  |
| Input voltage          | $V_{IH}$    | 80 % $V_{CC}$ Min.  |   |  | $\overline{ST}$ , OE terminal  |
|                        | $V_{IL}$    | 20 % $V_{CC}$ Max.  |   |  |  |
| Rise time / Fall time  | $t_r / t_f$ | 3 ns Max.<br>3.5nsMax.(@1.8V $\pm$ 10%)   | 3 ns Max.                               | 5 ns Max.                              | 20 % $V_{CC}$ to 80 % $V_{CC}$ level, $L_{CMOS} = 15$ pF   |
| Start-up time          | $t_{str}$   | 3 ms Max.   | 5 ms Max.                               |  | $t=0$ at 90 % $V_{CC}$ +85°C,(+105°C)  |
| Frequency aging        | $f_{aging}$ | $\pm 3 \times 10^{-6}$ / year Max.  | $\pm 5 \times 10^{-6}$ / year Max.      |  | +25 °C, First year.  |

\*1 : Maximum  $T_{use}$  of operating range for SGxxxxCAN

Product Nam SG5032 C AN 25.000000MHz T J G A (ⓈⓈ: Available code DB,JB,JG,JH,LG,LH)  
 (Standard form) ① ② ③ ④⑤⑥⑦  
 ①Model ②Output (C:CMOS) ③Frequency  
 ④Supply voltage ⑤Frequency tolerance  
 ⑥Operating temperature range ⑦Internal identification code ("A" is default)

| ④Supply voltage |               | ⑤Frequency tolerance |                          | ⑥Operating temperature range |               |
|-----------------|---------------|----------------------|--------------------------|------------------------------|---------------|
| T               | 1.6 to 3.63 V | D                    | $\pm 25 \times 10^{-6}$  | B                            | -20 to +70°C  |
|                 | 1.71 ~ 3.63 V | J                    | $\pm 50 \times 10^{-6}$  | G                            | -40 to +85°C  |
| K               | 2.25 ~ 3.63 V | L                    | $\pm 100 \times 10^{-6}$ | H                            | -40 to +105°C |
| H               | 4.5 ~ 5.5 V   |                      |                          |                              |               |

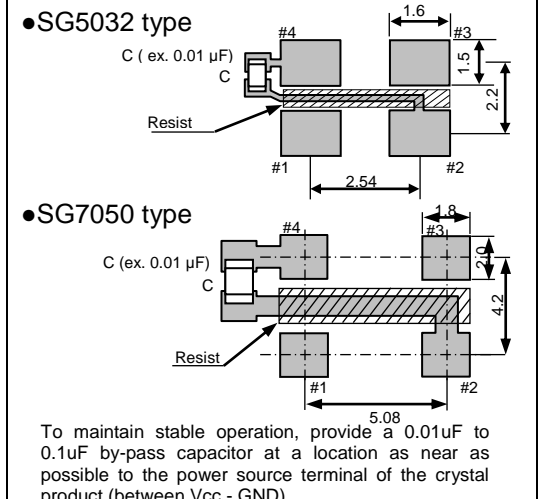
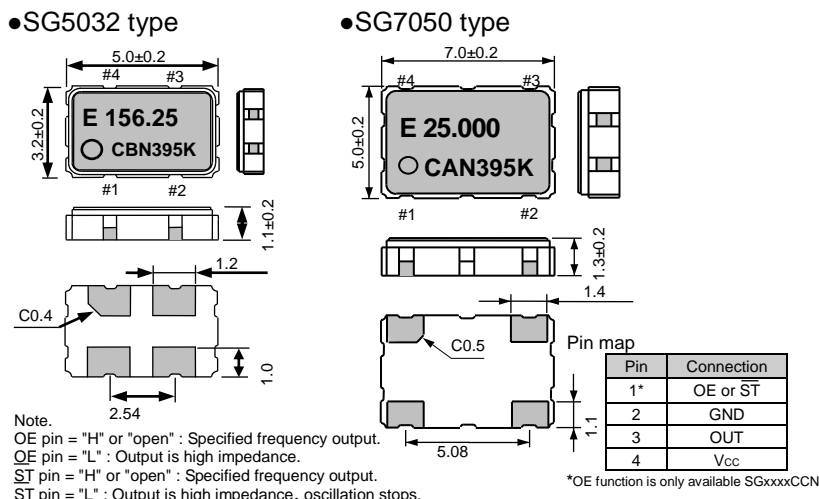


### External dimensions

(Unit:mm)

### Footprint (Recommended)

(Unit:mm)



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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.

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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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