



## CRYSTAL OSCILLATOR (SPXO)

OUTPUT : CMOS



Product Number  
 SG5032CBN: X1G004461xxxx00  
 SG5032CCN: X1G004471xxxx00  
 SG7050CBN: X1G004491xxxx00  
 SG7050CCN: X1G004501xxxx00

# SG5032CBN / CCN

# SG7050CBN / CCN

- Frequency range : CBN 80 MHz to 170 MHz (Fundamental mode)  
: CCN 2.5 MHz to 50 MHz (Fundamental mode)
- Supply voltage : CBN 1.8 V to 3.3 V Typ.  
: CCN 5.0 V Typ.
- Function : CBN Standby ( $\overline{ST}$ )  
: CCN Output enable (OE)
- Output : CMOS

SG5032CBN / CCN  
(5.0 × 3.2 × 1.1 mm)SG7050CBN / CCN  
(7.0 × 5.0 × 1.3 mm)

## Specifications (characteristics)

Item	Symbol	Specifications		Conditions / Remarks
		SG5032CBN / SG7050CBN	SG5032CCN / SG7050CCN	
Output frequency range	$f_o$	80 MHz to 170 MHz	2.5 MHz to 50 MHz	Please contact us about available frequencies.
Supply voltage	$V_{CC}$	T: 1.6 V to 3.63 V	H: 4.5 V to 5.5 V	
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		
Frequency tolerance	$f_{tol}$	J: $\pm 50 \times 10^{-6}$		-20 °C to +70 °C, -40 °C to +85 °C
Current consumption	$I_{CC}$	11 mA Max.	20 mA Max.	No load condition Maximum frequency.
Stand-by current	$I_{std}$	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	$V_{OH}$	90 % $V_{CC}$ Min.		
	$V_{OL}$	10 % $V_{CC}$ Max.		
Output load condition	$L_{CMOS}$	15 pF Max.	50 pF Max.	
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.	5 ns Max.	20 % $V_{CC}$ to 80 % $V_{CC}$ level, $L_{CMOS} = 15$ pF
Start-up time	$t_{str}$	5 ms Max.		$t = 0$ at 90 % $V_{CC}$ , +85 °C
Frequency aging	$f_{age}$	$\pm 5 \times 10^{-6}$ / year Max.		+25 °C, First year.

Product Nam SG5032 CBN 125.000000MHz I J G A (⑤⑥: Available code JB, JG, LG)  
 (Standard form) ① ② ③ ④⑤⑥⑦

- ① Model ② Output (C: CMOS) ③ Frequency  
 ④ Supply voltage ⑤ Frequency tolerance  
 ⑥ Operating temperature range ⑦ Internal identification code ("A" is default)

④ Supply voltage	
T	1.8 V to 3.3 V Typ.
H	5.0 V Typ.

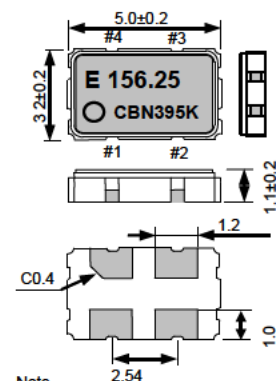
⑤ Frequency tolerance	
J	$\pm 50 \times 10^{-6}$
L	$\pm 100 \times 10^{-6}$

⑥ Operating temperature range	
B	-20 °C to +70 °C
G	-40 °C to +85 °C

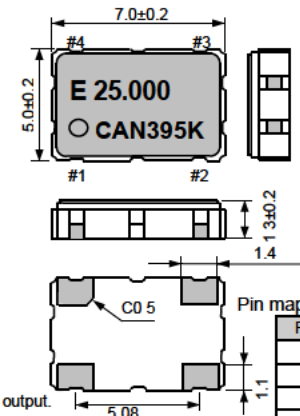
## External dimensions

(Unit:mm)

## ●SG5032 type



## ●SG7050 type



Pin map

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

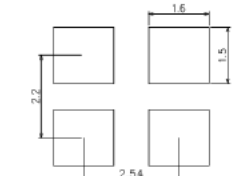
\*OE function is available for SGxxxxCCN

Note.  
 OE pin = "H" or "open": Specified frequency output.  
 OE pin = "L": Output is high impedance.  
 $\overline{ST}$  pin = "H" or "open": Specified frequency output.  
 $\overline{ST}$  pin = "L": Output is high impedance, oscillation stops.

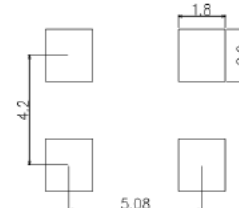
## Footprint (Recommended)

(Unit:mm)

## ●SG5032 type



## ●SG7050 type



To maintain stable operation, provide a 0.01  $\mu$ F to 0.1  $\mu$ F by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between  $V_{CC}$  - GND).

## 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.

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IATF 16949 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. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (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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