

**CRYSTAL OSCILLATOR (SPXO)**  
OUTPUT : HCSL



Product Number  
**X1G005141xxxx00**

# SG3225HBN

- Frequency range : 100 MHz to 325 MHz
- Supply voltage : 2.5V, 3.3 V
- Output : HCSL
- Function : Output enable (OE)
- External dimensions : 3.2 × 2.5 × 1.05 mm
- Phase jitter : 85 fs Typ (fo = 156.25MHz)



## Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks
Output frequency range	fo	100 MHz to 325 MHz	Please contact us for inquiries regarding available frequencies.
Supply voltage	V <sub>CC</sub>	D : 2.5 V ± 0.125 V , C : 3.3 V ± 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>	J: ± 50 × 10 <sup>-6</sup> (Not available H : -40 °C to +105 °C) L: ± 100 × 10 <sup>-6</sup>	Includes initial frequency tolerance, temperature variation, supply voltage change and 10 years aging(+25 °C)
Current consumption	I <sub>CC</sub>	25 mA Typ. 35 mA Max.	OE= V <sub>CC</sub> , with output load
Disable current	I <sub>dis</sub>	15 mA Max.	OE=GND
Symmetry	SYM	45 % to 55 %	At outputs crossing point
Output voltage	V <sub>OH</sub> V <sub>OL</sub>	0.75 V Typ., 0.66 V to 0.85 V 0 V Typ., -0.15 V to 0.15 V	DC characteristics, single output
Crossing voltage	V <sub>CR</sub>	0.25 V to 0.55 V	
Output load condition	L HCSL R <sub>s</sub>	50 Ω 33 Ω	
Input voltage	V <sub>IH</sub> V <sub>IL</sub>	70 % V <sub>CC</sub> Min. 30 % V <sub>CC</sub> Max.	OE terminal
differential output rise slew rate/ fall slew rate	R <sub>r</sub> / R <sub>f</sub>	1 V/ns to 4 V/ns	Between -0.15 V and 0.15 V of differential output
Start-up time	t <sub>str</sub>	10 ms Max.	Time at minimum supply voltage to be 0 s

## Phase Jitter

Phase Jitter [fs] (Offset Frequency 12k to 20MHz)	Output frequency	100 MHz	125 MHz	156.25 MHz	200 MHz	322.265625 MHz	Supply voltage V <sub>CC</sub> =3.3V±0.165V
	Typ.	110	95	85	75	65	
Max.	180	160	140	125	110		

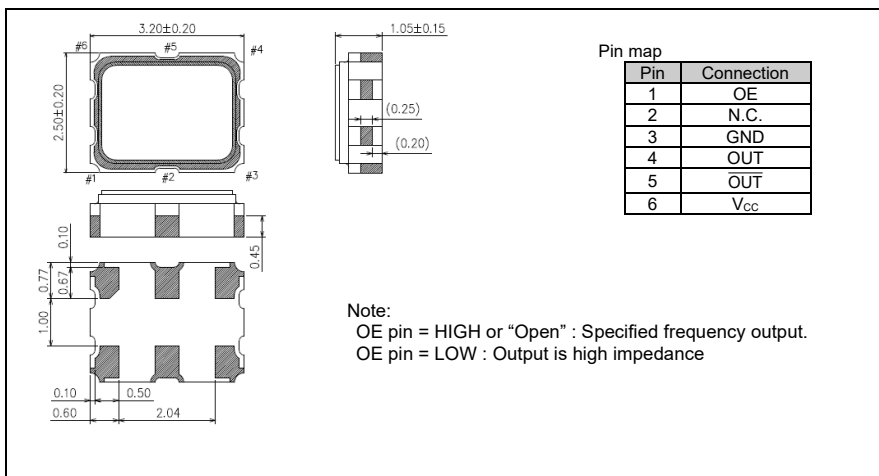
Product Name **SG3225 HBN 156.250000MHz C J G A** (⑤⑥: Not Available code JH)

(Standard form)

- ① Model    ② Output (H: HCSL)    ③ Frequency    ④ Supply voltage (D: 2.5 V Typ. , C: 3.3 V Typ.)  
 ⑤ Frequency tolerance (J: ±50 × 10<sup>-6</sup> L: ±100 × 10<sup>-6</sup>)  
 ⑥ Operating temperature (G:-40 to +85°C, H:-40 to +105°C)    ⑦ Internal identification code("A" is default)

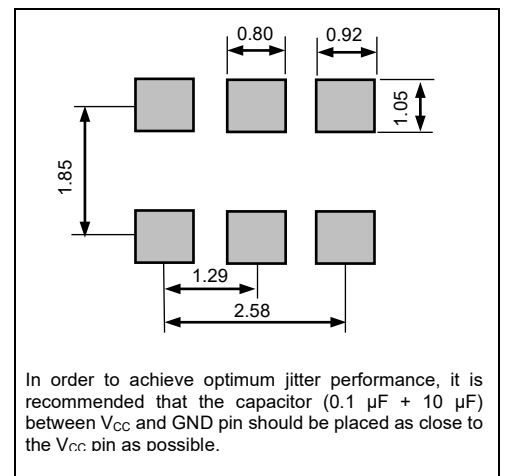
## External dimensions

(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 IATF 16949 certification that is requested strongly by major automotive manufacturers as standard.

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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