

**CRYSTAL OSCILLATOR (SPXO)**  
**OUTPUT : LV-PECL**

**SG3225 / 7050EEN**

- Frequency range : 25 MHz to 325 MHz
- Supply voltage : 2.5 V , 3.3 V
- Output : LV-PECL
- Function : Output enable (OE)
- Phase jitter : 50 fs Typ. (f<sub>0</sub> = 156.25MHz)
- Operating temperature : -40 °C to +85 °C
- : -40 °C to +105 °C



Product Number (please contact us)  
 SG3225EEN X1G005221xxxxxx(f≤200MHz)  
 X1G005511xxxxxx(f>200MHz)  
 SG7050EEN X1G005131xxxxxx(f≤200MHz)  
 X1G005551xxxxxx(f>200MHz)



Actual size

SG3225EEN

SG7050EEN

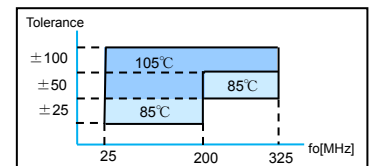
**Specifications (characteristics)**

Item	Symbol	Specifications	Conditions / Remarks	
Output frequency range	f <sub>0</sub>	25 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>	D : ±25 × 10 <sup>-6</sup> Max.	Includes initial tolerance, temperature change, V <sub>cc</sub> change and 5 years aging(+25 °C)	
		J : ±50 × 10 <sup>-6</sup> Max.		
		L : ±100 × 10 <sup>-6</sup> Max.		
See of figure *1			Includes initial tolerance, temperature change, V <sub>cc</sub> change and 10 years aging(+25 °C)	
Current consumption	I <sub>cc</sub>	60 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 Ω	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	Tr / Tf	25 MHz ≤ f <sub>0</sub> ≤ 200 MHz	200 MHz < f <sub>0</sub> ≤ 325 MHz	20% ~ 80% (V <sub>OH</sub> - V <sub>OL</sub> )
		300 ps Max.	350 ps Max.	
		350 ps Max.	350 ps Max.	
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	312.5 MHz
Phase jitter Typ. [fs] (Offset frequency 12k to 20MHz)	75	60	50	40	30

\*1 : Maximum T<sub>use</sub> of operating range



Product Name **SG3225 EEN 156.250000MHz C D G A**  
 (Standard form) ① ② ③ ④⑤⑥⑦  
 ①Model ②Output (E: LV-PECL) ③Frequency ④Supply voltage (C: 3.3 V Typ. D: 2.5 V Typ.)  
 ⑤Frequency tolerance (D: ±25 × 10<sup>-6</sup> Max. J: ±50 × 10<sup>-6</sup> Max. L: ±100 × 10<sup>-6</sup> Max.)  
 ⑥Operating temperature (G:-40 to +85°C , H:-40 to +105°C) ⑦Internal identification code("A" is default)

**External dimensions**

(Unit:mm)

	3225 size	7050 size
a	3.2±0.2	7.0±0.2
b	2.5±0.2	5.0±0.2
c	1.05±0.15	1.5±0.2

Pin map

Pin	Connection
1	OE
2	N.C. (Open or Vcc)
3	GND
4	OUT
5	OUT
6	Vcc

Note:  
 OE pin = HIGH or "Open" : Specified frequency output.  
 OE pin = LOW : Output is high impedance

**Footprint (Recommended)**

(Unit:mm)

	3225 size	7050 size
A	1.05	2.00
B	0.92	1.80
C	1.85	4.20
D	2.58	5.08
E	0.80	1.80

In order to achieve optimum jitter performance, it is recommended that the capacitor (0.1 μF + 10 μF) between V<sub>cc</sub> and GND pin be placed as close to the V<sub>cc</sub> pin as possible.

## 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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	► 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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