

**CRYSTAL OSCILLATOR (SPXO)**

OUTPUT : LVDS

**SG3225 / 7050VEN**

- Frequency range : 25 MHz to 200 MHz
- Supply voltage : 2.5V , 3.3 V
- Output : LVDS
- Function : Output enable (OE)
- Phase jitter : 60 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)  
**SG3225VEN X1G005351xxxxxx**  
**SG7050VEN X1G005331xxxxxx**



SG3225VEN

SG7050VEN

Actual size

SG3225VEN

SG7050VEN

**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	VCC	D : 2.5 V $\pm 0.125$ V , C : 3.3 V $\pm 0.165$ V	
Storage temperature	T_stg	-55 °C to +125 °C	Store as bare product.
Operating temperature	T_use	G : -40 °C to +85 °C , H : -40 °C to +105 °C	
Frequency tolerance	f_tol	D : $\pm 25 \times 10^{-6}$ Max. (Not available H : -40 °C to +105 °C)	Includes initial tolerance, temperature change, Vcc change and 5 years aging(+25 °C)
		J : $\pm 50 \times 10^{-6}$ Max.	Includes initial tolerance, temperature change, Vcc change and 10 years aging(+25 °C)
		L : $\pm 100 \times 10^{-6}$ Max.	Includes initial tolerance, temperature change, Vcc change and 10 years aging(+25 °C)
Current consumption	ICC	25 mA Max.	OE= VCC, with output load
Disable current	I_dis	15 mA Max.	OE=GND
Symmetry	SYM	45 % to 55 %	At outputs crossing point
Output voltage	VOD	250 mV to 450 mV	VOD1 , VOD2
	dVOD	50 mV Max.	dVOD =   VOD1 - VOD2
	VOS	1.15 V to 1.35 V	VOS1 , VOS2
	dVOS	50 mV Max.	dVOS =   VOS1 - VOS2
Output load condition	L_LVDS	100 $\Omega$	Connected between OUT1 to OUT2
Input voltage	VIH	70 % VCC Min.	OE terminal
	VIL	30 % VCC Max.	
Rise/Fall times	Tr / Tf	300 ps Max. (Vcc : 3.3V) 350 ps Max. (Vcc : 2.5V)	at 20 % to 80 % of Differential Output peek to peek voltage
Oscillation start up time	t_str	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] (Offset frequency 12k to 20MHz)	90	70	60	50

Product Name **SG3225 VEN 156.250000MHz C D G A** (⑤⑥: Not Available code DH)  
 (Standard form) ① ② ③ ④⑤⑥⑦

- ①Model ②Output (V: LVDS) ③Frequency ④Supply voltage (C: 3.3 V Typ. D: 2.5 V Typ.)
- ⑤Frequency tolerance (D:  $\pm 25 \times 10^{-6}$  Max. J:  $\pm 50 \times 10^{-6}$  Max. L:  $\pm 100 \times 10^{-6}$  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 $\pm 0.2$	7.0 $\pm 0.2$
b	2.5 $\pm 0.2$	5.0 $\pm 0.2$
c	1.05 $\pm 0.15$	1.5 $\pm 0.2$

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  $\mu\text{F}$  + 10  $\mu\text{F}$ ) between VCC and GND pin should be placed as close to the VCC 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.

## 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. *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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