

LOW-JITTER SAW OSCILLATOR (SPSO)

OUTPUT : LV-PECL, LVDS



Product Number
 XG-2121CA P: X1M000311xxxx00
 XG-2121CA L: X1M000351xxxx00
 XG-2102CA P: X1M000301xxxx00
 XG-2102CA L: X1M000341xxxx00

XG-2121CA
XG-2102CA

- Frequency range : 100 MHz to 700 MHz
 - Supply voltage : 2.5 V ... XG-2121CA
3.3 V ... XG-2102CA
 - Output : LV-PECL or LVDS
 - Function : Output enable (OE)
 - External dimensions : 7.0 × 5.0 × 1.2 mm
- Low jitter and low phase noise by SAW unit.



Specifications (characteristics)

| Item | Symbol | LV-PECL | | LVDS | | Conditions / Remarks |
|--------------------------------------|---------------------------------|--|----------------|------------------------------------|------------------------------------|--|
| | | XG-2121CA P | XG-2102CA P | XG-2121CA L | XG-2102CA L | |
| Output frequency range | f _o | 100 MHz to 700 MHz | | | | Please contact us about available frequencies. |
| Supply voltage | V _{cc} | 2.5 V ± 0.125 V | 3.3 V ± 0.33 V | 2.5 V ± 0.125 V | 3.3 V ± 0.33 V | |
| Storage temperature | T _{stg} | -55 °C to +125 °C | | | | Storage as single product. |
| Operating temperature | T _{use} | P: 0 °C to +70 °C, R: -5 °C to +85 °C, S: -20 °C to +70 °C | | | | |
| Frequency tolerance | f _{tol} | G: ± 50 × 10 ⁻⁶ , H: ± 100 × 10 ⁻⁶ | | | | |
| Current consumption | I _{cc} | 60 mA Max. | | 30 mA Max. | | OE=V _{cc} , L ECL=50 Ω or L LVDS=100 Ω |
| Disable current | I _{dis} | 2 mA Max. | | 15 mA Max. | | OE=GND |
| Symmetry | SYM | 45 % to 55 % | | | | At outputs crossing point |
| Output voltage (LV-PECL) | V _{OH} | 1.55 V Typ. | 2.35 V Typ. | - | | DC characteristics |
| | V _{OL} | V _{cc} -1.025 V to V _{cc} -0.88 V | | - | | |
| Output voltage (LVDS) | V _{OD} | - | | 350 mV Typ., 247 mV to 454 mV | | DC characteristics |
| | dV _{OD} | - | | 50 mV Max. | | |
| Output load condition (ECL) / (LVDS) | L ECL | 50 Ω | | - | | Terminated to V _{cc} -2.0 V |
| | L LVDS | - | | 100 Ω | | Connected between OUT to OUT |
| Input voltage | V _{IH} | 70 % V _{cc} Min. | | | | OE terminal |
| | V _{IL} | 30 % V _{cc} Max. | | | | |
| Rise time / Fall time | t _r / t _f | 400 ps Max. | | | | Between 20 % and 80 % of (V _{OH} -V _{OL}). Between 20 % and 80 % of Differential Output Peak to Peak voltage |
| Start-up time | t _{str} | 10 ms Max. | | | | Time at minimum supply voltage to be 0 s |
| Phase Jitter | t _{pj} | 0.23 ps Max. | | 0.27 ps Max. | | 100 MHz ≤ f _o < 150 MHz |
| | | 0.22 ps Max. | | 0.24 ps Max. | | 150 MHz ≤ f _o < 200 MHz |
| | | 0.21 ps Max. | | 0.23 ps Max. | | 200 MHz ≤ f _o < 300 MHz |
| | | 0.18 ps Max. | | 0.19 ps Max. | | 300 MHz ≤ f _o < 400 MHz |
| | | 0.16 ps Max. | | 0.16 ps Max. | | 400 MHz ≤ f _o < 500 MHz |
| | | 0.14 ps Max. | | 0.14 ps Max. | | 500 MHz ≤ f _o < 600 MHz |
| 0.10 ps Max. | | 0.10 ps Max. | | 600 MHz ≤ f _o ≤ 700 MHz | Offset frequency: 12 kHz to 20 MHz | |
| Frequency aging | f _{age} | ± 10 × 10 ⁻⁶ / year Max. | | | | +25 °C, First year, V _{cc} =2.5 V, 3.3 V |

Product Name **XG-2121CA 212.500000MHz P H P A** (⑤⑥⑦: GRA, GSA are not available)
 (Standard form) ① ② ③ ④⑤⑥⑦

- ① Model ② Package type ③ Frequency
- ④ Output (P:LV-PECL, L:LVDS)

⑤ Frequency tolerance ⑥ Operating temperature

⑦ Frequency aging (A*1: Frequency tolerance include aging, N*2: Frequency tolerance exclude aging)

| ⑤ Frequency tolerance | |
|-----------------------|--------------------------|
| G | ± 50 × 10 ⁻⁶ |
| H | ± 100 × 10 ⁻⁶ |

| ⑥ Operating temp. | |
|-------------------|------------------|
| P | 0 °C to +70 °C |
| R | -5 °C to +85 °C |
| S | -20 °C to +70 °C |

*1 This includes initial frequency tolerance, temperature variation, supply voltage change, reflow drift, and aging(+25 °C, 10 years).

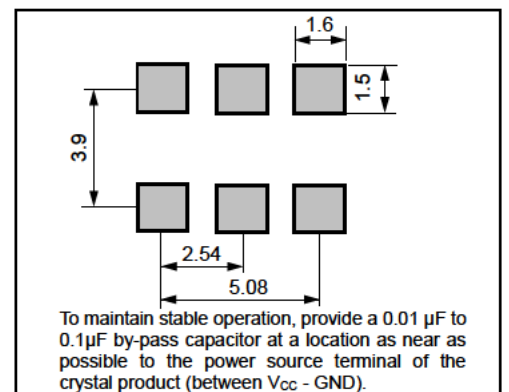
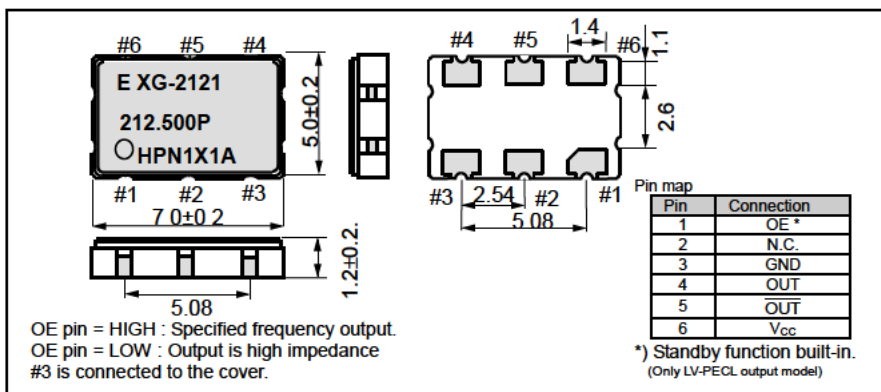
*2 This includes initial frequency tolerance, temperature variation, supply voltage change, and reflow drift (except aging).

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.

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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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