

CRYSTAL OSCILLATOR
LOW-JITTER SAW OSCILLATOR

XG-2121/2102CA

- Frequency range : 100 MHz to 700 MHz
- Supply voltage : 2.5 V ... XG-2121CA
3.3 V ... XG-2102CA
- Output : Differential 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.



Product Number (please contact us)
 XG-2121CA P: X1M000311xxxx00
 XG-2121CA L: X1M000351xxxx00
 XG-2102CA P: X1M000301xxxx00
 XG-2102CA L: X1M000341xxxx00



Actual size



Specifications (characteristics)

Item	Symbol	Differential 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 *1	T _{use}	P:0 °C to +70 °C ,R:-5 °C to +85 °C ,S:-20 °C to +70 °C				
Frequency tolerance *1	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 (Differential LV-PECL)	V _{OH}	1.55 V Typ.	2.35 V Typ.	-		DC characteristics
		V _{cc} -1.025 V to V _{cc} -0.88 V		-		
	V _{OL}	0.80 V Typ.	1.60 V Typ.	-		
Output voltage (LVDS)	V _{OD}	-		350 mV Typ., 247 mV to 454 mV	V _{OD1} , V _{OD2}	DC characteristics
	dV _{OD}	-		50 mV Max.	dV _{OD} = V _{OD1} -V _{OD2}	
	V _{OS}	-		1.25 V Typ., 1.125 V to 1.375 V	V _{OS1} , V _{OS2}	
	dV _{OS}	-		150 mV Max.	dV _{OS} = V _{OS1} -V _{OS2}	
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 *2	f _{aging}	± 10 × 10 ⁻⁶ / year Max.				+25 °C, First year, V _{cc} =2.5 V,3.3 V

*1 As per table below.
 *2 Except: ***A

Output Aging: A (include 10years aging at 25°C) or N (exclude aging)	P: Differential LV-PECL		L: LVDS		
	A*3	N*4	A*3	N*4	
Frequency tolerance and operating temperature	HP: ±100 × 10 ⁻⁶ , (0 to +70 °C)	PHPA	PHPN	LHPA	LHPN
	HR: ±100 × 10 ⁻⁶ , (-5 to +85 °C)	PHRA	PHRN	LHRA	LHRN
	HS: ±100 × 10 ⁻⁶ , (-20 to +70 °C)	PHSA	PHSN	LHSA	LHSN
	GP: ±50 × 10 ⁻⁶ , (0 to +70 °C)	PGPA	PGPN	LGPA	LGPN
	GR: ±50 × 10 ⁻⁶ , (-5 to +85 °C)	-	PGRN	-	LGRN
	GS: ±50 × 10 ⁻⁶ , (-20 to +70 °C)	-	PGSN	-	LGSN

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

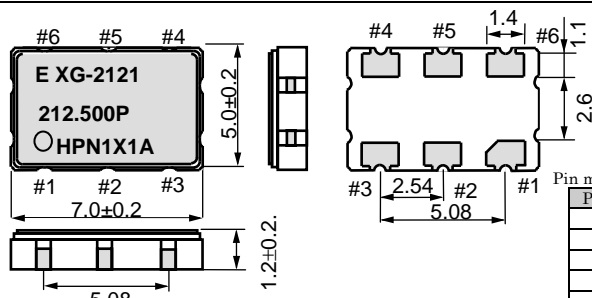
*4 This includes initial frequency tolerance, temperature variation, supply voltage variation, and reflow drift (except aging).

External dimensions

(Unit:mm)

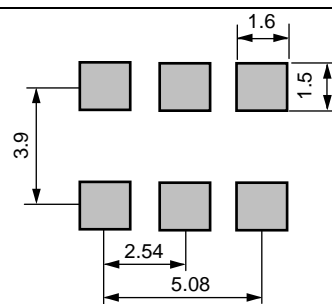
Footprint (Recommended)

(Unit:mm)



OE pin = HIGH : Specified frequency output.
 OE pin = LOW : Output is high impedance
 #3 is connected to the cover.

*) Standby function built-in.
 (Only Differential LV-PECL output model)



To maintain stable operation, provide a 0.01 μF to 0.1 μF 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.




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

	<p>► Pb free.</p>
	<p>► 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.)</p>
	<p>► The products have been designed for high reliability applications such as Automotive.</p>

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