

LOW-JITTER SAW OSCILLATOR (SPSO)

OUTPUT : LV-PECL, LVDS



Product Number
 EG-2121CB P: X1M000211xxxx00
 EG-2121CB L: X1M000231xxxx00
 EG-2102CB P: X1M000201xxxx00
 EG-2102CB L: X1M000221xxxx00

EG-2121CB
 EG-2102CB



- Frequency range : 100 MHz to 700 MHz
 - Supply voltage : 2.5 V ... EG-2121CB
3.3 V ... EG-2102CB
 - Output : LV-PECL or LVDS
 - Function : Output enable (OE)
 - External dimensions : 5.0 × 3.2 × 1.4 mm
- Low jitter and low phase noise by SAW unit.

Specifications (characteristics)

Item	Symbol	LV-PECL		LVDS		Conditions / Remarks	
		EG-2121CB P	EG-2102CB P	EG-2121CB L	EG-2102CB 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 ⁻⁸ , H: ±100 × 10 ⁻⁸					
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 _{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}		
	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 $\bar{O}UT$	
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	
Frequency aging	f _{age}	± 10 × 10 ⁻⁸ / year Max.				+25 °C, First year, V _{cc} =2.5 V, 3.3 V	

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

①Model ②Package type ③Frequency

④Output(P:LV-PECL, L:LVDS)

⑤Frequency tolerance ⑥Operating temperature

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

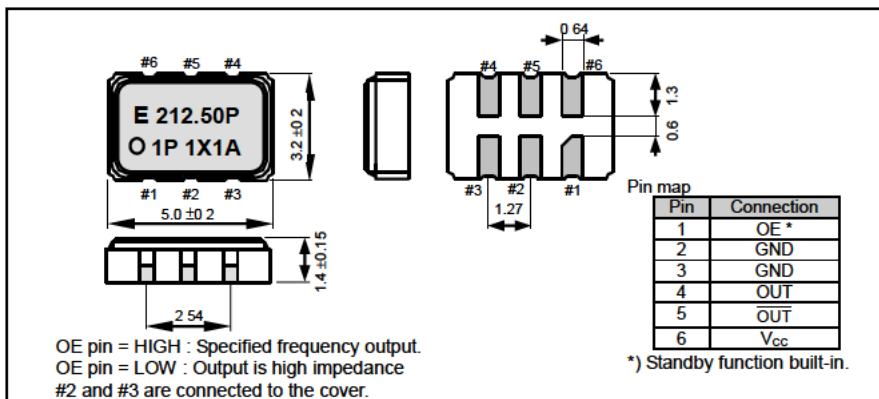
*1 This includes initial frequency tolerance, temperature variation, supply voltage change, reflow drift, and aging(+25 °C, 10 years).

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

⑤Frequency tolerance		⑥Operating temp.	
G	±50 × 10 ⁻⁸	P	0 °C to +70 °C
H	±100 × 10 ⁻⁸	R	-5 °C to +85 °C
		S	-20 °C to +70 °C

External dimensions

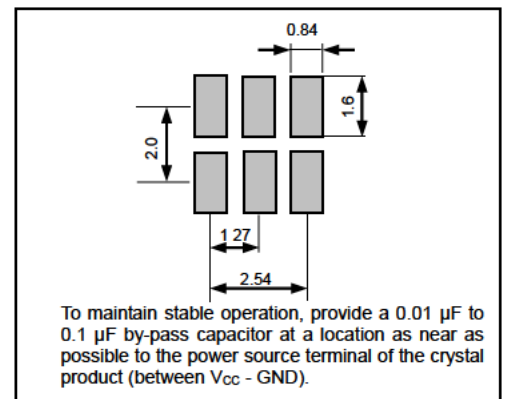
(Unit:mm)



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

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.

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	► 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.
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