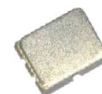


CRYSTAL OSCILLATOR (SPXO)
OUTPUT : LV-PECL, LVDS

Product Number
SG2520EGN: X1G005881xxxx15
SG2520VGN: X1G005901xxxx15

SG2520EGN

SG2520VGN



(2.5 × 2.0 × 0.74 mm)

- Frequency range : 25 MHz to 500 MHz
- Supply voltage : 1.8 V Typ. (LVDS only) / 2.5 V Typ. / 3.3 V Typ.
- Frequency tolerance : $\pm 25 \times 10^{-6}$, $\pm 30 \times 10^{-6}$, $\pm 50 \times 10^{-6}$
- Operating temperature : -40 °C to +85 °C, -40 °C to +105 °C
- Function : Output enable (OE) or Standby ($\overline{ST}$)
- Phase jitter : 50 fs Max. (fo = 491.52 MHz)

Specifications (characteristics)

Item	Symbol	Specifications			Conditions / Remarks	
		LV-PECL	LVDS			
		SG2520EGN	SG2520VGN			
Output frequency range	f _o	25 MHz to 500 MHz			Please contact us for available frequencies.	
Supply voltage	V _{CC}	C: 3.3 V ± 5 % D: 2.5 V ± 5 %		E: 1.8 V ± 5 %		
Storage temperature	T _{stg}	-55 °C to +125 °C				
Operating temperature	T _{use}	G: -40 °C to +85 °C, H: -40 °C to +105 °C				
Frequency tolerance	f _{tol}	D: ±25 × 10 ⁻⁶ Max. E: ±30 × 10 ⁻⁶ Max. J: ±50 × 10 ⁻⁶ Max.			Includes initial frequency tolerance, frequency / temperature characteristics, frequency / voltage coefficient and 10 years aging (+25 °C)	
Current consumption	I _{CC}	60 mA Max.	-		OE or $\overline{ST}$ = V _{CC} , L _{ECL} = 50 Ω	
		-	25 mA / 30 mA / 25 mA Max.	25 mA / - / 25 mA Max.	25 MHz ≤ f _o < 212 MHz	OE or $\overline{ST}$ = V _{CC} , Output option: A / B / C
			28 mA / 35 mA / 28 mA Max.	-	212 MHz ≤ f _o < 392 MHz	
			28 mA / 35 mA / 30 mA Max.	-	392 MHz ≤ f _o ≤ 500 MHz	
Disable current	I _{dis}	35 mA Max.	20 mA Max.		OE = GND	
Stand-by current	I _{std}	30 µA Max.			$\overline{ST}$ = GND, T _{use} Max. = +85 °C	
		60 µA Max.			$\overline{ST}$ = GND, T _{use} Max. = +105 °C	
Symmetry	SYM	45 % to 55 %			At output crossing point	
Output voltage (LV-PECL)	V _{OH}	V _{CC} - 1.1 V Min.	-		Output option: A, DC characteristic	
	V _{OL}	V _{CC} - 1.5 V Max.				
Differential swing	V _{SW}	0.8 V to 2.0 V	500 mV to 900 mV	500 mV to 900 mV	Output option: A	
		-	800 mV to 1 600 mV	-	Output option: B	
		-	600 mV to 1 200 mV	600 mV to 1 200 mV	Output option: C	
Output voltage (LVDS)	V _{OD}	-	250 mV to 450 mV	250 mV to 450 mV	Output option: A	Differential output voltage, V _{OD1} , V _{OD2}
		-	400 mV to 800 mV	-	Output option: B	
		-	300 mV to 600 mV	300 mV to 600 mV	Output option: C	
	dV _{OD}	-	50 mV Max.		dV _{OD} = V _{OD1} - V _{OD2}	
	V _{OS}	-	1.15 V to 1.35 V	0.65 V to 0.85 V	Offset voltage, V _{OS1} , V _{OS2}	
	dV _{OS}	-	50 mV Max.		dV _{OS} = V _{OS1} - V _{OS2}	
Output load condition	L _{ECL}	50 Ω	-		Terminated to V _{CC} - 2.0 V	
	L _{LVDS}	-	100 Ω		Connected between OUT and OUT	
Input voltage	V _{IH} V _{IL}	70 % V _{CC} Min. 30 % V _{CC} Max.			OE or $\overline{ST}$ terminal	
Rise/Fall times	tr/ta	0.35 ns Max.			LV-PECL: 20 % - 80 % (V _{OH} - V _{OL}) LVDS: 20 % - 80 % differential output peak to peak	
Start-up time	t _{str}	10 ms Max.			t = 0 at 90 % V _{CC}	
Phase jitter	tp _J	250 fs Max.	250 fs Max.	400 fs Max.	25 MHz ≤ f _o < 100 MHz	Offset frequency fo < 50 MHz: 12 kHz to 5 MHz fo ≥ 50 MHz: 12 kHz to 20 MHz
		90 fs Max.	100 fs Max.	130 fs Max.	100 MHz ≤ f _o ≤ 156 MHz	
		70 fs Max.	60 fs Max.	70 fs Max.	156 MHz < f _o ≤ 212 MHz	
		60 fs Max.	50 fs Max.	60 fs Max.	212 MHz < f _o ≤ 391 MHz	
		50 fs Max.	50 fs Max.	60 fs Max.	391 MHz < f _o ≤ 500 MHz	

Product Name **SG2520 EGN 156.250000MHz C D H P Z A**

(Standard form)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Model ② Output (E: LV-PECL, V: LVDS) ③ Frequency ④ Supply voltage ⑤ Frequency tolerance
⑥ Operating temperature ⑦ Function ⑧ Output disable type (Z: High impedance) ⑨ Output option

④ Supply voltage	
C 3.3 V Typ.	
D 2.5 V Typ.	
E* 1.8 V Typ.	

⑤ Freq. tolerance	
D $\pm 25 \times 10^{-6}$	
E $\pm 30 \times 10^{-6}$	
J $\pm 50 \times 10^{-6}$	

⑥ Operating temp.	
G -40 °C to +85 °C	
H -40 °C to +105 °C	

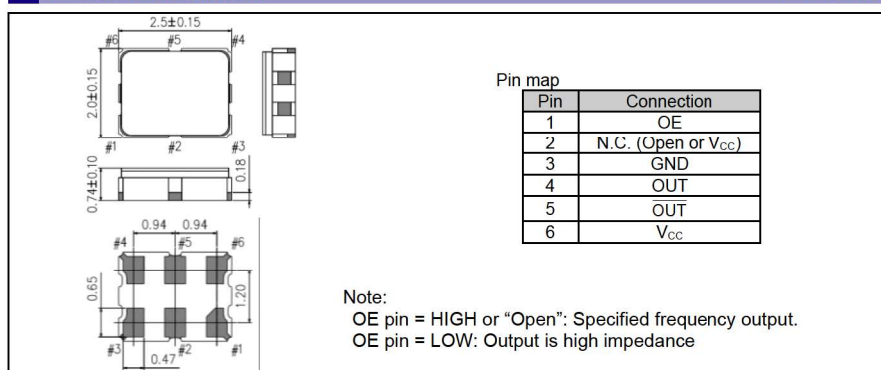
⑦ Function	
P OE	
S $\overline{ST}$	

⑨ Output option	
SG2520EGN	SG2520VGN
A Default	V _{SW} = 500 mV to 900 mV
B -	V _{SW} = 800 mV to 1 600 mV
C -	V _{SW} = 600 mV to 1 200 mV

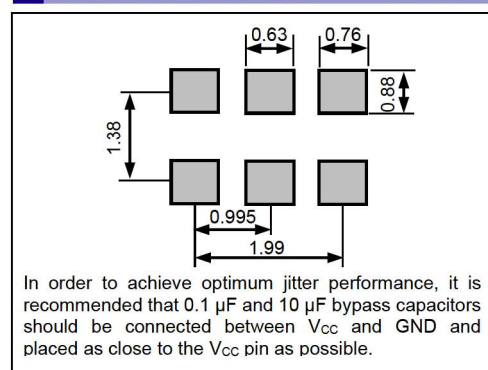
* "E" is only for SG2520VGN

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.

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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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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