

CRYSTAL OSCILLATOR (SPXO)

OUTPUT : LV-PECL, LVDS

SG2016EHN / VHN
SG2520EHN / VHN

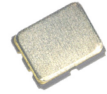


Product Number
SG2016EHN: X1G006141xxxx15
SG2016VHN: X1G006121xxxx15
SG2520EHN: X1G005921xxxx15
SG2520VHN: X1G005941xxxx15

- 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 : $\pm 20 \times 10^{-6}$
- Operating temperature range : -40 °C to +85 °C, -40 °C to +105 °C
- Function : Output enable (OE) or Standby (ST)
- Phase jitter : 50 fs Max.
(391 MHz < fo ≤ 500 MHz, Vcc = 2.5 V, 3.3 V)



SG2016EHN
SG2016VHN
(2.0 × 1.6 × 0.63 mm)



SG2520EHN
SG2520VHN
(2.5 × 2.0 × 0.74 mm)

Specifications (characteristics)

Item	Symbol	Specifications		Conditions / Remarks	
		LV-PECL SG2016EHN / SG2520EHN	LVDS SG2016VHN / SG2520VHN		
Output frequency range	fo	25 MHz to 500 MHz		Please contact us for available frequencies.	
Supply voltage	Vcc	C: 3.3 V ± 5 % D: 2.5 V ± 5 %	E: 1.8 V ± 5 %		
Storage temperature range	T_stg	-55 °C to +125 °C			
Operating temperature range	T_use	G: -40 °C to +85 °C, H: -40 °C to +105 °C			
Frequency tolerance	f_tol	C: $\pm 20 \times 10^{-6}$ Max.		Includes initial frequency tolerance, frequency / temperature characteristics, frequency / voltage coefficient and 10 years aging (+25 °C)	
Current consumption	Icc	60 mA Max.	-	OE or ST = Vcc, L ECL = 50 Ω	
		-	25 mA / 30 mA / 25 mA Max. 28 mA / 35 mA / 28 mA Max. 28 mA / 35 mA / 30 mA Max.	25 mA / - / 25 mA Max.	25 MHz ≤ fo < 212 MHz 212 MHz ≤ fo < 392 MHz 392 MHz ≤ fo ≤ 500 MHz Output option: A / B / C
Disable current	I_dis	35 mA Max.	20 mA Max.	OE = GND	
Stand-by current	I_std	30 μA Max.		ST = GND, T_use Max. = +85 °C	
		60 μA Max.		ST = GND, T_use Max. = +105 °C	
Symmetry	SYM	45 % to 55 %		At output crossing point	
Output voltage (LV-PECL)	VOH VOL	Vcc - 1.1 V Min.	-	Output option: A, DC characteristic	
		Vcc - 1.5 V Max.	-		
Differential swing	Vsw	0.8 V to 2.0 V	500 mV to 900 mV	500 mV to 900 mV	
		-	800 mV to 1 600 mV	-	
Output voltage (LVDS)	VOD	-	250 mV to 450 mV	250 mV to 450 mV	
		-	400 mV to 800 mV	-	
	-	300 mV to 600 mV	300 mV to 600 mV	Differential output voltage, VOD1, VOD2	
	dVOD	-	50 mV Max.	dVOD = VOD1 - VOD2	
	VOs	-	1.15 V to 1.35 V	0.65 V to 0.85 V	Offset voltage, VOS1, VOS2
	dVOS	-	50 mV Max.	dVOS = VOS1 - VOS2	
Output load condition	L ECL	50 Ω	-	Terminated to Vcc - 2.0 V	
	L LVDS	-	100 Ω	Connected between OUT and OUT	
Input voltage	VIH	70 % Vcc Min.		OE or ST terminal	
	VIL	30 % Vcc Max.			
Rise/Fall times	tr/tf	0.35 ns Max.		LV-PECL: 20 % - 80 % (VOH - VOL) LVDS: 20 % - 80 % differential output peak to peak	
Start-up time	t_str	10 ms Max.		t = 0 at 90 % Vcc	
Phase jitter	tpj	250 fs Max.	250 fs Max.	400 fs Max.	25 MHz ≤ fo < 100 MHz
		90 fs Max.	100 fs Max.	130 fs Max.	100 MHz ≤ fo ≤ 156 MHz
		70 fs Max.	60 fs Max.	70 fs Max.	156 MHz < fo ≤ 212 MHz
		60 fs Max.	-	-	212 MHz < fo ≤ 391 MHz
		50 fs Max.	50 fs Max.	60 fs Max.	391 MHz < fo ≤ 500 MHz

Product Name SG2016 EHN 156.250000MHz C C H P Z A

(Standard form) ① ② ③ ④⑤⑥⑦⑧⑨

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

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

⑤Freq. tolerance	
C	$\pm 20 \times 10^{-6}$

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

⑦Function	
P	OE
S	ST

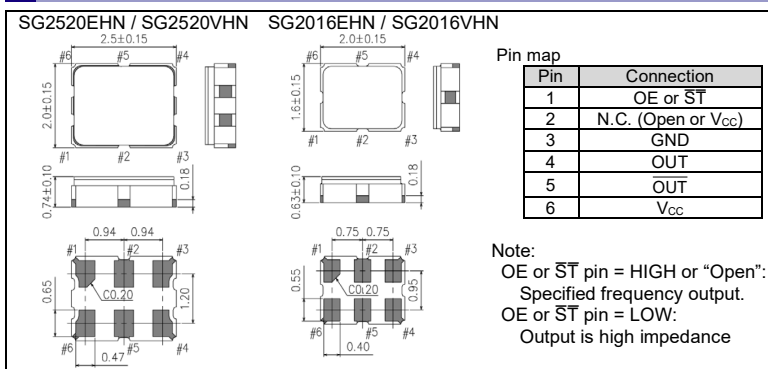
⑨Output option		
	SG2016EHN / SG2520EHN	SG2016VHN / SG2520VHN
A	Default	VOD = 250 mV to 450 mV
B*	-	VOD = 400 mV to 800 mV
C	-	VOD = 300 mV to 600 mV

E is only for SG2016VHN and SG2520VHN

*Not available for Vcc = 1.8 V Typ.

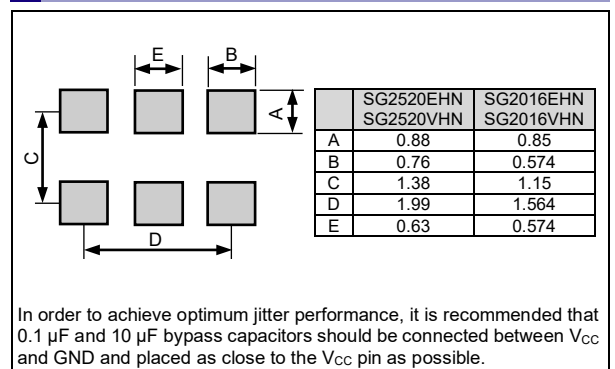
External dimensions

(Unit:mm)







Footprint (Recommended)

(Unit:mm)



► 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>► Designed for automotive general equipment.</p>
	<p>► Designed for automotive applications related to driving and safety.</p>

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