LOW-JITTER SAW OSCILLATOR (SPSO)
OUTPUT : HCSL

Pb Free RoHS Compliant

Product Number
X1M000461xxxx00

XG5032HAN

- Frequency range : 100 MHz to 200 MHz
- Supply voltage : 2.5 V, 3.3 V
- Output : HCSL
- 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	Specifica ions	Conditions / Remarks
Output frequency range	fo	100 MHz to 200 MHz	Please contact us for inquiries regarding available frequencies.
Supply voltage	V_{CC}	C:3.3 V ± 0.33 V, D:2.5 V ±0.125 V	
Storage temperature	T_stg	-55 C to +125 C	Store as bare product.
Operating temperature	T_use	A: 0 C to +70 C, B: -20 C to +70 C, D: -5 C to +85 C	
Frequency tolerance	f_tol	J: ± 50 × 10^{-6}, L: ±100 × 10^{-6}	
Current consumption	I_{CC}	35 mA Max.	OE= V_{CC}, with output load
Disable current	I_dis	15 mA Max.	OE=GND
Symmetry	SYM	45 % to 55 %	At outputs crossing point
Output voltage	V_{OH}	0.75 V Typ., 0.66 V to 0.85 V	DC characteristics, single output
	V_{OL}	0 V Typ., -0.15 V to 0.15 V	
Crossing voltage	V_{CR}	0.25 V to 0.55 V	
Output load condition	L_HCSL	50 Ω	As per measurement circuit below.
	R_S	33 Ω	
	C_L	2 pF	
Input voltage	V_{IH}	70 % V_{CC} Min.	OE terminal
	V_{IL}	30 % V_{CC} Max.	
differential output rise slew rate/ fall slew rate	Rr / Rf	1 V/n to 4 V/ns	Between -0.15 V and 0.15 V of differential output
Start-up time	t_str	10 ms Max.	Time at minimum supply voltage to be 0 s
Phase Jitter	t_{PJ}	0.3 ps Max.	fo ≤ 160 MHz; Offset frequency: 12 kHz to 20 MHz
		0.4 ps Max.	160 MHz < fo ≤ 175 MHz; Offset frequency: 12 kHz to 20 MHz
		0.2 ps Max.	fo > 175 MHz; Offset frequency: 12 kHz to 20 MHz
Frequency aging	f_age	N:± 10 × 10^{-6} / year Max.	First year; +25 C, V_{CC} =2 5 V, 3.3 V
		A: Included in Frequency tolerance	10 years; +25 C, V_{CC} =2 5 V, 3.3 V

Product Name (Standard form)

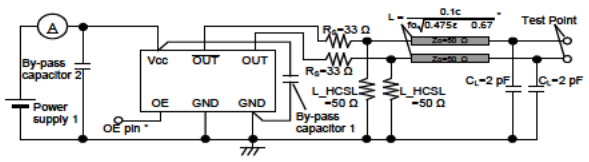
XG5032 HAN 100.000000MHz C J A A (⑤⑥⑦:JBA,JDA are not available)
① ② ③ ④⑤⑥⑦

①Model ②Output(H: HCSL) ③Frequency
④Supply voltage (C: 3.3 V Typ., D: 2.5 V Typ.) ⑤Frequency tolerance ⑥Operating temperature
⑦Frequency aging (A: Frequency tolerance include aging, N: Frequency tolerance exclude aging)

⑤Frequency tolerance	
J	±50 × 10^{-6}
L	±100 × 10^{-6}

⑥Operating temp.	
A	0 °C to +70 °C
B	-20 °C to +70 °C
D	-5 °C to +85 °C

Measurement circuit

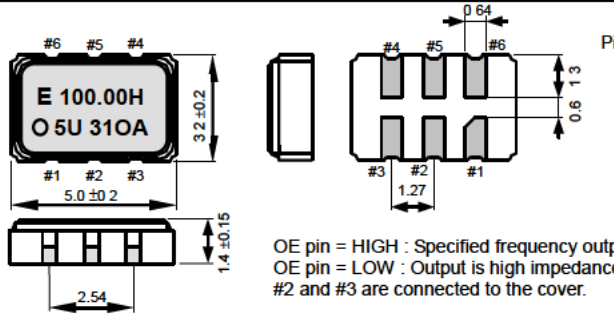


By-pass capacitor 1 (approx. 0.01µF to 0.1 µF) places closely between V_{CC} and GND.
By-pass capacitor 2 (approx. 10 µF) places closely between power supply terminals on the board.
Output line length L is estimated as follows

$$L = \frac{0.1c}{fo\sqrt{0.475\varepsilon_r + 0.67}}$$

c : Velocity of light in a vacuum
ε_r : Relative dielectric constant of the board
fo : Output frequency

External dimensions (Unit:mm)

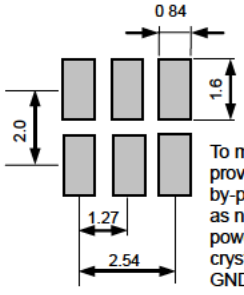


Pin map

Pin	Connection
1	OE
2	GND
3	GND
4	OUT
5	$\overline{OUT}$
6	V_{CC}

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)



To maintain stable operation, provide a 0.01 µF to 0.1 µF by-pass capacitor at a loca ion as near as possible to he power source terminal of the crystal product (between V_{CC} - GND).