

CRYSTAL OSCILLATOR (SPXO)
OUTPUT : CMOS

SG-210S*B

- Frequency range : 2 MHz to 60 MHz
- Supply voltage : 1.5 V Typ. / 1.8 V Typ. / 2.5 V Typ. / 3.3 V Typ.
- Current consumption : 0.9 mA Typ.
(SEB: 1.8 V No load condition 48 MHz)
- Function : Standby(\overline{ST})
- External dimensions : 2.5 × 2.0 × 0.8 mm
- Operation temperature : +105 °C / +125 °C



Product Number (please contact us)
Q33210Bx0xxxx00



Actual size

Specifications (characteristics)

Item	Symbol	SG-210SGB	SG-210SEB	SG-210SDB	SG-210SCB	Conditions / Remarks
Output frequency range	f ₀	2 MHz to 32 MHz	2 MHz to 60 MHz			
Supply voltage	V _{CC}	1.5 V Typ. 1.3 V to 1.7 V	1.8 V Typ. 1.6 V to 2.2 V	2.5 V Typ. 2.2 V to 3.0 V	3.3 V Typ. 2.7 V to 3.6 V	
Storage temperature	T _{stg}	-40 °C to +125 °C				Storage as single product.
Operating temperature	T _{use}	-40 °C to +85 °C / -40 °C to +105 °C / -40 °C to +125 °C				
Frequency tolerance	f _{tol}	F: ±20 × 10 ⁻⁶				-10 °C to +60 °C, f ₀ ≤ 32 MHz, V _{CC} ±10%, except reflow drift.
		B: ±50 × 10 ⁻⁶ , C: ±100 × 10 ⁻⁶				-20 °C to +70 °C
		L: ±50 × 10 ⁻⁶ , M: ±100 × 10 ⁻⁶				-40 °C to +85 °C
		Y: ±50 × 10 ⁻⁶ , W: ±100 × 10 ⁻⁶				-40 °C to +105 °C
Current consumption	I _{CC}	1.0 mA Max.	1.6 mA Max.	2.4 mA Max.	3.0 mA Max.	No load condition
		-	2.0 mA Max.	3.0 mA Max.	4.0 mA Max.	No load condition +105 °C, +125 °C
Stand-by current	I _{std}	0.3 µA Max.	0.5 µA Max.	1.0 µA Max.	1.0 µA Max.	\overline{ST} = GND
		-	1.6 µA Max.	2.4 µA Max.	3.0 µA Max.	\overline{ST} = GND +105 °C, +125 °C
Symmetry	SYM	45 % to 55 % 40 % to 60 %	45 % to 55 %	45 % to 55 %	45 % to 55 %	2 MHz ≤ f ₀ ≤ 16 MHz 16 MHz < f ₀ ≤ 32 MHz 32 MHz < f ₀ ≤ 60 MHz +105 °C, +125 °C
		-	40 % to 60 %	40 % to 60 %	40 % to 60 %	50 % V _{CC} level L _{CMOS} ≤ 15 pF
		-	40 % to 60 %			
		-	40 % to 60 %			
Output voltage	V _{OH}	90 % V _{CC} Min.				I _{OH} = -1 mA
	V _{OL}	10 % V _{CC} Max.				I _{OL} = 1 mA
Output load condition(CMOS)	L _{CMOS}	15 pF Max.				
Input voltage	V _{IH}	80 % V _{CC} Min.				\overline{ST} terminal
	V _{IL}	20 % V _{CC} Max.				
Rise time and Fall time	tr/ tf	5 ns Max.	4 ns Max.	3 ns Max.		+85 °C
		-	7 ns Max.			+105 °C, +125 °C
Start-up time	t _{str}	3 ms Max.				t=0 at 90 % V _{CC} (+105 °C, +125 °C : 5 ms Max.)
Frequency aging	f _{aging}	±3 × 10 ⁻⁶ / year Max.				+25 °C, First year, V _{CC} =1.5 V, 1.8 V, 2.5 V, 3.3 V

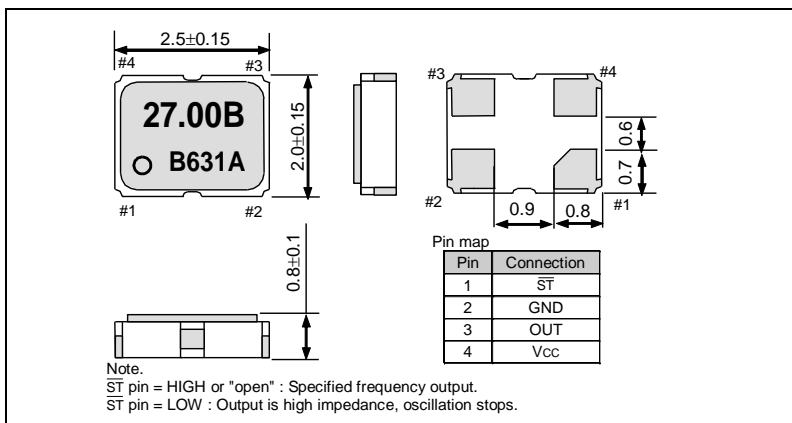
Product Name (Standard form) **SG-210 S G B 27.000000MHz L**
 ① Model ② Function (S: Standby)
 ③ Supply voltage ④ Frequency
 ⑤ Frequency tolerance

③ Supply voltage	
G	1.5 V Typ.
E	1.8 V Typ.
D	2.5 V Typ.
C	3.3 V Typ.

⑤ Frequency tolerance		*Except for SGB
F	±20 × 10 ⁻⁶	-10 to +60 °C (f ₀ ≤ 32 MHz)
B	±50 × 10 ⁻⁶	-20 to +70 °C
C	±100 × 10 ⁻⁶	-20 to +70 °C
L	±50 × 10 ⁻⁶	-40 to +85 °C
M	±100 × 10 ⁻⁶	-40 to +85 °C
Y*	±50 × 10 ⁻⁶	-40 to +105 °C
W*	±100 × 10 ⁻⁶	-40 to +105 °C
Z*	±100 × 10 ⁻⁶	-40 to +125 °C
X*	±150 × 10 ⁻⁶	-40 to +125 °C

External dimensions

(Unit:mm)



Footprint (Recommended)

(Unit:mm)

