



CRYSTAL OSCILLATOR

SPXO

SG-210 S*B

- Frequency range : 2 MHz to 60 MHz
- Supply voltage : 1.5 V / 1.8 V / 2.5 V / 3.3 V
- 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

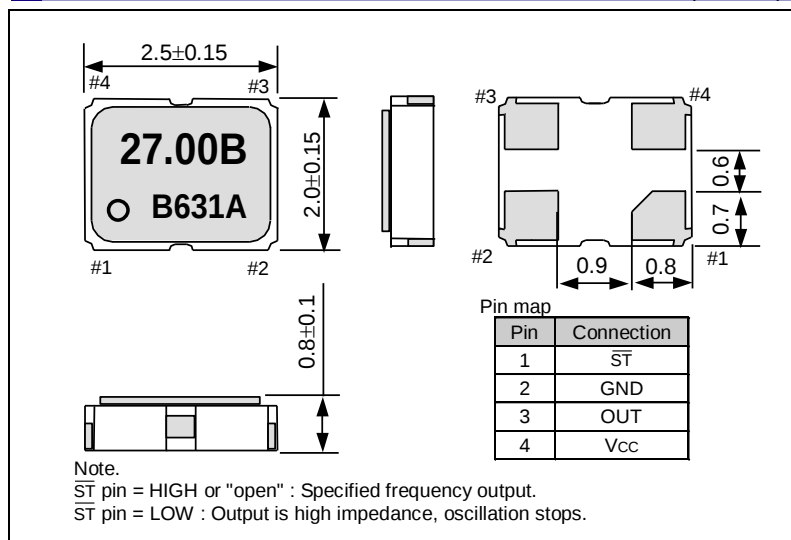


Specifications (characteristics)

Item	Symbol	Specifications				Conditions / Remarks	
		SG-210SGB	SG-210SEB	SG-210SDB	SG-210SCB		
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				Store as bare 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	
		—	Z: ±100 × 10 ⁻⁶ , X: ±150 × 10 ⁻⁶			-40 °C to +125 °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.	ST = GND	
		—	1.6 µA Max.	2.4 µA Max.	3.0 µA Max.	ST = GND +105 °C, +125 °C	
Symmetry	SYM	45 % to 55 %	45 % to 55 %	45 % to 55 %	45 % to 55 %	2 MHz ≤ f ₀ ≤ 16 MHz	50 % V _{cc} level L _{CMOS} ≤ 15 pF
		40 % to 60 %				16 MHz < f ₀ ≤ 32 MHz	
		—	40 % to 60 %	40 % to 60 %	32 MHz < f ₀ ≤ 60 MHz		
		—	40 % to 60 %		+105 °C, +125 °C		
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.				ST terminal	
	V _{IL}	20 % V _{cc} Max.					
Rise time and Fall time	t _r / t _f	5 ns Max.	4 ns Max.	3 ns Max.		+85 °C	20 % V _{cc} to 80 % V _{cc}
		—	7 ns Max			+105 °C, +125 °C	level, L _{CMOS} = 15 pF
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	

External dimensions

(Unit:mm)



Footprint (Recommended)

(Unit:mm)

