



CRYSTAL OSCILLATOR

SPXO

SG-210S*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

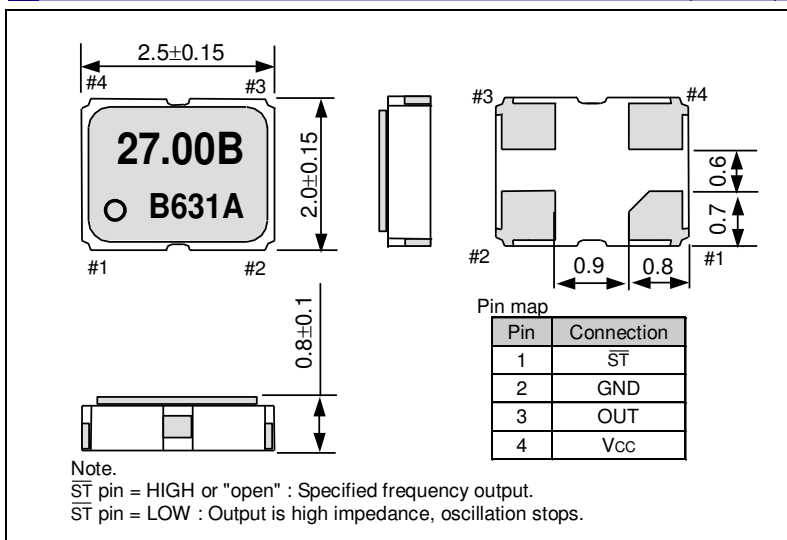


Specifications (characteristics)

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: $\pm 20 \times 10^{-6}$				-10 °C to +60 °C, $f_0 \leq 32$ MHz, $V_{CC} \pm 10\%$, except reflow drift.	
		B: $\pm 50 \times 10^{-6}$, C: $\pm 100 \times 10^{-6}$				-20 °C to +70 °C	
		L: $\pm 50 \times 10^{-6}$, M: $\pm 100 \times 10^{-6}$				-40 °C to +85 °C	
		Y: $\pm 50 \times 10^{-6}$, W: $\pm 100 \times 10^{-6}$				-40 °C to +105 °C	
		Z: $\pm 100 \times 10^{-6}$, X: $\pm 150 \times 10^{-6}$				-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 μ A Max.	0.5 μ A Max.	1.0 μ A Max.	1.0 μ A Max.	\overline{ST} = GND	
		-	1.6 μ A Max.	2.4 μ A Max.	3.0 μ A Max.	\overline{ST} = GND +105 °C, +125 °C	
Symmetry	SYM	45 % to 55 %	45 % to 55 %	45 % to 55 %	45 % to 55 %	2 MHz $< f_0 \leq 16$ MHz	50 % V_{CC} level $L_{CMOS} \leq 15$ pF
		40 % to 60 %				16 MHz $< f_0 \leq 32$ MHz	
		-	40 % to 60 %	40 % to 60 %	32 MHz $< f_0 \leq 60$ 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.				\overline{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} level, $L_{CMOS} = 15$ pF
	-	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}	$\pm 3 \times 10^{-6}$ / 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)

