



CRYSTAL OSCILLATOR SPXO

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 t (mm) Typ.
- Operation temperature : +105 °C / +125 °C



Product Number (please contact us)
Q33210Bxxxx00



Actual size

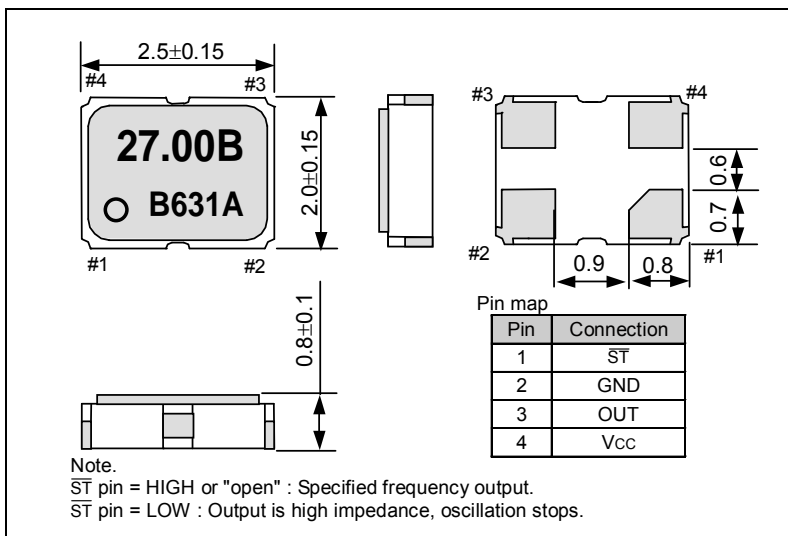


Specifications (characteristics)

| Item | Symbol | Specifications | | | | 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 | | |
| Temperature range | Storage temperature | T_{stg} -40 °C to +125 °C | | | | Store as bare product after unpacking | |
| | 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 | |
| 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 ≤ 16 MHz | 50 % V_{CC} level $L_{CMOS} \leq 15$ pF |
| | | 40 % to 60 % | | | | 32 MHz < f_0 ≤ 32 MHz | |
| | | - | 40 % to 60 % | 40 % to 60 % | 32 MHz < f_0 ≤ 60 MHz | | |
| | | - | 40 % to 60 % | 40 % to 60 % | +105 °C, +125 °C | | |
| High output voltage | V_{OH} | 90 % V_{CC} Min. | | | | $I_{OH} = -1$ mA | |
| Low output voltage | V_{OL} | 10 % V_{CC} Max. | | | | $I_{OL} = 1$ mA | |
| Output load condition (CMOS) | L_{CMOS} | 15 pF Max. | | | | | |
| Output enable / disable 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)

