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CRYSTAL OSCILLATOR (SPXO)

OUTPUT : CMOS

SG - 211 S*E

- Frequency range : 2.375 MHz to 60.000 MHz
- Supply voltage : 1.8 V Typ. / 2.5 V Typ. / 3.3 V Typ.
- Current consumption : 1.2 mA Typ. (SEE: 1.8 V No load condition 40 MHz)
- Function : Standby($\overline{ST}$)
- External dimensions : 2.5 × 2.0 × 0.7 mm

Pb Free RoHS Compliant

Product Number (please contact us)
X1G0036x1xxxx00

Actual size

Specifications (characteristics)

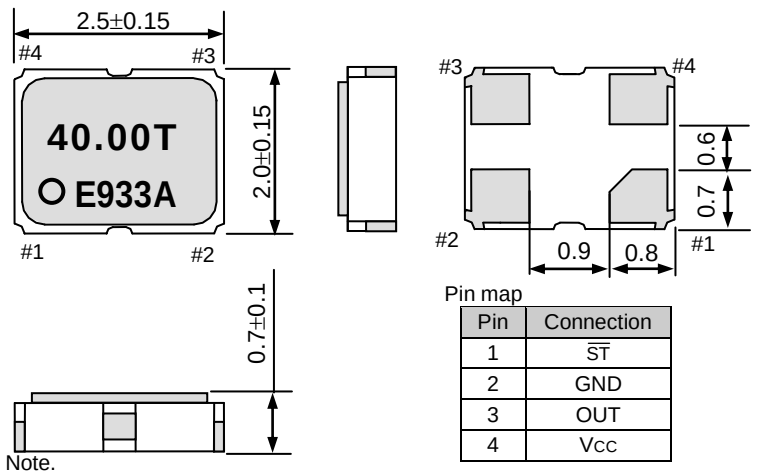
Item	Symbol	Specifications SG-211SEE	SG-211SDE	SG-211SCE	Conditions / Remarks	
Output frequency range	f_0	2.375 MHz to 60.000 MHz			Please contact us about available frequencies.	
Supply voltage	V_{CC}	1.8 V Typ. 1.6 V to 2.2 V	2.5 V Typ. 2.2 V to 2.7 V	3.3 V Typ. 2.7 V to 3.6 V		
Storage temperature	T_stg	-40 °C to +125 °C			Storage as single product.	
Operating temperature	T_use	-40 °C to +90 °C				
Frequency tolerance	f_tol	D: ±20 × 10^{-6}, E: ±15 × 10^{-6}			-20 °C to +70 °C	V_{CC} ±10% included in reflow drift
		H: ±20 × 10^{-6}, T: ±15 × 10^{-6}			-40 °C to +85 °C	
		a: ±15 × 10^{-6}, b: ±20 × 10^{-6},d: ±25 × 10^{-6}			-40 °C to +90 °C	
Current consumption	I_{CC}	2.3 mA Max.	2.5 mA Max.	3.5 mA Max.	No load condition,2.375 MHz≤f_0≤32 MHz	
		2.8 mA Max.	3.0 mA Max.	4.0 mA Max.	No load condition,32 MHz<f_0≤40 MHz	
		3.3 mA Max.	3.5 mA Max.	4.5 mA Max.	No load condition,40 MHz<f_0≤48 MHz	
		4.5 mA Max.	5.0 mA Max.	6.0 mA Max.	No load condition,48 MHz<f_0≤60 MHz	
Stand-by current	I_std	5.0 µA Max.			$\overline{ST}$ =GND	
Symmetry	SYM	45 % to 55 %			50 % V_{CC} level,L_CMOS ≤ 15 pF	
Output voltage	V_{OH}	90 % V_{CC} Min.			I_{OH}=-4 mA	
	V_{OL}	10 % V_{CC} Max.			I_{OL}= 4 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 / Fall time	t_r/ t_f	4.5 ns Max.			20 % V_{CC} to 80 % V_{CC} level,L_CMOS=15 pF	
Start-up time	t_str	5 ms Max.			t=0 at 90 % V_{CC}	
Frequency aging	f_aging	This is included in frequency tolerance specification.			+25 °C, First year, V_{CC}= 1.8 V, 2.5 V, 3.3 V	

Product Name (Standard form)
SG-211 S E E 40.000000MHz D
① ②③ ④ ⑤
①Model ②Function (S:Standby) ③Supply voltage
④Frequency ⑤Frequency tolerance

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

⑤Frequency tolerance	
D	±20 × 10^{-6} / -20 to +70°C
E	±15 × 10^{-6} / -20 to +70°C
H	±20 × 10^{-6} / -40 to +85°C
T	±15 × 10^{-6} / -40 to +85°C
a	±15 × 10^{-6} / -40 to +90°C
b	±20 × 10^{-6} / -40 to +90°C
d	±25 × 10^{-6} / -40 to +90°C

External dimensions (Unit:mm)

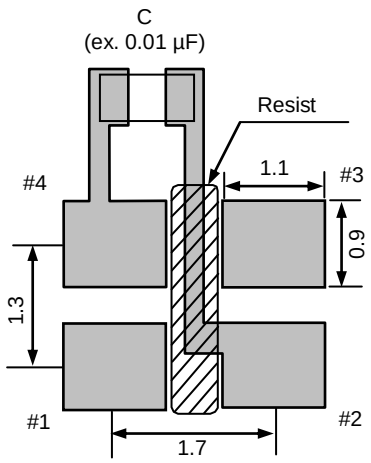


Pin map

Pin	Connection
1	$\overline{ST}$
2	GND
3	OUT
4	V_{CC}

Note.
$\overline{ST}$ pin = HIGH : Specified frequency output.
$\overline{ST}$ pin = LOW : Output is high impedance, oscillation stops.

Footprint (Recommended) (Unit:mm)



To maintain stable operation, provide a 0.01uF to 0.1uF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between Vcc - GND).