CRYSTAL OSCILLATOR (SPXO)

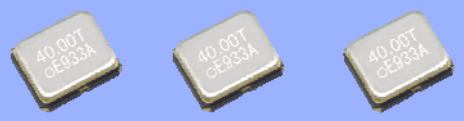
OUTPUT : CMOS

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)

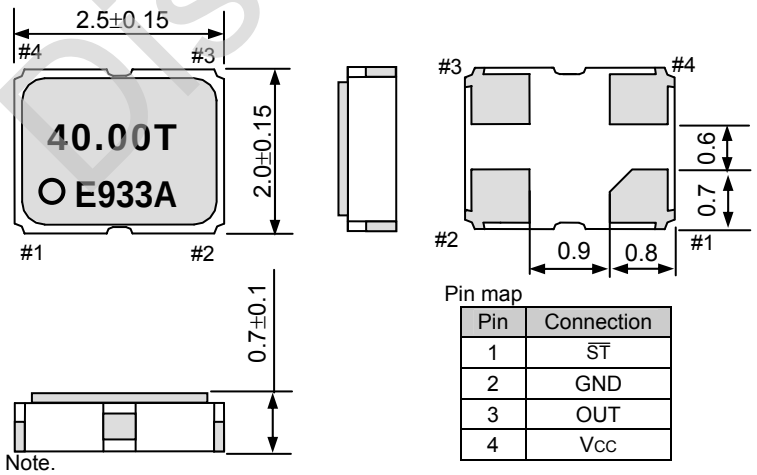
Item	Symbol	Specifications SG-211SEE	SG-211SDE	SG-211SCE	Conditions / Remarks	
Output frequency range	f0	2.375 MHz to 60.000 MHz			Please contact us about available frequencies.	
Supply voltage	Vcc	1.8 V Typ. 1.6 V to 2.2 V	2.5 V Typ. 2.2 V to 2.7 V	3.3 V Typ. 2.7 V to 3.6 V		
Storage temperature	T_stg	-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	Vcc ±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	Icc	2.3 mA Max.	2.5 mA Max.	3.5 mA Max.	No load condition,2.375 MHz≤f0≤32 MHz	
		2.8 mA Max.	3.0 mA Max.	4.0 mA Max.	No load condition,32 MHz<f0≤40 MHz	
		3.3 mA Max.	3.5 mA Max.	4.5 mA Max.	No load condition,40 MHz<f0≤48 MHz	
		4.5 mA Max.	5.0 mA Max.	6.0 mA Max.	No load condition,48 MHz<f0≤60 MHz	
Stand-by current	I_std	5.0 µA Max.			$\overline{ST}$ =GND	
Symmetry	SYM	45 % to 55 %			50 % Vcc level,L_CMOS ≤ 15 pF	
Output voltage	VOH	90 % Vcc Min.			IOH=-4 mA	
	VOL	10 % Vcc Max.			IOL= 4 mA	
Output load condition (CMOS)	L_CMOS	15 pF Max.				
Input voltage	VIH	80 % Vcc Min.			$\overline{ST}$ terminal	
	VIL	20 % Vcc Max.				
Rise time / Fall time	tr/ tf	4.5 ns Max.			20 % Vcc to 80 % Vcc level,L_CMOS=15 pF	
Start-up time	t_str	5 ms Max.			t=0 at 90 % Vcc	
Frequency aging	f_aging	This is included in frequency tolerance specification.			+25 °C, First year, Vcc= 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)

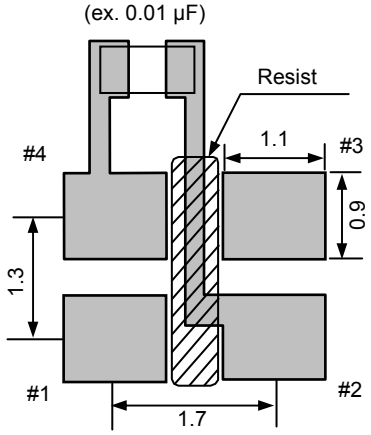


Pin map

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

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).

Discontinued product

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

►Explanation of the mark that are using it for the catalog

Pb Free	►Pb free.
RoHS Compliant	►Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
For Automotive	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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Discontinued product