

CRYSTAL OSCILLATOR (SPXO)

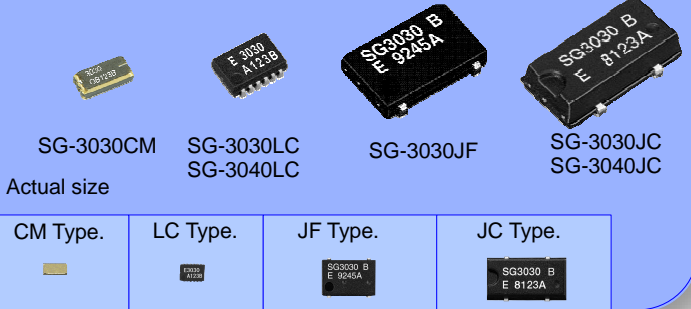
32.768 kHz

SG-3030CM/LC/JF/JC  
SG-3040LC/JC

- Built-in 32.768 kHz crystal unit allows adjustment-free efficient operation.
- Use of C-MOS IC enables reduction of current consumption.
- Vio controls swing amplitude.



Product Number (please contact us)  
 SG-3030CM : X1B000211xxxx00  
 SG-3030LC : Q3102LC02000100  
 SG-3030JF : Q3102JF02000100  
 SG-3030JC : Q3102JC02000100  
 SG-3040LC : Q3103LC02000100  
 SG-3040JC : Q3103JC01000100



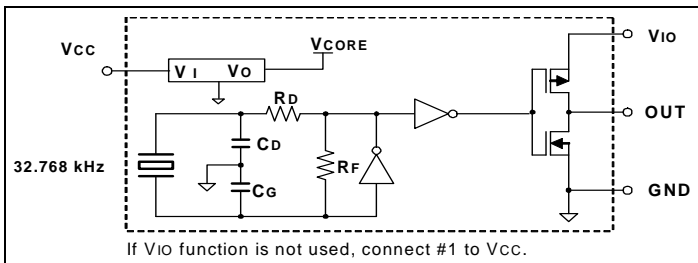
CM Type.	LC Type.	JF Type.	JC Type.

Specifications (characteristics)

Item	Symbol	Specifications		Conditions / Remarks
		SG-3030CM/LC/JF/JC	SG-3040LC/JC	
Output frequency range	f <sub>o</sub>	32.768 kHz		
Supply voltage	V <sub>cc</sub>	1.5 V to 5.5 V	0.9 V to 3.6 V	
Interface power supply voltage	V <sub>io</sub>	1.5 V to 5.5 V	0.9 V to 3.6 V	
Storage temperature	T <sub>stg</sub>	-55 °C to +125 °C		Storage as single product
Operating temperature	T <sub>use</sub>	-40 °C to +85 °C		
Frequency tolerance	f <sub>tol</sub>	5 ±23 × 10 <sup>-6</sup>		+25 °C, V <sub>cc</sub> =3.3 V (SG-3040: V <sub>cc</sub> =1.2 V)
Frequency temperature coefficient	f <sub>o</sub> -T <sub>c</sub>	+10 × 10 <sup>-6</sup> / -120 × 10 <sup>-6</sup>		-20 °C to +70 °C (+25 °C is reference)
Frequency / voltage coefficient	f <sub>o</sub> -V <sub>cc</sub>	±2 × 10 <sup>-6</sup> / V Max.	±5 × 10 <sup>-6</sup> / V Max.	+25 °C
Current consumption	I <sub>cc</sub>	2 μA Max.	3.1 μA Max.	3.3 V, No load condition
Symmetry	SYM	45 % to 55 %		1/2 V <sub>cc</sub> (V <sub>io</sub> )level (SG-3040: V <sub>io</sub> =1.2 V to 3.6 V)
Output voltage	V <sub>OH</sub>	V <sub>io</sub> -0.4 V Min.		I <sub>OH</sub> =0.4 mA (SG-3040: V <sub>io</sub> =1.2 V to 3.6 V)
	V <sub>OL</sub>	0.4 V Max.		I <sub>OL</sub> = 0.4 mA (SG-3040: V <sub>io</sub> =1.2 V to 3.6 V)
Output load condition (CMOS)	L <sub>CMOS</sub>	15 pF Max.		CMOS load
Rise time / Fall time	t <sub>r</sub> / t <sub>f</sub>	200 ns Max.	100 ns Max.	CMOS load:20 % V <sub>cc</sub> (V <sub>io</sub> ) to 80 % V <sub>cc</sub> (V <sub>io</sub> )level (SG-3040: V <sub>io</sub> =1.2 V to 3.6 V)
Start-up time	t <sub>str</sub>	1 s Max.	3 s Max.	Time at minimum Supply voltage to be 0 s +25 °C (SG-3030: V <sub>cc</sub> = 2.0 V to 5.5 V)
Frequency aging	f <sub>aging</sub>	±5 × 10 <sup>-6</sup> / year Max.		+25 °C, V <sub>cc</sub> = 3.3 V, First year

Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

Block diagram



Product name  
(Standard form)

SG-3030 LC 32.768000kHz B

① Model ② Package type ③ Frequency

④ Frequency tolerance (B: 5±23×10<sup>-6</sup>, +25 °C)

External dimension and Footprint (Recommended)

(Unit:mm)

\*Stop using the glue  
Any glue must never use it after soldering LC-package to a circuit board. This product has glass on the back side of a package. When glue invasions between circuit board side and glass side, then glass cracks by thermal expansion of glue. In this case a crystal oscillation stops. Consider glue abolition or glue do not touch to LC-package

● SG-3030LC/3040LC

Pin map

Pin	Connection	Pin	Connection
1	Vio	12	Vcc
2	N.C.	11	N.C.
3	N.C.	10	N.C.
4	N.C.	9	N.C.
5	N.C.	8	N.C.
6	GND	7	OUT

● SG-3030JF

Pin map

Pin	Connection
1	Vio
2	GND
3	OUT
4	Vcc

● SG-3030JC/3040JC

Pin map

Pin	Connection
1	Vio
2	GND
3	OUT
4	Vcc

● SG-3030CM

Pin map

Pin	Connection
1	Vio
2	GND
3	OUT
4	Vcc

● SG-3030CM

● SG-3030LC/3040LC

● SG-3030JF

● SG-3030JC/3040JC

To maintain stable operation, provide a 0.01μF to 0.1μF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between V<sub>cc</sub> - GND).

## 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.
	► 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.)
	► Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
	► Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc.)

## Notice

- This material is subject to change without notice.
- Any part of this material may not be reproduced or duplicated in any form or any means without the written permission of Seiko Epson.
- The information about applied circuitry, software, usage, etc. written in this material is intended for reference only. Seiko Epson does not assume any liability for the occurrence of infringing on any patent or copyright of a third party. This material does not authorize the licensing for any patent or intellectual copyrights.
- When exporting the products or technology described in this material, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
- You are requested not to use the products (and any technical information furnished, if any) for the development and/or manufacture of weapon of mass destruction or for other military purposes. You are also requested that you would not make the products available to any third party who may use the products for such prohibited purposes.
- These products are intended for general use in electronic equipment. When using them in specific applications that require extremely high reliability, such as the applications stated below, you must obtain permission from Seiko Epson in advance.  
/ Space equipment (artificial satellites, rockets, etc.) / Transportation vehicles and related (automobiles, aircraft, trains, vessels, etc.) / Medical instruments to sustain life / Submarine transmitters / Power stations and related / Fire work equipment and security equipment / traffic control equipment / and others requiring equivalent reliability.
- All brands or product names mentioned herein are trademarks and/or registered trademarks of their respective.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Epson:

[SG-3030JC 32.7680KB3:ROHS](#) [SG-3030LC 32.7680KB0, PURE SN](#) [SG-3030LC 32.7680KB3, PURE SN](#) [SG-3030JC 32.7680KB0:ROHS](#) [SG-3030JF 32.7680KB: ROHS](#) [SG-3030JF 32.7680KB0: ROHS](#) [SG-3030JF 32.7680KB3: ROHS](#) [SG-3030LC 32.7680KB0: PURE SN](#) [SG-3030LC 32.7680KB3: PURE SN](#) [SG-3030CM 32.7680KB](#) [SG-3030CM 32.7680KB3](#) [SG-3030CM 32.7680KB3:ROHS](#) [SG-3030CM 32.7680KB:ROHS](#) [SG-3030JC 32.7680KB](#) [SG-3030CM 32.7680KB ROHS](#) [SG-3030JC32.7680KB:ROHS](#) [SG-3030CM 32.7680KB0: ROHS](#)

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А