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.

Pb Free
RoHS Compliant

CM Type **CM,LC, JF,JC Type**

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

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

Actual size

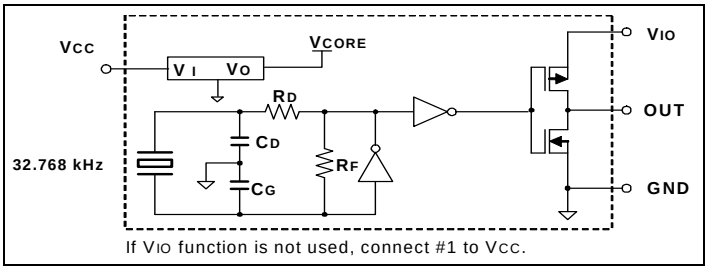
CM Type.	LC Type.	JF Type.	JC Type.
			

Specifications (characteristics)

Item	Symbol	Specifications		Conditions / Remarks
		SG-3030CM / LC / JF / JC	SG-3040LC / JC	
Output frequency range	f_0	32.768 kHz		
Supply voltage	V_{CC}	1.5 V to 5.5 V	0.9 V to 3.6 V	
Interface power supply voltage	V_{IO}	1.5 V to 5.5 V	0.9 V to 3.6 V	
Storage temperature	T_stg	-55 °C to +125 °C		Storage as single product
Operating temperature	T_use	-40 °C to +85 °C		
Frequency tolerance	f_tol	$5 \pm 23 \times 10^{-6}$		+25 °C, V_{CC}=3.3 V (SG-3040: V_{CC}=1.2 V)
Frequency temperature coefficient	f_0-Tc	$+10 \times 10^{-6}$ / -120×10^{-6}		-20 °C to +70 °C (+25 °C is reference)
Frequency / voltage coefficient	f_0-V_{CC}	$\pm 2 \times 10^{-6}$ / V Max.	$\pm 5 \times 10^{-6}$ / V Max.	+25 °C
Current consumption	I_{CC}	2 µA Max.	3.1 µA Max.	3.3 V, No load condition
Symmetry	SYM	45 % to 55 %		1/2 V_{CC}(V_{IO})level (SG-3040: V_{IO}=1.2 V to 3.6 V)
Output voltage	V_{OH}	V_{IO}-0.4 V Min.		I_{OH}=-0.4 mA (SG-3040: V_{IO}=1.2 V to 3.6 V)
	V_{OL}	0.4 V Max.		I_{OL}= 0.4 mA (SG-3040: V_{IO}=1.2 V to 3.6 V)
Output load condition (CMOS)	L_CMOS	15 pF Max.		CMOS load
Rise time / Fall time	t_r / t_f	200 ns Max.	100 ns Max.	CMOS load:20 % V_{CC}(V_{IO}) to 80 % V_{CC}(V_{IO})level (SG-3040: V_{IO}=1.2 V to 3.6 V)
Start-up time	t_str	1 s Max.	3 s Max.	Time at minimum Supply voltage to be 0 s +25 °C (SG-3030: V_{CC}= 2.0 V to 5.5 V)
Frequency aging	f_aging	$\pm 5 \times 10^{-6}$ / year Max.		+25 °C, V_{CC}= 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



If V_{IO} function is not used, connect #1 to V_{CC}.

Product name
(Standard form)

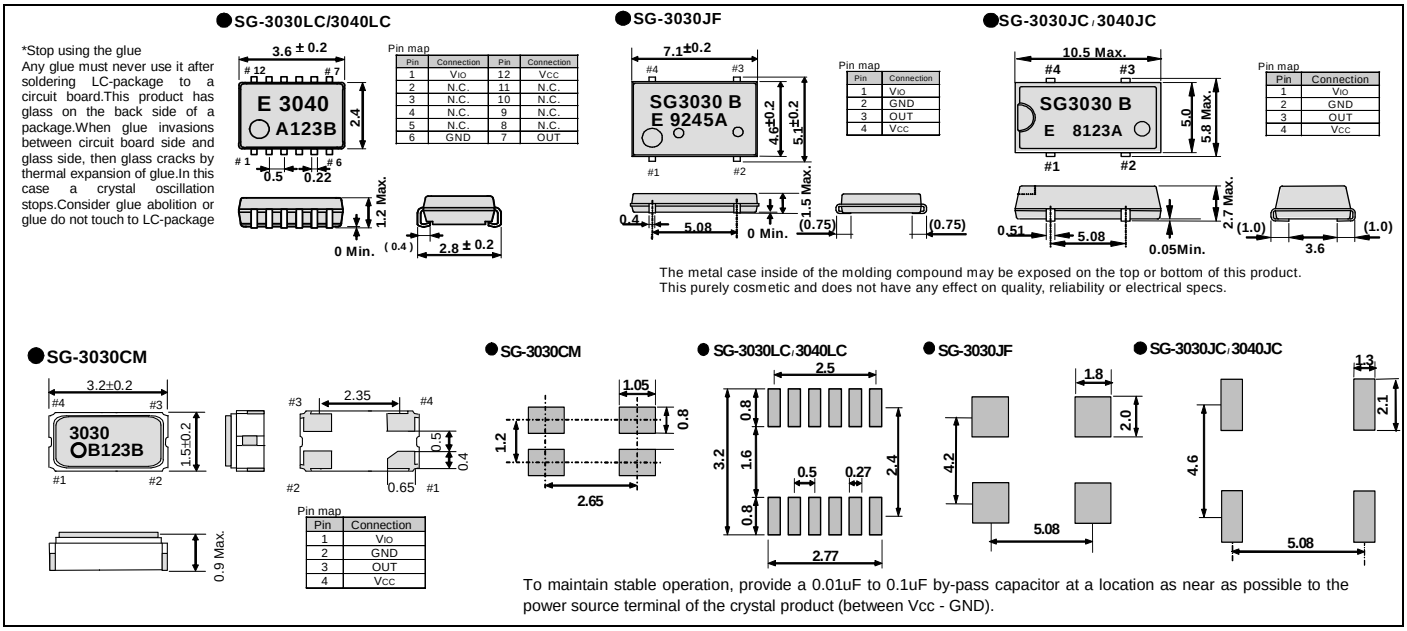
SG-3030 LC 32.768000kHz B
① ② ③ ④

①Model ②Package type ③Frequency

④Frequency tolerance (B: $5 \pm 23 \times 10^{-6}$,+25 ºC)

External dimension and Footprint (Recommended)

(Unit:mm)



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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