

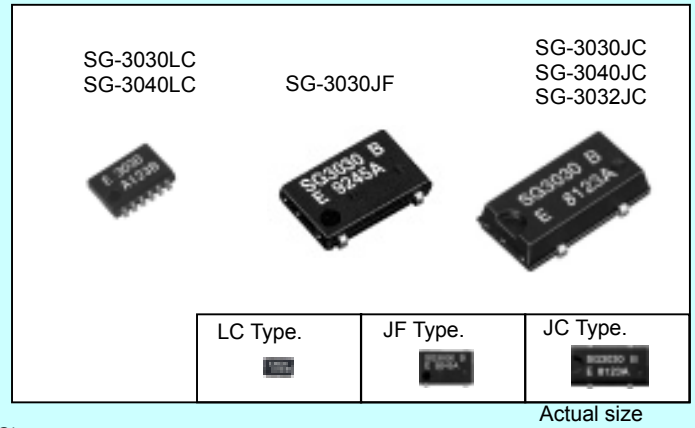
32.768kHz CRYSTAL OSCILLATOR

SG-3030LC / JF / JC
SG-3040LC / JC
SG-3032JC

Product number (please contact us)

- SG-3030LC : Q3102LC00xxxx00
- SG-3030JF/JC : Q3102JF01xxxx00 / Q3102JC01xxxx00
- SG-3040LC/JC : Q3103LC00xxxx00 / Q3103JC01xxxx00
- SG-3032JC : Q3101JC01xxxx00

- No adjustment required with 32.768 kHz crystal unit built-in.
- Use of C-MOS IC enables reduction of current consumption.
- VIO controls swing amplitude (SG-3030 / SG-3040).
- Comply with EU RoHS directive(Lead free completely:SG-3030LC / SG-3040LC)

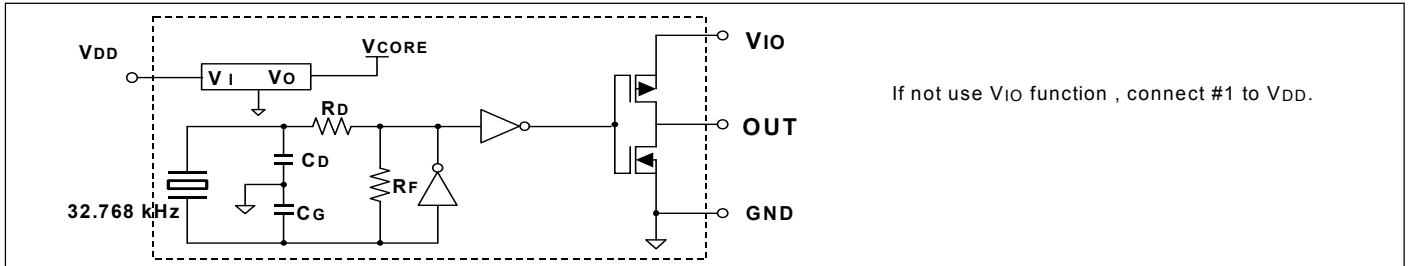


Specifications (characteristics)

Item	Symbol	Specifications			Remarks
		SG-3030LC / JF/JC	SG-3040LC / JC	SG-3032JC	
Output frequency range	f_0	32.768 kHz			
Operating voltage	V_{DD}	1.5 V to 5.5 V	0.9 V to 3.6 V	1.8 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	—	
Temperature range	Storage temperature	T_{STG} -55 °C to +125 °C			Stored as bare product after unpacking
	Operating temperature	T_{OPR}	-40 °C to +85 °C	-20 °C to +70 °C	
Frequency tolerance	$\Delta f/f_0$	$5 \pm 23 \times 10^{-6}$			$T_a = +25 \text{ }^\circ\text{C}, V_{DD} = 3.3 \text{ V}$ (SG-3040: $V_{DD} = 1.2 \text{ V}$)
Frequency temperature characteristics	T_{OP}	$+10 \times 10^{-6} / -120 \times 10^{-6}$			$T_a = +25 \text{ }^\circ\text{C}, -20 \text{ }^\circ\text{C}$ to +70 °C
Frequency voltage characteristics	f/V	$\pm 2 \times 10^{-6} / \text{V Max.}$	$\pm 5 \times 10^{-6} / \text{V Max.}$	$\pm 2 \times 10^{-6} / \text{V Max.}$	$T_a = +25 \text{ }^\circ\text{C}$
Current consumption	I_{OP}	2 μA Max.	3.1 μA Max	5 μA Max	3.3 V, No load condition
Duty	tw/t	45 % to 55 %			1/2 $V_{DD}(V_{IO})$ Level (SG-3040: $V_{IO} = 1.2 \text{ V}$ to 3.6 V)
High output voltage	V_{OH}	$V_{IO} - 0.4 \text{ V Min.}$			$I_{OH} = 0.4 \text{ mA}$ (SG-3040: $V_{IO} = 1.2 \text{ V}$ to 3.6 V)
Low output voltage	V_{OL}	0.4 V Max.			$I_{OL} = 0.4 \text{ mA}$ (SG-3040: $V_{IO} = 1.2 \text{ V}$ to 3.6 V)
Output load condition	C_L	15 pF Max.			CMOS load
Output rise fall time	t_r / t_f	200 ns Max.	100 ns Max		CMOS load: 20 % $V_{DD}(V_{IO})$ to 80 % $V_{DD}(V_{IO})$ Level (SG-3040: $V_{IO} = 1.2 \text{ V}$ to 3.6 V)
Oscillation start up time	t_{osc}	3 s Max.	3 s Max.		Time at minimum operating voltage to be 0 s $T_a = +25 \text{ }^\circ\text{C}$ (SG-3030: $V_{DD} = 2.0 \text{ V}$ to 5.5 V)
Aging	f_a	$\pm 5 \times 10^{-6}$ Max.			$T_a = +25 \text{ }^\circ\text{C}, V_{DD} = 3.3 \text{ V}$, first year

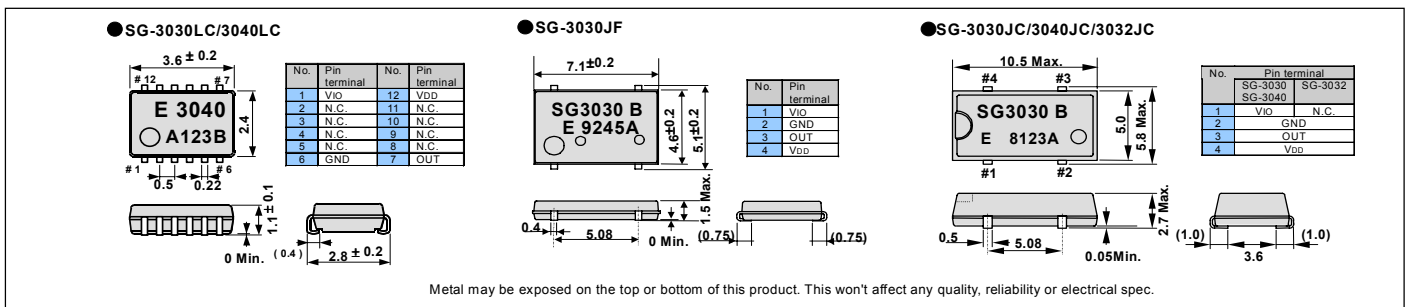
Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

Block diagram (SG-3030LC/JC/JF,SG3040JC/LC)



External dimension

(Unit:mm)



Recommended soldering pattern

(Unit:mm)

