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**CRYSTAL OSCILLATOR**  
32.768 kHz

**SG-3030LC/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-3030LC : Q3102LC0xxxxxx00  
 SG-3030JF : Q3102JF0xxxxxx00  
 SG-3030JC : Q3102JC0xxxxxx00  
 SG-3040LC : Q3103LC0xxxxxx00  
 SG-3040JC : Q3103JC0xxxxxx00



SG-3030LC  
SG-3040LC



SG-3030JF



SG-3030JC  
SG-3040JC

Actual size

LC Type.



JF Type.



JC Type.

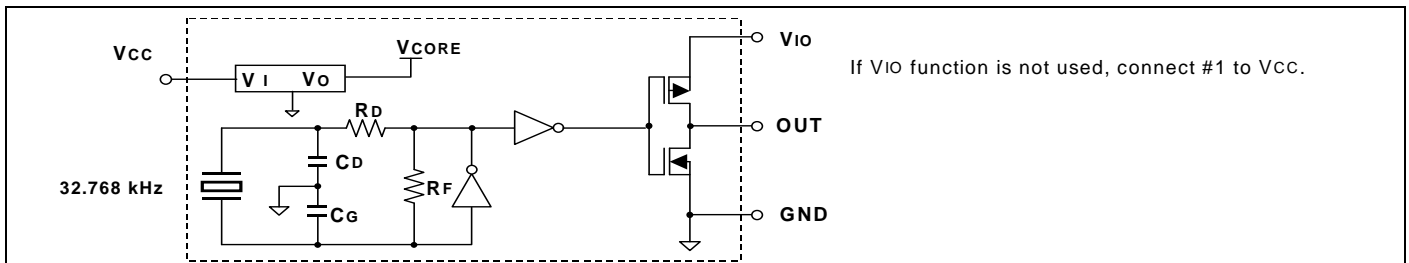


**Specifications (characteristics)**

Item	Symbol	Specifications		Remarks
		SG-3030LC/JF/JC	SG-3040LC/JC	
Output frequency range	$f_0$	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	
Temperature range	Storage temperature T <sub>stg</sub>	-55 °C to +125 °C		Store as bare product after unpacking
	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	fo-Tc	+10 × 10 <sup>-6</sup> / -120 × 10 <sup>-6</sup>		-20 °C to +70 °C (+25 °C is reference)
Frequency / voltage coefficient	fo-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)
High 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)
Low output voltage	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

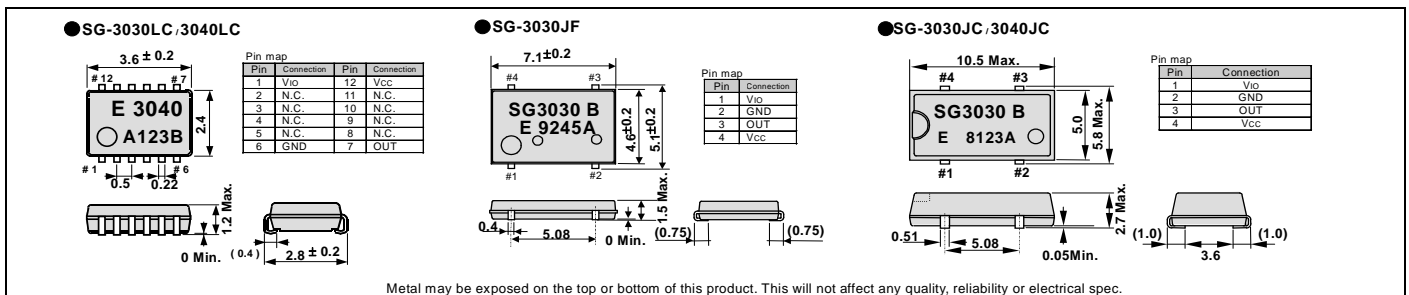
Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

**Block diagram**



**External dimension**

(Unit:mm)



**Footprint (Recommended)**

(Unit:mm)

