

CRYSTAL OSCILLATOR

32.768 kHz

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

- 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 (SG-3030 / SG-3040).



SG-3030LC  
SG-3040LC



SG-3030JF



SG-3030JC  
SG-3040JC  
SG-3032JC

Actual size

LC Type.



JF Type.



JC Type.

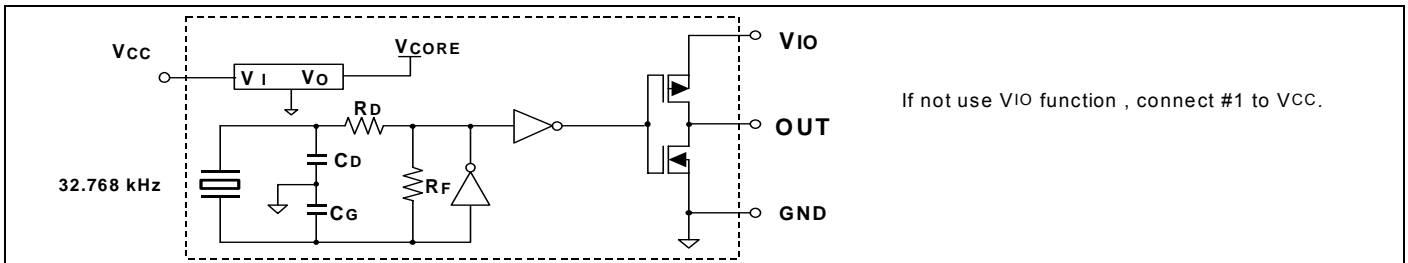


Specifications (characteristics)

Item	Symbol	Specifications			Remarks
		SG-3030LC / JF / JC	SG-3040LC / JC	SG-3032JC	
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	1.8 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	-55 °C to +125 °C			Store as bare product after unpacking
	Operating temperature	-40 °C to +85 °C			
Frequency tolerance	F <sub>tol(osc)</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-Tc</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-Vcc</sub>	±2 × 10 <sup>-6</sup> / V Max.	±5 × 10 <sup>-6</sup> / V Max.	±2 × 10 <sup>-6</sup> / V Max.	+25 °C
Current consumption	I <sub>CC</sub>	2 µA Max.	3.1 µA Max.	5 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
Output rise and 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)
Oscillation start up time	t <sub>osc</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

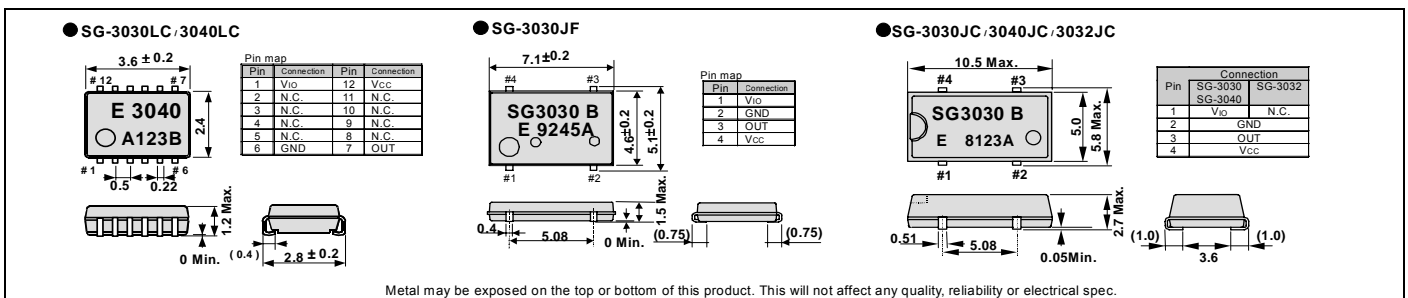
Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

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



External dimension

(Unit:mm)



Footprint (Recommended)

(Unit:mm)

