

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.

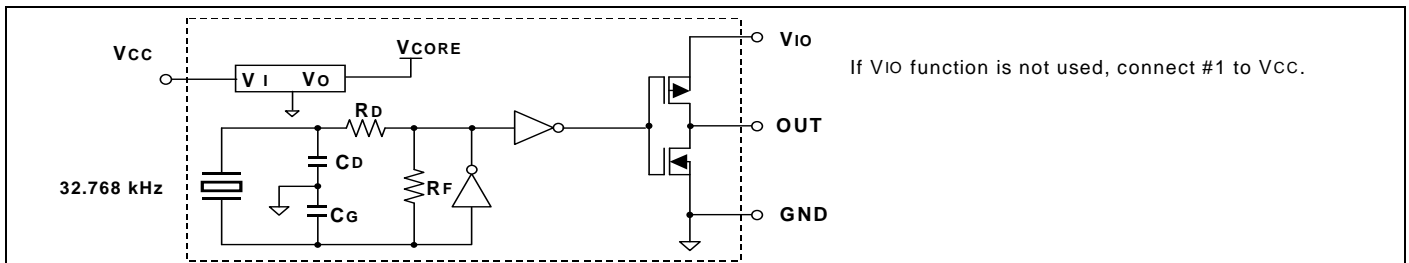


Specifications (characteristics)

Item	Symbol	Specifications		Remarks
		SG-3030LC/JF/JC	SG-3040LC/JC	
Output frequency range	f_0	32.768 kHz		
Supply voltage	V _{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	
Temperature range	Storage temperature T _{stg}	-55 °C to +125 °C		Store as bare product after unpacking
	Operating temperature T _{use}	-40 °C to +85 °C		
Frequency tolerance	f _{tol}	5 ±23 × 10 ⁻⁶		+25 °C, V _{CC} =3.3 V (SG-3040: V _{CC} =1.2 V)
Frequency temperature coefficient	fo-Tc	+10 × 10 ⁻⁶ / -120 × 10 ⁻⁶		-20 °C to +70 °C (+25 °C is reference)
Frequency / voltage coefficient	fo-V _{CC}	±2 × 10 ⁻⁶ / V Max.	±5 × 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)
High 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)
Low output voltage	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}	±5 × 10 ⁻⁶ / year Max.		+25 °C, V _{CC} = 3.3 V, First year

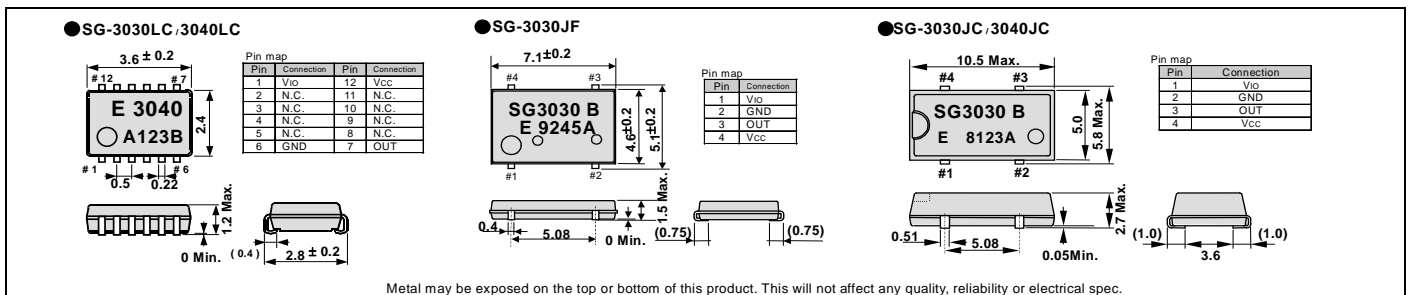
Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

Block diagram



External dimension

(Unit:mm)



Footprint (Recommended)

(Unit:mm)

