

CRYSTAL OSCILLATOR
32.768 kHz

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

- No adjustment required with 32.768 kHz crystal unit built-in.
- Use of CMOS IC enables reduction of current consumption.
- VIO controls swing amplitude (SG-3030 / SG-3040).
- Lead(Pb)-free : High melting temperature type solder (Pb85 %) exempted by RoHS directive;SG-xxxxJC/JF
Contains Pb in sealing glass exempted by RoHS directive.; SG-xxxxLC

SG-3030LC
SG-3040LC

SG-3030JF

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



Actual size

LC Type.

JF Type.

JC Type.

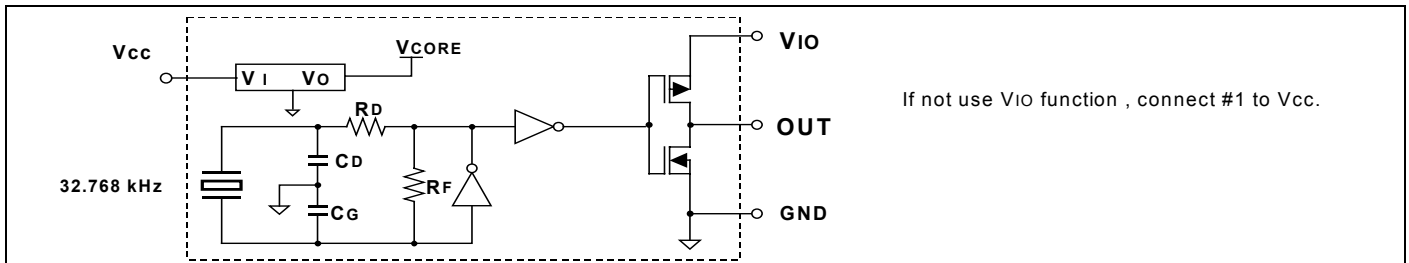


Specifications (characteristics)

Item	Symbol	Specifications			Remarks
		SG-3030LC / JF / JC	SG-3040LC / JC	SG-3032JC	
Output frequency range	f _o	32.768 kHz			
Supply voltage	V _{cc}	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	T _{stg}	-55 °C to +125 °C			Stored as bare product after unpacking
Storage temperature range	T _{use}	-40 °C to +85 °C			
Frequency tolerance	F _{tol(osc)}	5 ±23 × 10 ⁻⁶			+25 °C, V _{cc} =3.3 V (SG-3040: V _{cc} =1.2 V)
Frequency temperature coefficient	F _{o-Tc}	+10 × 10 ⁻⁶ / -120 × 10 ⁻⁶			-20 °C to +70 °C (+25 °C is reference)
Frequency / voltage coefficient	F _{o-Vcc}	±2 × 10 ⁻⁶ / V Max.	±5 × 10 ⁻⁶ / V Max.	±2 × 10 ⁻⁶ / V Max.	+25 °C
Current consumption	I _{cc}	2 μA Max.	3.1 μA Max.	5 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
Output rise and 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)
Oscillation start up time	t _{osc}	1 s Max.	3 s Max.		Time at minimum Supply voltage to be 0 s
Frequency aging	F _{aging}	±5 × 10 ⁻⁶ / year Max.			+25 °C (SG-3030: V _{cc} = 2.0 V to 5.5 V) +25 °C, V _{cc} = 3.3 V, First year

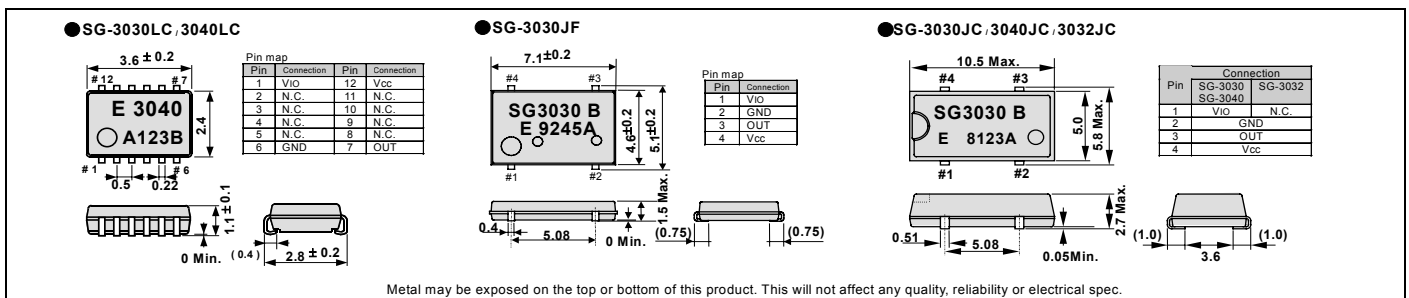
Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

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



External dimension

(Unit:mm)



Metal may be exposed on the top or bottom of this product. This will not affect any quality, reliability or electrical spec.

Footprint (Recommended)

(Unit:mm)

