

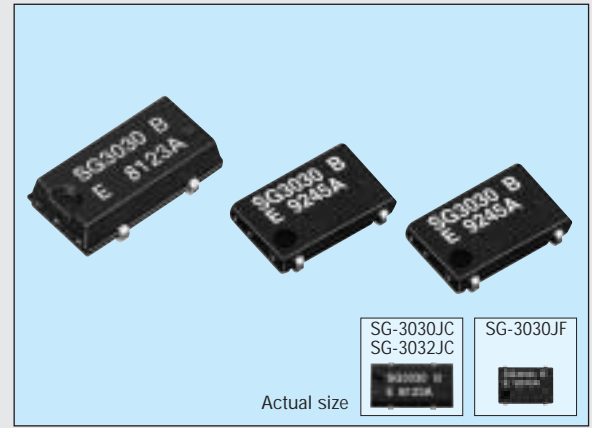
32kHz CRYSTAL OSCILLATOR

# SG-3030JC/JF SG-3032JC

Product number (please refer to page 1)

Q3102JC0xxxxx00    Q3102JF0xxxxx00  
Q3101JC0xxxxx00

- No adjustment required with 32.768 kHz crystal unit built-in.
- Use of C-MOS IC enables reduction of current consumption.
- Thin&Small suited to high-density mounting.
- $V_{IO}$  controls swing amplitude (SG-3030JC/JF).



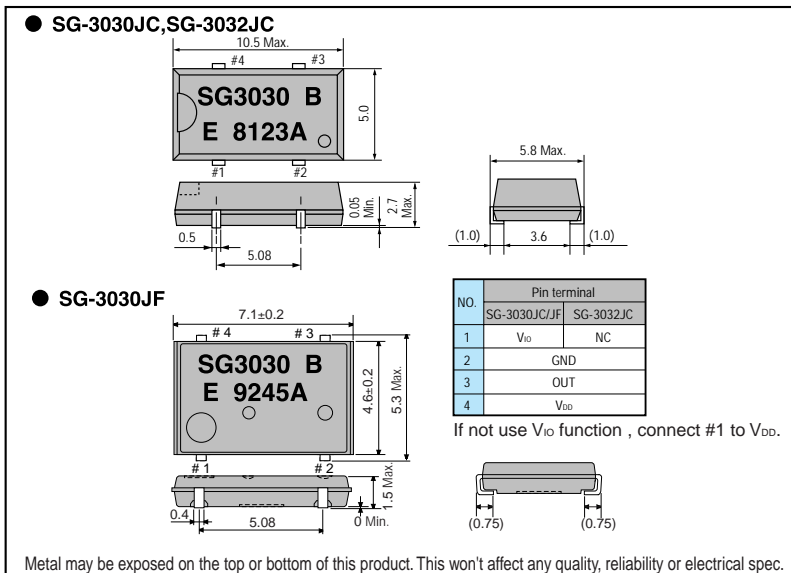
## Specifications (characteristics)

Item	Symbol	Specifications		Remarks	
		SG-3030JC/JF	SG-3032JC		
Output frequency	$f_0$	32.768 kHz			
Power source voltage	Max. supply voltage	$V_{DD-GND}$	-0.3 V to +7.0 V	-0.3 V to +4.3 V	
	Operating voltage	$V_{DD}$	1.5 V to 5.5 V	1.8 V to 3.6 V	
	Interface power supply voltage	$V_{IO}$	1.5 V to 5.5 V	-	SG-3030JC/JF
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±23 x 10 <sup>-6</sup>		$V_{DD}=3.3 V$ $T_a=+25 °C$	
Frequency temperature characteristics	$T_{OP}$	+10 x 10 <sup>-6</sup> / -120 x 10 <sup>-6</sup>		-20 °C to +70 °C, taking $T_a=+25 °C$ as the reference	
Frequency voltage characteristics	$f/V$	±2 x 10 <sup>-6</sup> /V Max.		$T_a=+25 °C$	
Current consumption	$I_{OP}$	2 µA Max.	5 µA Max.	3.3 V, No load condition	
Duty	$tw/t$	45 % to 55 %	40 % to 60 %	1/2 $V_{DD}$ level	
Output voltage	$V_{OH}$	$V_{DD}-0.4 V$ Min.		$I_{OH}=-0.4 mA$ (SG-3030JC/JF), -0.5 mA (SG-3032JC)	
	$V_{OL}$	0.4 V Max.		$I_{OL}=+0.4 mA$ (SG-3030JC/JF), +0.5 mA (SG-3032JC)	
Output load condition (fan out)	$C_L$	15 pF Max.		CMOS load	
Output rise time	$t_{TLH}$	200 ns Max.	100 ns Max.	CMOS load:20 %→80 % $V_{DD}$	
Output fall time	$t_{THL}$	200 ns Max.	100 ns Max.	CMOS load:80 %→20 % $V_{DD}$	
Oscillation start up time	$t_{OSC}$	3 s Max.		Time at minimum operating voltage to be 0 s	
Aging	$f_a$	±5 x 10 <sup>-6</sup> /year Max.		$T_a=+25 °C$ , $V_{DD}=3.3 V$ , first year	
Shock resistance	S.R.	±5 x 10 <sup>-6</sup> Max.		Three drops on a hard board from 750 mm or excitation test with 29400 m/s <sup>2</sup> x 0.3 ms x 1/2 sine wave in 3 directions	

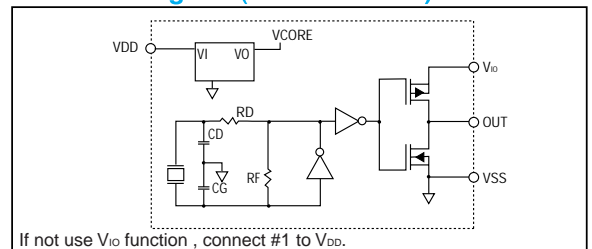
Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

## External dimensions

(Unit: mm)



## Block diagram (SG-3030JC/JF)



## Recommended soldering pattern

(Unit: mm)

