

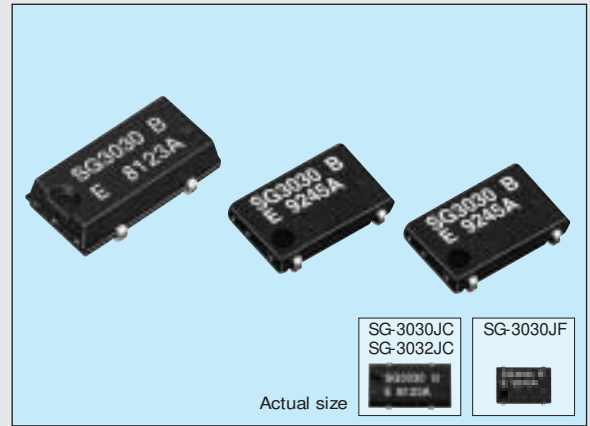
32kHz CRYSTAL OSCILLATOR

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).



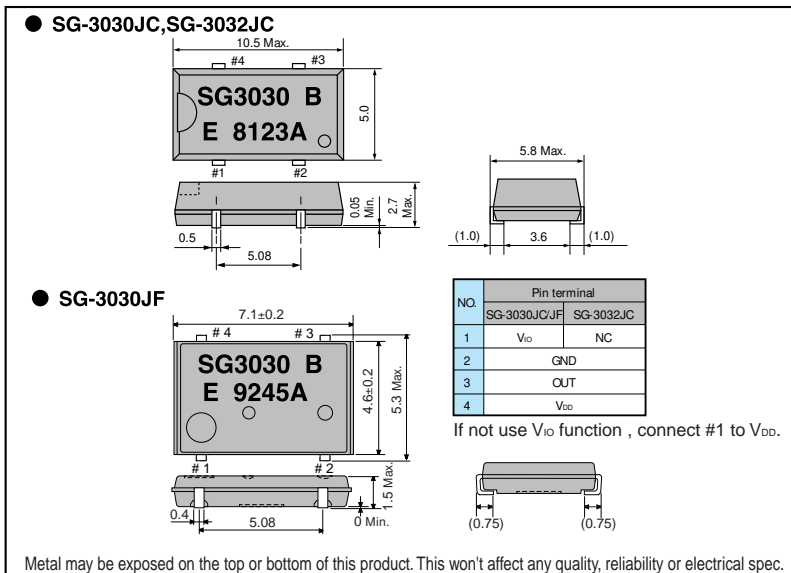
Specifications (characteristics)

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 ⁻⁶		$V_{DD}=3.3$ V $T_a=+25$ °C	
Frequency temperature characteristics	T_{OP}	+10 x 10 ⁻⁶ / -120 x 10 ⁻⁶		-20 °C to +70 °C, taking $T_a=+25$ °C as the reference	
Frequency voltage characteristics	f/V	±2 x 10 ⁻⁶ /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)	Q_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 ⁻⁶ /year Max.		$T_a=+25$ °C, $V_{DD}=3.3$ V, first year	
Shock resistance	S.R.	±5 x 10 ⁻⁶ Max.		Three drops on a hard board from 750 mm or excitation test with 29400 m/s ² x 0.3 ms x 1/2 sine wave in 3 directions	

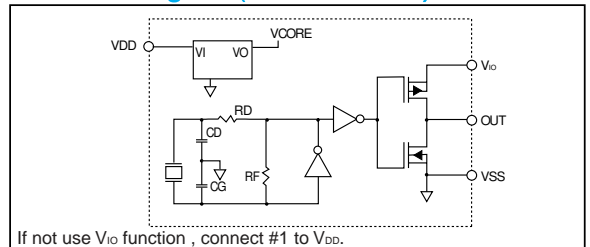
Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

External dimensions

(Unit: mm)



Block diagram (SG-3030JC/JF)



Recommended soldering pattern

(Unit: mm)

