

PROGRAMMABLE HIGH-FREQUENCY CRYSTAL OSCILLATOR WITH SPREAD SPECTRUM

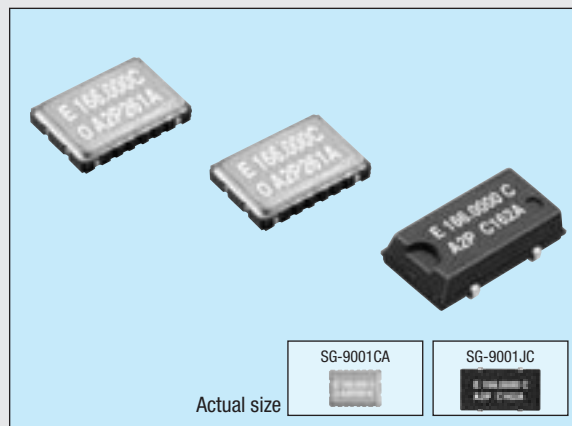
# SG-9001CA/JC

Product number (please refer to page 2)

Q3331x0xxxxxx00

Q3331x1xxxxxx00

- Output frequency is selectable from 10 MHz to 166 MHz.
- Range of spreading percentage is selectable by program (Center or Down spread, 6 Values)
- Reflowable and high density mounting type SMD package.
- Operable 3.3 V.
- Output enable (OE) function allows more low current consumption.
- Optimized Spread Spectrum profile.
- Available for lead (Pb)-free soldering.
- Lead (Pb)-free terminal product. (SG-9001JC)
- Complete lead (Pb)-free product. (SG-9001CA)



## Specifications (characteristics)

Item	Symbol	Specifications	Remarks
Output frequency range	fo	10.0000 MHz to 166.0000 MHz	Please contact us for inquiries about the available frequency
Power source voltage	Max. supply voltage	VDD-GND	-0.5 V to +7.0 V
	Operating voltage	VDD	3.3 ±0.3 V
Temperature range	Storage temperature	TSTG	-55 °C to +100 °C
			-40 °C to +125 °C
	Operating temperature	TOPR	-20 °C to +70 °C
Current consumption	Iop	30 mA Max.	No load condition, Max. frequency range.
Output disable current	Ioe	20 mA Max.	OE = GND, Max. frequency range
Duty	tw/t	45 % to 55 %	50 % VDD, CL = 15 pF
High output voltage	VoH	VDD -0.4 V Min.	IoH = -8 mA
Low output voltage	VoL	0.4 V Max.	IoL = 8 mA
Output load condition (fan out)	CMOS	CL	15 pF Max.
Output enable / disable input voltage	Vih	0.7 VDD Min.	Max. frequency and Max. operating voltage range
	Vil	0.3 VDD Max.	OE terminal
Output rise time	CMOS level	tr	CMOS load: 20 % → 80 % VDD, CL = 15 pF
Output fall time	CMOS level	tf	CMOS load: 80 % → 20 % VDD, CL = 15 pF
Oscillation start up time	tosc	10 ms Max.	Time at minimum operating voltage to be 0 s
Aging	fa	±5 x 10 <sup>-6</sup> / year Max.	Ta = +25 °C First year

## Spread Spectrum Specifications

Center Spread	Code	C02P	C05P	C07P	C10P	C15P	C20P
	Percentage	±0.25%	±0.5%	±0.75%	±1.0%	±1.5%	±2.0%
Down Spread	Code	D05P	D10P	D15P	D20P	D30P	D40P
	Percentage	-0.5%	-1.0%	-1.5%	-2.0%	-3.0%	-4.0%

## External dimensions

(Unit: mm)

● **SG-9001CA**

NO.	Pin terminal
1	OE
2	(SSON) *
3	GND
4	OUT
5	N.C.
6	VDD

● **SG-9001JC**

Note.  
 OE pin - "H" or "open" : Specified frequency output.  
 OE pin - "L" : Output disable output is weak pull-down (130kΩ Typ.).  
 SSON pin  
 "H" : Spread spectrum disable.  
 "L" or "open" : Spread spectrum enable.  
 \* SSON terminal should be kept open or GND.

NO.	Pin terminal
1	OE
2	GND
3	OUT
4	VDD

## Recommended soldering pattern

(Unit: mm)

● **SG-9001CA**

● **SG-9001JC**