



CRYSTAL OSCILLATOR  
SPREAD SPECTRUM



CA, LB  
Type Only

SG-9001LB / CA / JC series

- Frequency range : 10 MHz to 166 MHz
- Supply voltage : 3.3 V
- Function : Output enable(OE)
- Thickness : 1.15 mm Typ.(SG-9001LB)  
1.40 mm Typ.(SG-9001CA)
- Range of spreading percentage is selectable by program  
(Center or Down spread, 6 Values )



Actual size  
SG-9001LB SG-9001CA SG-9001JC

Specifications (characteristics)

Item	Symbol	Specifications	Remarks
Output frequency range	$f_0$	10.000 MHz to 166.000 MHz 10.000 MHz to 135.000 MHz	SG-9001JC,CA SG-9001LB Please contact us for inquiries regarding available frequencies.
Supply voltage	V <sub>cc</sub>	3.3 V±0.3 V	
Temperature range	Storage temperature	-55 °C to +100 °C	SG-9001JC
	Operating temperature	-40 °C to +125 °C	SG-9001LB,CA
Current consumption	I <sub>cc</sub>	30 mA Max.	No load condition, $f_0 = 166$ MHz
Output disable current	I <sub>dis</sub>	20 mA Max.	OE=GND, $f_0 = 166$ MHz
Symmetry	SYM	45 % to 55 %	CMOS load: 50 % V <sub>cc</sub> level, L <sub>CMOS</sub> =15 pF
High output voltage	V <sub>OH</sub>	V <sub>cc</sub> -0.4 V Min.	I <sub>OH</sub> =-8 mA
Low output voltage	V <sub>OL</sub>	0.4 V Max.	I <sub>OL</sub> = 8 mA
Output load condition	L <sub>CMOS</sub>	15 pF Max.	
Output enable / disable input voltage	V <sub>IH</sub>	70 % V <sub>cc</sub> Min.	OE terminal
	V <sub>IL</sub>	30 % V <sub>cc</sub> Max.	OE terminal
Output rise and fall time	t <sub>r</sub> / t <sub>f</sub>	2.7 ns Max.	20 % V <sub>cc</sub> to 80 % V <sub>cc</sub> level, L <sub>CMOS</sub> =15 pF.
Oscillation start up time	t <sub>osc</sub>	10 ms Max.	Time at minimum supply voltage to be 0 s
Frequency aging	f <sub>aging</sub>	±5 × 10 <sup>-6</sup> / year Max.	+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-9001LB

Pin map

Pin	Connection
1	OE
2	GND
3	OUT
4	V <sub>cc</sub>

Note:  
OE pin = "H" or "open" : Specified frequency output.  
OE pin = "L" : Output disable output is weak pull-down. (130 kΩ Typ.)  
SSON pin (SG-9001CA)  
SSON pin = "H" : Spread spectrum disable.  
SSON pin = "L" or "open" : Spread spectrum enable.

●SG-9001CA

Pin map

Pin	Connection
1	OE
2	SSON
3	GND
4	OUT
5	N.C.
6	V <sub>cc</sub>

●SG-9001JC

Pin map

Pin	Connection
1	OE
2	GND
3	OUT
4	V <sub>cc</sub>

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)

●SG-9001LB

●SG-9001CA

●SG-9001JC