

PROGRAMMABLE HIGH-FREQUENCY CRYSTAL OSCILLATOR

# SG - 8002CE series

Product number (please contact us)

Q3321CEx1xxxx00

- Frequency range : 1 MHz to 125 MHz
- Operating voltage : 3.3 V or 5.0 V
- Function : Output enable(OE) or Standby(ST)
- Thickness : 1.05 mm Typ.
- Lead(Pb)-free : Complies with EU RoHS directive (Lead free completely)
- Short lead mass production time by PLL technology.



Actual Size

## Specifications (characteristics)

Item	Symbol	Specifications *2			Remarks
		PT / ST	PH / SH	PC / SC	
Output frequency range	f <sub>0</sub>	1 MHz to 125 MHz			V <sub>DD</sub> =4.5 V to 5.5 V
		—			V <sub>DD</sub> =3.0 V to 3.6 V
		—			V <sub>DD</sub> =2.7 V to 3.6 V
Operating voltage	V <sub>DD</sub>	4.5 V to 5.5 V		2.7 V to 3.6 V	
Temperature range	Storage temperature	T <sub>STG</sub> -40 °C to +125 °C			Stored as bare product after unpacking
	Operating temperature	T <sub>OPR</sub> -20 °C to +70 °C (-40 °C to +85 °C)		-40 °C to +85 °C	Refer to Application guide. "Frequency range"
Frequency stability	Δf/f <sub>0</sub>	B: ±50 × 10 <sup>-6</sup> ,C: ±100 × 10 <sup>-6</sup>			B,C:-20 °C to +70 °C
		M: ±100 × 10 <sup>-6</sup>			M:-40 °C to +85 °C *3
Current consumption	I <sub>OP</sub>	40 mA Max.		28 mA Max.	No load condition, Max. frequency
Output disable current	I <sub>OE</sub>	30 mA Max.		16 mA Max.	OE=GND
Standby current	I <sub>ST</sub>	50 μA Max.			/ST=GND(ST,SH,SC)
Duty *1	tw/t	—		40 % to 60 %	CMOS load:50 % V <sub>DD</sub> , Max. load condition
		40 % to 60 %		—	TTL load: 1.4V, Max. load condition
High output voltage	V <sub>OH</sub>	V <sub>DD</sub> -0.4 V Min.			I <sub>OH</sub> =-16 mA(PT,ST,PH,SH), -8 mA(PC,SC)
Low output voltage	V <sub>OL</sub>	0.4 V Max.			I <sub>OL</sub> =16 mA(PT,ST,PH,SH), 8 mA(PC,SC)
Output loadcondition (TTL) *1	N	5TTL Max.		—	Max. frequency and Max. operating voltage
Output loadcondition (CMOS) *1	CL	15 pF Max.			
Output enable / disable input voltage	V <sub>IH</sub>	2.0 V Min.		70 % V <sub>DD</sub> Min.	/ST, OE terminal
	V <sub>IL</sub>	0.8 V Max.		20 % V <sub>DD</sub> Max.	/ST, OE terminal
Output rise fall time *1	t <sub>R</sub> / t <sub>F</sub>	—		3 ns Max.	CMOS load: 20 % V <sub>DD</sub> to 80 % V <sub>DD</sub> level
		4 ns Max.		—	TTL load: 0.4 V to 2.4 V level
Oscillation start up time	t <sub>OSC</sub>	10 ms Max.			Time at minimum operating voltage to be 0 s
Aging	f <sub>a</sub>	±5 × 10 <sup>-6</sup> / year Max.			T <sub>a</sub> =+25 °C, V <sub>DD</sub> =5.0 V / 3.3 V (PC,SC) First year

\*1 Operating temperature (-40 °C to +85 °C), the available frequency, duty and output load conditions, please refer to Page 40.

\*2 PLL-PLL connection & Jitter specification, please refer to Page 41.

\*3 PT / ST and PH / SH for "M" stability will be available up to 27 MHz.

## External dimensions

(Unit:mm) ■ Recommended soldering pattern (Unit:mm)

