PROGRAMMABLE HIGH-FREQUENCY CRYSTAL OSCILLATOR

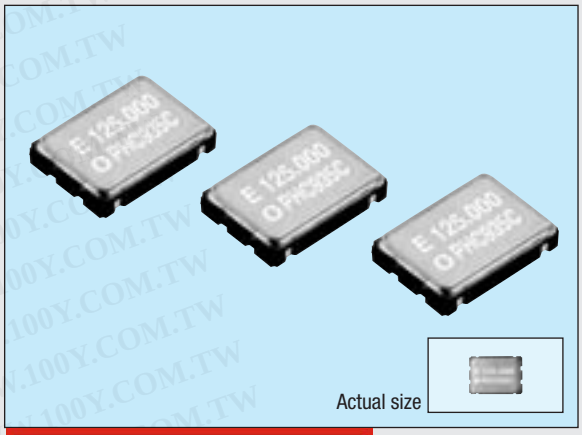
SG-8002CA series

Product number (please refer to page 2)

Q3309CAxxxxxx00

- Wide frequency output by PLL technology.
- Quick delivery of samples and short lead mass production time.
- Excellent environmental capability.
- Output enable function (OE) and stand-by function ($\overline{ST}$) can be used for low current consumption applications.
- Available for lead (Pb)-free soldering.
- Complete lead (Pb)-free product.

SG-Writer available to purchase.
Please contact EPSON or local sales representative.



勝 特 力 材 料 886-3-5753170
胜特力电子(上海) 86-21-34970699
胜特力电子(深圳) 86-755-83298787
Http://www.100y.com.tw

Specifications (characteristics)

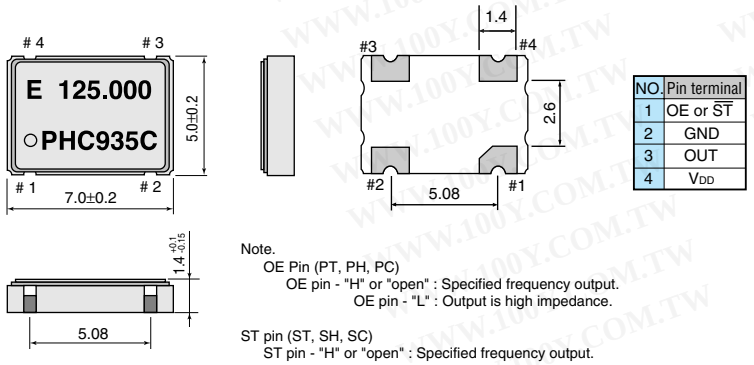
Item		Symbol	Specifications *2 PT / ST	PH / SH	PC / SC	Remarks
Output frequency range		fo	1.0000 MHz to 125.0000 MHz			Refer to page 50. "Frequency range"
Power source voltage	Max. supply voltage	VDD-GND	-0.5 V to +7.0 V			
	Operating voltage	VDD	5.0 V ±0.5 V		3.3 ± 0.3 V	2.7 V to 3.6 V : fo ≤ 66.7 MHz (PC / SC)
Temperature range	Storage temperature	TSTG	-55 °C to +125 °C			Stored as bare product after unpacking
	Operating temperature	TOPR	-20 °C to +70 °C (-40 °C to +85 °C)		-40 °C to +85 °C	Refer to page 50. "Frequency range"
Frequency stability		Δf/fo	B: ±50 x 10^{-6} C: ± 100 x 10^{-6}			B, C : -20 °C to +70 °C
			M: ±100 x 10^{-6}			M : -40 °C to +85 °C
Current consumption		IOP	45 mA Max.		28 mA Max.	No load condition, Max. frequency range
Output disable current		IOE	30 mA Max.		16 mA Max.	OE = GND (PT, PH, PC)
Standby current		IST	50 µA Max.			$\overline{ST}$ = GND (ST, SH, SC)
Duty *1		tw/ t	–	40 % to 60 %		CMOS load: 1/2 VDD level
			40 % to 60 %	–		TTL load: 1.4 V level
High output voltage		VOH	VDD -0.4 V Min.			IOH = -16 mA (PT / ST, PH / SH),-8 mA (PC / SC)
Low output voltage		VOL	0.4 V Max.			IOL = 16 mA (PT / ST, PH / SH), 8 mA (PC / SC)
Output load condition (fan out) *1	TTL	N	5 TTL Max.	–		Max. frequency and Max. operating voltage range
	CMOS	CL	15 pF Max.	25 pF Max.	15 pF Max.	
Output enable / disable input voltage		VIH	2.0 V Min.		0.7 VDD Min.	$\overline{ST}$, OE terminal
		VIL	0.8 V Max.		0.2 VDD Max.	
Output rise time *1	CMOS level	tR	–	4 ns Max.		CMOS load: 20 % → 80 % VDD
	TTL level		4 ns Max.	–		TTL load: 0.4 V → 2.4 V
Output fall time *1	CMOS level	tF	–	4 ns Max.		CMOS load: 80 % → 20 % VDD
	TTL level		4 ns Max.	–		TTL load: 2.4 V → 0.4 V
Oscillation start up time		tosc	10 ms Max.			Time at minimum operating voltage to be 0 s
Aging		fa	±5 x 10^{-6} / year Max.			Ta = +25 °C, VDD = 5.0 V / 3.3 V, First year
Shock resistance		S.R.	±20 x 10^{-6} Max.			Three drops on a hard board from 750 mm or excitation test with 29400 m/s² x 0.3 ms x 1/2sine wave in 3 directions

*1 Operating temperature (-40 °C to +85 °C), the available frequency, duty and output load conditions, please refer to page 50, 51.
*2 PLL - PLL connection & Jitter specification, please refer to page 52.
Checking possible by the Frequency Checking Program.

http://www.epsondevice.com/domcfg.nsf

External dimensions

(Unit: mm)



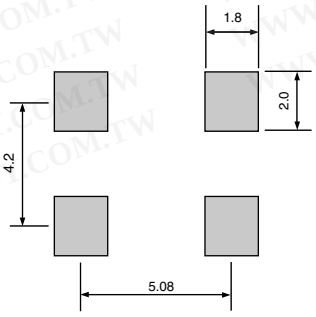
NO.	Pin terminal
1	OE or $\overline{ST}$
2	GND
3	OUT
4	VDD

Note.
OE Pin (PT, PH, PC)
OE pin - "H" or "open" : Specified frequency output.
OE pin - "L" : Output is high impedance.

ST pin (ST, SH, SC)
ST pin - "H" or "open" : Specified frequency output.
ST pin - "L" : Output is low level (weak pull - down), oscillation stops.

Recommended soldering pattern

(Unit: mm)



■ Frequency range of SG-8002 or HG-8002 series

page	Model		Operating voltage	Frequency stability Operating temprature	1 MHz 27 MHz 40 MHz 55 MHz 80 MHz 125 MHz
43	SG-8002LA SG-8002LB	PH SH	5.0 V ± 0.5 V	B C	
				M	
		PC SC	3.3 V ± 0.3 V *	B C L M	*2.7 V to 3.6 V : 1.0 MHz to 66.7 MHz
46 48 49	SG-8002CA SG-8002JA SG-8002DB SG-8002DC	PT ST PH SH	4.5 V to 5.5 V	B C	
				M	
		PC SC	3 V to 3.6 V (2.7 V to 3.6 V)	B C M	*2.7 V to 3.6 V : 1.0 MHz to 66.7 MHz
47	SG-8002JC	PT ST PH SH	4.5 V to 5.5 V	B C	
		PC SC	3 V to 3.6 V (2.7 V to 3.6 V)	B C	*2.7 V to 3.6 V : 1.0 MHz to 66.7 MHz
45	SG-8002JF	PT ST PH SH	4.5 V to 5.5 V	B C	
				M	
		PC SC	3 V to 3.6 V (2.7 V to 3.6 V)	B C M	*2.7 V to 3.6 V : 1.0 MHz to 66.7 MHz
44	SG-8002CE	PT ST PH SH	4.5 V to 5.5 V	B C	
				M	
		PC SC	3 V to 3.6 V (2.7 V to 3.6 V)	B C M	*2.7 V to 3.6 V : 1.0 MHz to 66.7 MHz
64	HG-8002JA	PT ST PH SH	5 V ± 0.25 V	AV BV	
				CX	
		PC SC	3 V ± 0.165 V	AV BV CX	*2.7 V to 3.6 V : 1.0 MHz to 66.7 MHz

Frequency stability Operating temprature : B: ± 50 x 10^{-6} (-20 ˚C to +70 ˚C), C: ± 100 x 10^{-6} (-20 ˚C to +70 ˚C), M: ± 100 x 10^{-6} (-40 ˚C to +85 ˚C), L: ±50 x 10^{-6} (-40 ˚C to +85 ˚C)
AV: ± 20 x 10^{-6} (-20 ˚C to +70 ˚C), BV: ± 25 x 10^{-6} (-20 ˚C to +70 ˚C), CX: ± 30 x 10^{-6} (-40 ˚C to +85 ˚C)

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Specifications of SG-8002 or HG-8002 series

page	Model	Item	Current consumption	Operating voltage	Output load	Output rise / fall time	Duty	Output control
43	SG-8002LA (SON 4-pin) SG-8002LB (SOJ 4-pin)	PH	35 mA Max.	4.5 V to 5.5 V	15 pF	4.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	40 % to 60 % (50 % VDD, CL = 15 pF, Fo ≤ 80 MHz / -40 ˚C to +85 ˚C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V (2.7 V to 3.6 V)	15 pF	4.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 15 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 40 MHz) 40 % to 60 % (50 % VDD, CL = 15 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 125 MHz) ↑ (50 % VDD, CL = 15 pF, VDD = 2.7 V to 3.6 V, Fo ≤ 66.7 MHz)	OE
		SC						ST
46 48 49	SG-8002CA (Ceramic SMD) SG-8002JA (SOJ 4-pin) SG-8002DB (DIP 14-pin) SG-8002DC (DIP 8-pin)	PT	45 mA Max.	4.5 V to 5.5 V	5TTL + 15 pF (Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) 25 pF (Fo ≤ 66.7 MHz / -20˚C to +70 ˚C) 5TTL + 15 pF (Fo ≤ 40 MHz / -40 ˚C to +85 ˚C) 15 pF (Fo ≤ 55 MHz / -40˚C to +85 ˚C)	2.0 ns Max. (0.8 V to 2.0 V / 2.0 V to 0.8 V, CL = Max.) 4.0 ns Max. (0.4 V to 2.4 V / 2.4 V to 0.4 V, CL = Max.)	45 % to 55 % (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 40 MHz / -40 ˚C to +85 ˚C) 40 % to 60 % (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 25 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 15 pF, Fo ≤ 55 MHz / -40 ˚C to +85 ˚C)	OE
		ST						ST
		PH			25 pF (Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) 50 pF (Fo ≤ 66.7 MHz / -20˚C to +70 ˚C) 15 pF (Fo ≤ 55 MHz / -40 ˚C to +85 ˚C) 25 pF (Fo ≤ 40 MHz / -40˚C to +85 ˚C)	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL ≤ 25 pF) 4.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 25 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 25 pF, Fo ≤ 40 MHz / -40 ˚C to +85 ˚C) 40 % to 60 % (50 % VDD, CL = 25 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 50 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 15 pF, Fo ≤ 55 MHz / -40 ˚C to +85 ˚C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V (2.7 V to 3.6 V)	15 pF (Fo ≤ 66.7 MHz / 2.7 V to 3.6 V) 15 pF (Fo ≤ 125 MHz / 3.0 V to 3.6 V) 30 pF (Fo ≤ 40 MHz / 3.0 V to 3.6 V)	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL ≤ 15 pF) 4.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 30 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 40 MHz) 40 % to 60 % (50 % VDD, CL = 15 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 125 MHz) ↑ (50 % VDD, CL = 15 pF, VDD = 2.7 V to 3.6 V, Fo ≤ 66.7 MHz)	OE
		SC						ST
47	SG-8002JC (SOJ 4-pin)	PT	45 mA Max.	4.5 V to 5.5 V	5TTL + 15 pF (Fo ≤ 90 MHz / -20 ˚C to +70 ˚C) 15 pF (Fo ≤ 125 MHz / -20˚C to +70 ˚C) 25 pF (Fo ≤ 66.7 MHz / -20˚C to +70 ˚C)	2.0 ns Max. (0.8 V to 2.0 V / 2.0 V to 0.8 V, CL = Max.) 4.0 ns Max. (0.4 V to 2.4 V / 2.4 V to 0.4 V, CL = Max.)	45 % to 55 % (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) 40 % to 60 % (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 90 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 25 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C)	OE
		ST						ST
		PH			15 pF (Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) 25 pF (Fo ≤ 90 MHz / -20˚C to +70 ˚C) 50 pF (Fo ≤ 66.7 MHz / -20˚C to +70 ˚C)	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL ≤ 25 pF) 4.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 25 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) 40 % to 60 % (50 % VDD, CL = 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 25 pF, Fo ≤ 90 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 50 pF, Fo ≤ 50 MHz / -20 ˚C to +70 ˚C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V (2.7 V to 3.6 V)	15 pF (Fo ≤ 66.7 MHz / 2.7 V to 3.6 V) 15 pF (Fo ≤ 125 MHz / 3.0 V to 3.6 V) 30 pF (Fo ≤ 40 MHz / 3.0 V to 3.6 V)	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL ≤ 15 pF) 4.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 30 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 40 MHz) 40 % to 60 % (50 % VDD, CL = 15 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 125 MHz) ↑ (50 % VDD, CL = 15 pF, VDD = 2.7 V to 3.6 V, Fo ≤ 66.7 MHz)	OE
		SC						ST
45	SG-8002JF (SOJ 4-pin)	PT	45 mA Max.	4.5 V to 5.5 V	15 pF (Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) 25 pF (Fo ≤ 66.7 MHz / -20˚C to +70 ˚C) 5TTL + 15 pF (Fo ≤ 90 MHz / -20˚C to +70 ˚C) 15 pF (Fo ≤ 40 MHz / -40˚C to +85 ˚C)	2.0 ns Max. (0.8 V to 2.0 V / 2.0 V to 0.8 V, CL = Max.) 4.0 ns Max. (0.4 V to 2.4 V / 2.4 V to 0.4 V, CL = Max.)	45 % to 55 % (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) 40 % to 60 % (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 90 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 25 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 15 pF, Fo ≤ 40 MHz / -40 ˚C to +85 ˚C)	OE
		ST						ST
		PH			15 pF (Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) 25 pF (Fo ≤ 90 MHz / -20˚C to +70 ˚C) 50 pF (Fo ≤ 50 MHz / -20˚C to +70 ˚C) 15 pF (Fo ≤ 40 MHz / -40˚C to +85 ˚C)	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL ≤ 25 pF) 4.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 25 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) 40 % to 60 % (50 % VDD, CL = 25 pF, Fo ≤ 90 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 50 pF, Fo ≤ 50 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 15 pF, Fo ≤ 40 MHz / -40 ˚C to +85 ˚C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V (2.7 V to 3.6 V)	15 pF (Fo ≤ 66.7 MHz / 2.7 V to 3.6 V) 15 pF (Fo ≤ 125 MHz / 3.0 V to 3.6 V) 30 pF (Fo ≤ 40 MHz / 3.0 V to 3.6 V)	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL ≤ 15 pF) 4.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 30 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 40 MHz) 40 % to 60 % (50 % VDD, CL = 15 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 125 MHz) ↑ (50 % VDD, CL = 15 pF, VDD = 2.7 V to 3.6 V, Fo ≤ 66.7 MHz)	OE
		SC						ST
44	SG-8002CE (Ceramic SMD)	PT	40 mA Max.	4.5 V to 5.5 V	5TTL + 15 pF (Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) 5TTL + 15 pF (Fo ≤ 27 MHz / -40˚C to +85 ˚C)	2.0 ns Max. (0.8 V to 2.0 V / 2.0 V to 0.8 V, CL = Max.) 4.0 ns Max. (0.4 V to 2.4 V / 2.4 V to 0.4 V, CL = Max.)	45 % to 55 % (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 27 MHz / -40 ˚C to +85 ˚C) 40 % to 60 % (1.4 V, CL = 5TTL + 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C)	OE
		ST						ST
		PH			15 pF (Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) 25 pF (Fo ≤ 100 MHz / -20˚C to +70 ˚C) 25 pF (Fo ≤ 27 MHz / -40˚C to +85 ˚C)	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 25 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 25 pF, Fo ≤ 27 MHz / -40 ˚C to +85 ˚C) 40 % to 60 % (50 % VDD, CL = 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V (2.7 V to 3.6 V)	15 pF (Fo ≤ 66.7 MHz / 2.7 V to 3.6 V) 15 pF (Fo ≤ 125 MHz / 3.0 V to 3.6 V)	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 15 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 40 MHz) 40 % to 60 % (50 % VDD, CL = 15 pF, VDD = 3.0 V to 3.6 V, Fo ≤ 125 MHz) ↑ (50 % VDD, CL = 15 pF, VDD = 2.7 V to 3.6 V, Fo ≤ 66.7 MHz)	OE
		SC						ST
64	HG-8002JA (SOJ 4-pin)	PT	45 mA Max.	5 V ±0.25 V	15 pF 2TTL + 15 pF	2.0 ns Max. (0.8 V to 2.0 V / 2.0 V to 0.8 V, CL = Max.) 4.0 ns Max. (0.4 V to 2.4 V / 2.4 V to 0.4 V, CL = Max.)	45 % to 55 % (1.4 V, CL = 15 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 15 pF, Fo ≤ 55 MHz / -40 ˚C to +85 ˚C) ↑ (1.4 V, CL = 2TTL + 15 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 2TTL + 15 pF, Fo ≤ 55 MHz / -40 ˚C to +85 ˚C) 40 % to 60 % (1.4 V, CL = 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C) ↑ (1.4 V, CL = 2TTL + 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C)	OE
		ST						ST
		PH			15 pF	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 15 pF, Fo ≤ 66.7 MHz / -20 ˚C to +70 ˚C) ↑ (50 % VDD, CL = 15 pF, Fo ≤ 55 MHz / -40 ˚C to +85 ˚C) 40 % to 60 % (50 % VDD, CL = 15 pF, Fo ≤ 125 MHz / -20 ˚C to +70 ˚C)	OE
		SH						ST
		PC	28 mA Max.	3 V ±0.165 V	15 pF	3.0 ns Max. (20 % to 80 % VDD / 80 % to 20 % VDD, CL = Max.)	45 % to 55 % (50 % VDD, CL = 15 pF, Fo ≤ 40 MHz) 40 % to 60 % (50 % VDD, CL = 15 pF, Fo ≤ 125 MHz)	OE
		SC						ST

PLL oscillator (SG-8002 series and HG-8002 series)

■ PLL-PLL connection

Because of using a PLL technology, there are a few case that the jitter value will increase when SG-8002 is connected the other PLL-oscillator.

In our experience, we are unable to recommend these products for the application such as telecom carrier use or video clock use. Please take careful checking in advance for these application (Jitter specification is Max. 250 ps / CL = 15 pF)

■ Remarks on noise management for power supply line

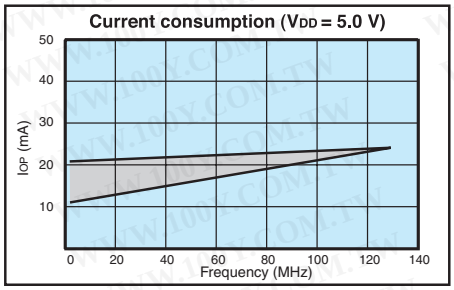
We recommend not to insert the filter and or another devices in the power supply line as the counter measure of EMI noise reduction. This device insertion might cause high-frequency impedance high in the power supply line and it affects oscillator stable drive.

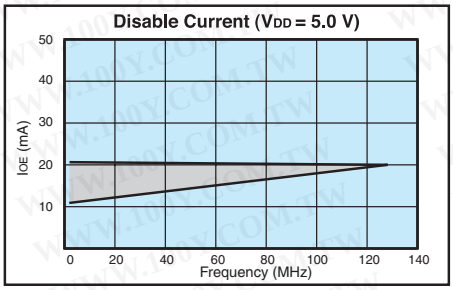
When this measure is required. please evaluate circuitry and device behaviour in the circuit and verify that won't affect oscillation. And start up time (0% V_{DD} to 90% V_{DD}) of power source should be more than 150 µs.

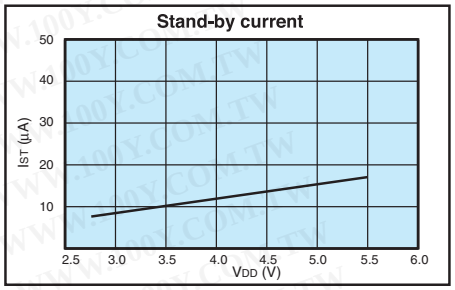
■ Jitter Specifications

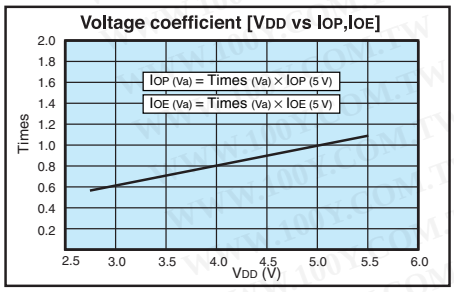
Model	Operating Voltage	Jitter Item	Specifications	Remarks
PT / PH ST / SH	5 V ±0.5 V	Cycle to cycle	150 ps Max.	33 MHz ≤ fo ≤ 125 MHz, C_L = 15 pF
			200 ps Max.	1.0 MHz ≤ fo < 33 MHz, C_L = 15 pF
		Peak to peak	200 ps Max.	33 MHz ≤ fo ≤ 125 MHz, C_L = 15 pF
			250 ps Max.	1.0 MHz ≤ fo < 33 MHz, C_L = 15 pF
SC / PC	3.3 V ±0.3 V	Cycle to cycle	200 ps Max.	1.0 MHz ≤ fo ≤ 125 MHz, C_L = 15 pF
		Peak to peak	250 ps Max.	1.0 MHz ≤ fo ≤ 125 MHz, C_L = 15 pF

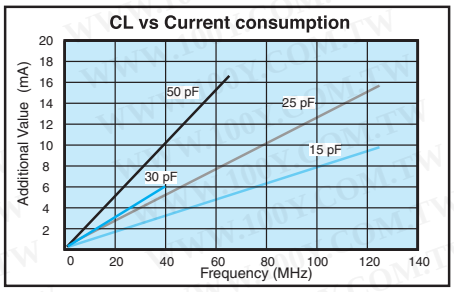
■ SG-8002 series Characteristics chart

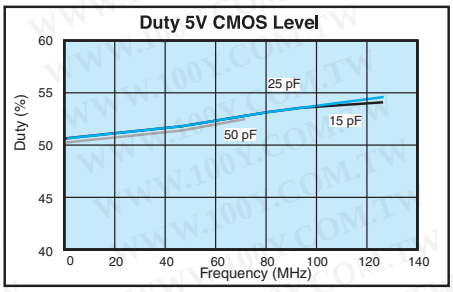


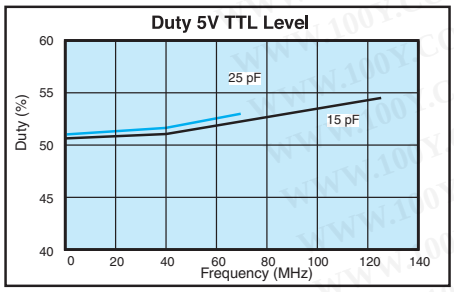


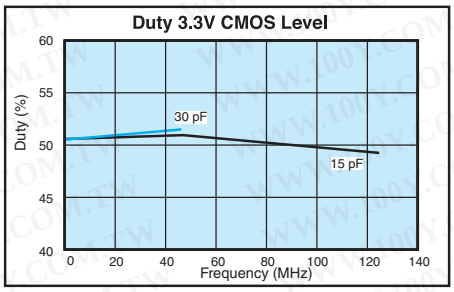


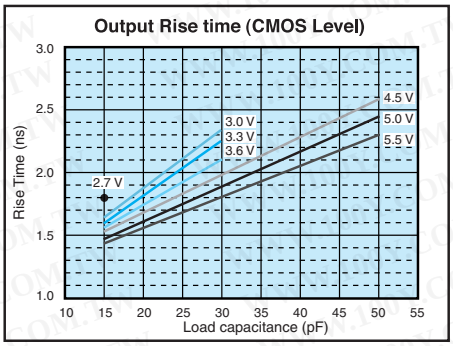


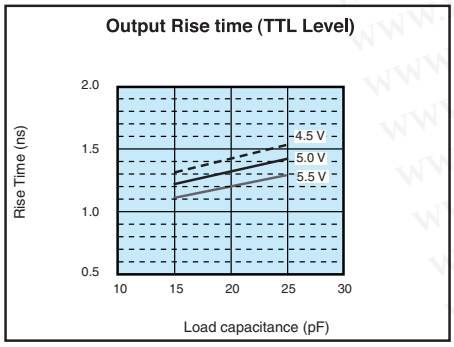


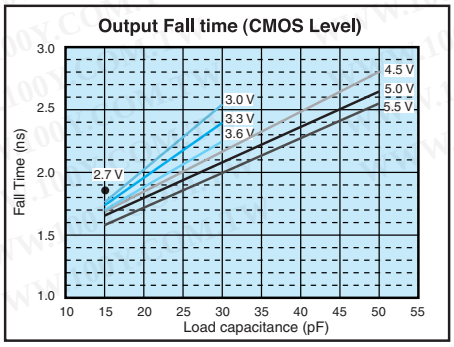


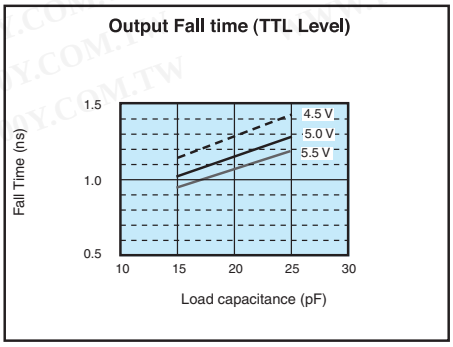












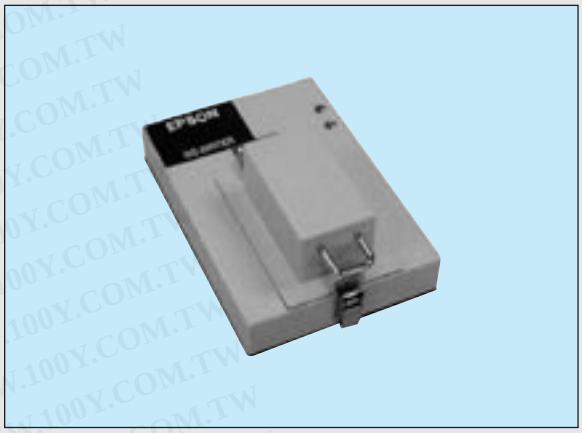
FOR SG-8002 SERIES PROGRAMMING TOOL

SG-WRITER

Product number

Q91PR20W0101000

- Easy frequency program for EPSON SG-8002 series oscillator (Blank oscillator).
- Free power supply for USB accommodate.
- Flexible PC accommodate.
  Windows 98SE, 2000, Me, XP (Except Windows 95, NT)
- Small body and easy carry.



■ Main Body Specifications

Name (Product Number)	SG-Writer for EPSON SG-8002 Series (Q91PR20W0101000)
Operating Temperature	+10 ˚C to +40 ˚C Writing (25 ˚C ±5 ˚C)
Electric Power Supply	Via USB
Standard Interface	USB Type B
External Dimensions (mm)	160 x 110 x 36 (textool top)
Wight	700 g
Accessories	SG-Writer CD-ROM (Software and Instruction Manual : Japanese, English) Documents : Japanese, English
Software, Driver	SG-Writer ∗1 EPSON USB Driver
Option Parts	SMD socket (JA, JC, CA, JF, CE, LA and LB type)

∗1 SG-Writer software is available only from Epson website after user registration. http://www.epsondevice.com/qd_e/SG-8002CS

■ Recommend PC Specifications (Need connect PC and SG-Wrier when you Writing.)

Accommodate OS	Windows XP, Windows Me, Windows 2000, Windows 98SE (Except Windows 95, NT)
Recommend CPU	Pentium Processor 200MHz equivalent and higher
Recommend memory Capacity	Recommend Over 64MB
Recommend HDD Capacity	Need Over 40MB
Other	CD-ROM drive, USB cable (Type A ↔ Type B) Need SMD ∗2 socket when you write SG-8002 SMD products. (Sold individually)

∗2 Conventional SMD socket can be used with new SG-Writer.

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