PROGRAMMABLE HIGH-FREQUENCY CRYSTAL OSCILLATOR

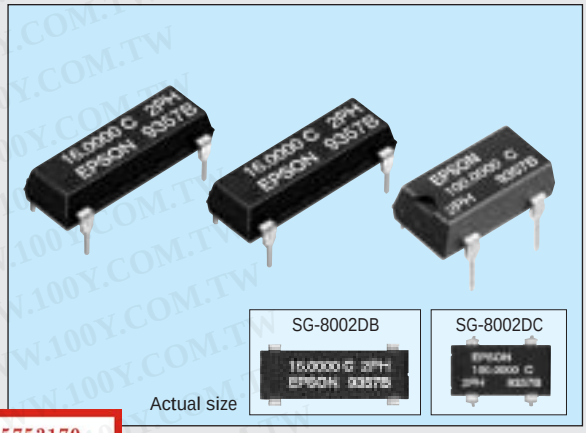
SG-8002DB/ DC series

Product number (please refer to page 1)

Q3203DBxxxxxx00
Q3204DCxxxxxx00

- 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 (ST) can be used for low current consumption applications.
- Pin compatible with full size and half size.

8002 PROM Writer available to purchase.
Please contact EPSON or local sales representative.



Specifications (characteristics)

Item		Symbol	Specifications *2 PT/ST	PH/SH	PC/SC	Remarks
Output frequency range		f_0	1.0000 MHz to 125.0000 MHz			Refer to page 33. "Frequency range"
Power source voltage	Max. supply voltage	V_{DD}-GND	-0.5 V to +7.0 V			
	Operating voltage	V_{DD}	5.0 V ±0.5 V		3.3 ± 0.3 V	2.7 V to 3.6 V: $f_0 \le 66.7$ MHz(PC/SC)
Temperature range	Storage temperature	T_{STG}	-55 °C to +125 °C			Stored as bare product after unpacking
	Operating temperature	T_{OPR}	-20 °C to +70 °C (-40 °C to +85 °C)		-40 °C to +85 °C	Refer to page 33."Frequency range"
Frequency stability		$\Delta f/f_0$	B: ±50 x 10^{-6} C: ± 100 x 10^{-6} M: ±100 x 10^{-6}			B,C: -20 °C to +70 °C, M: -40 °C to +85 °C
Current consumption		Iop	45 mA Max.		28 mA Max.	No load condition, Max. frequency range
Output disable current		I_{OE}	30 mA Max.		16 mA Max.	OE=GND(PT, PH, PC)
Standby current		I_{ST}	50 µA Max.			$\overline{ST}$=GND(ST, SH, SC)
Duty *1		t_w/t	—	40 % to 60 %		CMOS load: 1/2 V_{DD} level
			40 % to 60 %	—		TTL load: 1.4 V level
High output voltage		V_{OH}	V_{DD} -0.4 V Min.			I_{OH}=-16 mA(PT/ST, PH/SH),-8 mA(PC/SC)
Low output voltage		V_{OL}	0.4 V Max.			I_{OL}= 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	C_L	15 pF Max.	25 pF Max.	15 pF Max.	
Output enable/disable input voltage		V_{IH}	2.0 V Min.		0.7 x V_{DD} Min.	$\overline{ST}$, OE terminal
		V_{IL}	0.8 V Max.		0.2 x V_{DD} Max.	
Output rise time *1	CMOS level	t_{TLH}	—	4 ns Max.		CMOS load: 20 %→80 % V_{DD}
	TTL level		4 ns Max.	—		TTL load: 0.4 V→2.4 V
Output fall time *1	CMOS level	t_{THL}	—	4 ns Max.		CMOS load: 80 %→20 % V_{DD}
	TTL level		4 ns Max.	—		TTL load: 2.4 V→0.4 V
Oscillation start up time		t_{OSC}	10 ms Max.			Time at minimum operating voltage to be 0 s
Aging		fa	±5 x 10^{-6}/year Max.			Ta= +25 °C, V_{DD} = 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

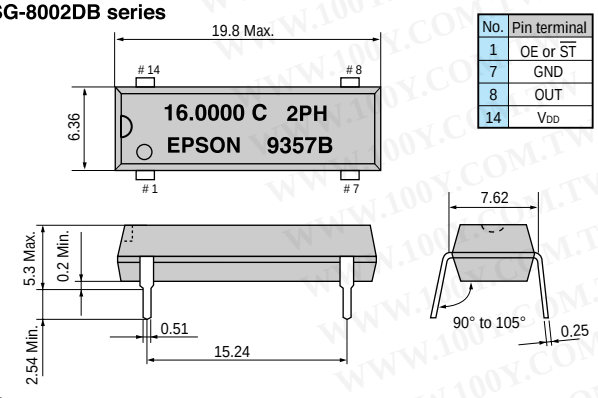
*1 Operating temperature(-40 °C to +85 °C), the available frequency, duty and output load conditions, please refer to page 33.
*2 PLL - PLL connection & Jitter specification, please refer to page 53, 54.
Checking possible by the Frequency Checking Program.

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

External dimensions

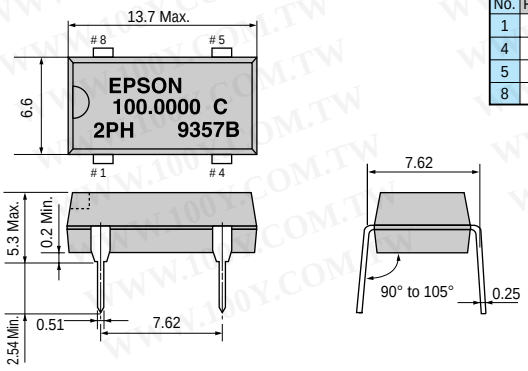
(Unit: mm)

● SG-8002DB series



No.	Pin terminal
1	OE or $\overline{ST}$
7	GND
8	OUT
14	V_{DD}

● SG-8002DC series



No.	Pin terminal
1	OE or $\overline{ST}$
4	GND
5	OUT
8	V_{DD}

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.

ENERGY SAVING EPSON

EPSON offers effective savings to its customers through a wide range of electronic devices, such as semiconductors, liquid crystal display (LCD) modules, and crystal devices. These savings are achieved through a sophisticated melding of three different efficiency technologies.

Power saving technology provides low power consumption at low voltages.

Space saving technology provides further reductions in product size and weight through super-precise processing and high-density assembly technology.

Time saving technology shortens the time required for design and development on the customer side and shortens delivery times.

Our concept of Energy Saving technology conserves resources by blending the essence of these three efficiency technologies. The essence of these technologies is represented in each of the products that we provide to our customers.

In the industrial sector, leading priorities include measures to counter the greenhouse effect by reducing CO2, measures to preserve the global environment, and the development of energy-efficient products. Environmental problems are of global concern, and although the contribution of energy-saving technology developed by EPSON may appear insignificant, we seek to contribute to the development of energy-saving products by our customers through the utilization of our electronic devices. EPSON is committed to the conservation of energy, both for the sake of people and of the planet on which we live.

WORKING WITH ENVIRONMENTAL ISSUES

In 1988, Seiko Epson led in working to abolish CFCs, and perfect abolition of those ozone layer-destroying substances was achieved in 1992. In 1998, the 10th year of start of the CFC-free activity, Seiko Epson set this year as the "Second Environmental Benchmark Year" and established a new corporate General Environmental Policy. Seiko Epson is tackling with environmental issues comprehensively.

At the end of Fiscal 1988, Seiko Epson succeeded in abolishing chloric solvents doubted to be harmful to human body. In fiscal 1999, Seiko Epson started the activity with a goal of abolishing lead solder pointed out possibility of enironmental pollutant.

Promotion of Environment Management System conforming to International Standard

To strengthen management for environmental activities, Seiko Epson Group aims at acquisition of the ISO14001 certification for Japanese and abroad main business bases (including affiliates) for manufacturing, sales, software development and others.

As of May 25 , 2001, planned 68 bases of all manufacturing bases and some non-manufacturing bases have acquired the certification.

Co-existence Mark
The environmental mark symbolizing Epson's basic stance of "Co-existence with Nature".
The design incorporates a fish, flower, and water, representing mutually supportive co-existence.

ISO14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

WORKING FOR HIGH QUALITY

Seiko-Epson quickly began working to acquire company-wide ISO9000 series certification, and has acquired ISO9001 or ISO9002 certification with all targeted products manufactured in Japanese and overseas plants.

The Quartz Device Operations Division, EPM and SZE have acquired QS-9000 certification, which are of higher level.

QS-9000:
This is an enhanced standard for quality assurance systems formulated by leading U.S. automobile manufacturers based on the international ISO 9000 series.

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