



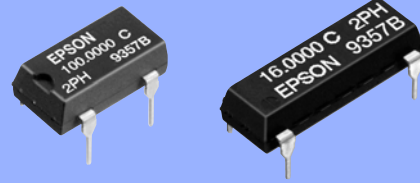
CRYSTAL OSCILLATOR PROGRAMMABLE

SG-8002DC / DB series

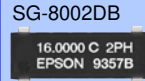
- Frequency range : 1 MHz to 125 MHz
- Supply voltage : 3.3 V / 5.0 V
- Function : Output enable(OE) or Standby(\overline{ST})
Pin compatible with full size and half size.
- Short mass production lead time by PLL technology.
- SG-Writer available to purchase.
Please contact EPSON TOYOCOM or local sales representative.



Product Number (please contact us)
 SG-8002DC: Q3204DCx1xxxx00
 SG-8002DB: Q3203DBx1xxxx00



Actual size



Specifications (characteristics)

Item	Symbol	Specifications *2			Remarks
		PT / ST	PH / SH	PC / SC	
Output frequency range	f_o	1 MHz to 125 MHz			$V_{CC}=4.5 V$ to $5.5 V$
		—			$V_{CC}=3.0 V$ to $3.6 V$
		—			$V_{CC}=2.7 V$ to $3.6 V$
Supply voltage	V_{CC}	4.5 V to 5.5 V			
Temperature range	Storage temperature	-55 °C to +125 °C			Store as bare product after unpacking
	Operating temperature	-20 °C to +70 °C (-40 °C to +85 °C)	-40 °C to +85 °C		Refer to "Outline specifications" (Frequency range)
Frequency tolerance	f_{tol}	B: $\pm 50 \times 10^{-6}$,C: $\pm 100 \times 10^{-6}$			-20 °C to +70 °C
		M: $\pm 100 \times 10^{-6}$			-40 °C to +85 °C *3
Current consumption	I_{CC}	45 mA Max.		28 mA Max.	No load condition, Max. frequency
Disable current	I_{dis}	30 mA Max.		16 mA Max.	OE=GND(PT,PH,PC)
Stand-by current	I_{std}	50 μA Max.			\overline{ST} =GND(ST,SH,SC)
Symmetry *1	SYM	—		40 % to 60 %	CMOS load:50% V_{CC} level, Max. load condition
		40 % to 60 %		—	TTL load: 1.4 V level, Max. load condition
High output voltage	V_{OH}	$V_{CC}-0.4 V$ 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 (TTL) *1	L_{TTL}	5 TTL Max.		—	Max. frequency and
Output load condition (CMOS) *1	L_{CMOS}	15 pF Max.		25 pF Max.	Max. supply voltage
Output enable / disable input voltage	V_{IH}	2.0 V Min.		70 % V_{CC} Min.	\overline{ST} terminal or OE terminal
	V_{IL}	0.8 V Max.		20 % V_{CC} Max.	
Rise time / Fall time *1	t_r / t_f	—			CMOS load: 20 % V_{CC} to 80 % V_{CC} level
		4 ns Max.		3 ns Max.	TTL load: 0.4 V to 2.4 V level
Start-up time	t_{str}	10 ms Max.			Time at minimum supply voltage to be 0 s
Frequency aging	f_{aging}	$\pm 5 \times 10^{-6}$ / year Max.			+25 °C, $V_{CC}=5.0 V / 3.3 V$ (PC/SC) First year

*1 Operating temperature (-40 °C to +85 °C), the available frequency, symmetry and output load conditions, please refer to "Outline specifications" page.

*2 PLL-PLL connection & Jitter specification, please refer to "Jitter specifications and characteristics chart" page.

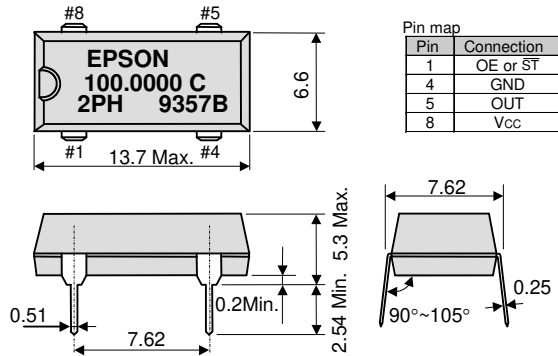
*3 PT / ST and PH / SH for "M" tolerance will be available up to 55 MHz.

Checking possible by the Frequency Checking Program.

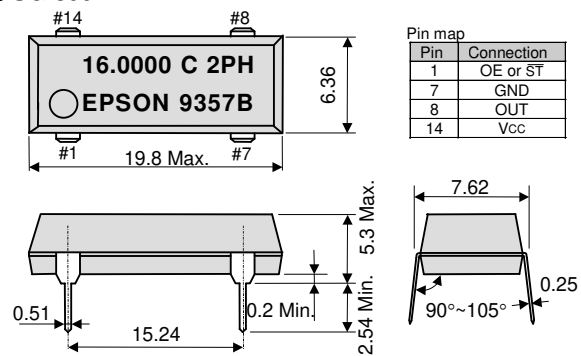
External dimensions

(Unit:mm)

SG-8002DC



SG-8002DB



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

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

To maintain stable operation, provide by-pass capacitor with more than 0.1 μF at a location as near as possible to the power source terminal of the crystal products (between V_{CC} - GND).