



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





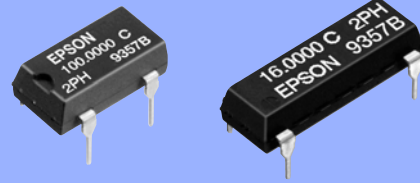
# CRYSTAL OSCILLATOR PROGRAMMABLE

## SG-8002DC / DB series

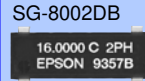
- Frequency range : 1 MHz to 125 MHz
  - Supply voltage : 3.3 V / 5.0 V
  - Function : Output enable(OE) or Standby( $\overline{ST}$ )  
Pin compatible with full size and half size.
  - Short mass production lead time by PLL technology.
  - SG-Writer available to purchase.
- Please contact EPSON TOYOCOM 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 $\mu A$ 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	$t_r / t_f$	—			3 ns Max.	CMOS load: 20 % $V_{CC}$ to 80 % $V_{CC}$ level
		4 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.

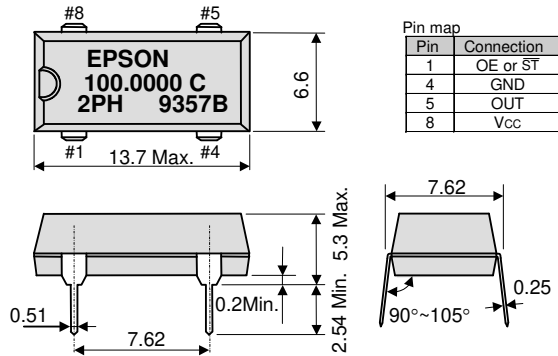
\*3 PT / ST and PH / SH for "M" tolerance will be available up to 55 MHz.

Checking possible by the Frequency Checking Program.

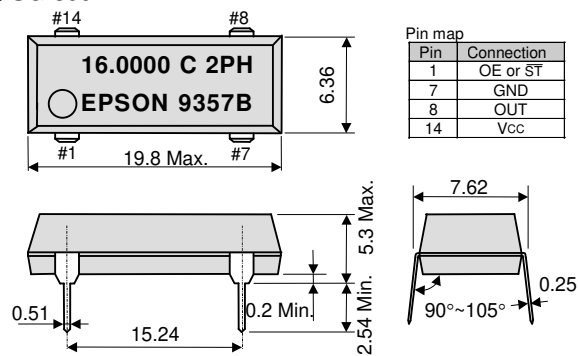
### External dimensions

(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  $\mu F$  at a location as near as possible to the power source terminal of the crystal products (between  $V_{CC}$  - GND).