CRYSTAL OSCILLATOR
PROGRAMMABLE

SG - 8002JC / JA series

- Frequency range : 1 MHz to 125 MHz
- Supply voltage : 3.3 V or 5.0 V
- Function : Output enable(OE) or Standby($\overline{ST}$)
- Thickness : 2.7 mm Max.(SG-8002JC)
  4.7 mm Max.(SG-8002JA)

  Package and pin compatible with SG-636 (SG-8002JC)
  Package and pin compatible with SG-615 (SG-8002JA)
- Lead(Pb)-free : Contains high melting temperature type solder (Pb85 %) exempted by RoHS directive.
- Short mass production lead time by PLL technology.
- SG-Writer available to purchase.
  Please contact EPSON TOYOCOM or local sales representative.

Actual size

SG-8002JC	SG-8002JA
	

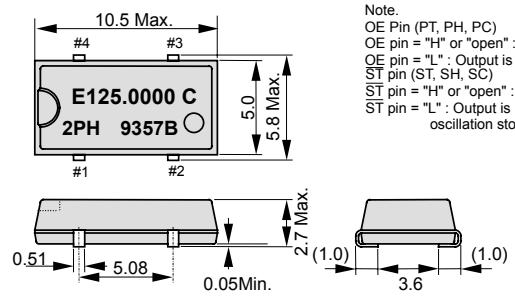
Specifications (characteristics)

Item		Symbol	Specifications *2			Remarks
			PT / ST	PH / SH	PC / SC	
Output frequency range		f_0	1 MHz to 125 MHz		—	V_{CC}=4.5 V to 5.5 V
			—		1 MHz to 125 MHz	V_{CC}=3.0 V to 3.6 V
			—		1 MHz to 66.7 MHz	V_{CC}=2.7 V to 3.6 V
Supply voltage		V_{CC}	4.5 V to 5.5 V		2.7 V to 3.6 V	
Temperature range	Storage temperature	T_stg	-55 °C to +125 °C (JC:-55 °C to +100 °C)			Stored as bare product after unpacking
	Operating temperature	T_use	-20 °C to +70 °C (-40 °C to +85 °C)		-40 °C to +85 °C	Refer to "Frequency range" (P.4) SG-8002JC:-20 °C to +70 °C Only
Frequency tolerance		F_tol(osc)	B: ±50 × 10^{-6} ,C: ±100 × 10^{-6}			-20 °C to +70 °C
			M: ±100 × 10^{-6}			-40 °C to +85 °C *3
Current consumption		I_{CC}	45 mA Max.		28 mA Max.	No load condition, Max. frequency
Output 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: 1.4V 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	5TTL Max.	—		$f_0 \leq$ 90 MHz and Max. Supply voltage
Output load condition (CMOS) *1		L_CMOS	15pF Max.			Max. frequency and Max. Supply voltage
Output enable / disable input voltage		V_{IH}	2.0 V Min.		70 % V_{CC} Min.	$\overline{ST}$, OE terminal
		V_{IL}	0.8 V Max.		20 % V_{CC} Max.	$\overline{ST}$, OE terminal
Output rise and fall time *1		tr / tf	—	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
Oscillation start up time		t_{OSC}	10 ms Max.			Time at minimum supply voltage to be 0 s
Frequency aging		F_aging	±5 × 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 Page 48.
*2 PLL-PLL connection & Jitter specification, please refer to Page 49.
*3 PT / ST and PH / SH for "M" tolerance will be available up to 55 MHz.(Except:SG-8002JC)
Checking possible by the Frequency Checking Program.

External dimensions (Unit:mm)

● SG-8002JC

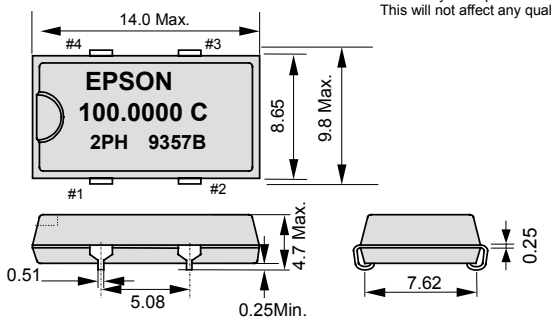


Note.
OE Pin (PT, PH, PC)
OE pin = "H" or "open" : Specified frequency output.
OE pin = "L" : Output is high impedance.
$\overline{ST}$ pin (ST, SH, SC)
$\overline{ST}$ pin = "H" or "open" : Specified frequency output.
$\overline{ST}$ pin = "L" : Output is low level (weak pull - down), oscillation stops.

Pin map

Pin	Connection
1	OE or $\overline{ST}$
2	GND
3	OUT
4	Vcc

● SG-8002JA



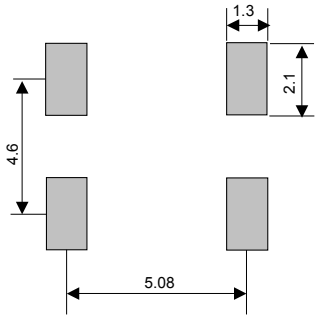
Metal may be exposed on the top or bottom of this product.
This will not affect any quality, reliability or electrical spec.

Pin map

Pin	Connection
1	OE or $\overline{ST}$
2	GND
3	OUT
4	Vcc

Footprint (Recommended) (Unit:mm)

● SG-8002JC



● SG-8002JA