SEIKO EPSON CORPORATION

Programmable Clock OSC SG-8101CG

Product name SG-8101CG 16.000000 MHz TBGSA
Product Number / Ordering code X1G0051810028xx
Please refer to the 8.Packing information about xx (last 2 digits)

Output waveform CMOS
Pb free / Complies with EU RoHS directive
Reference weight Typ. 13 mg

1.Absolute maximum ratings

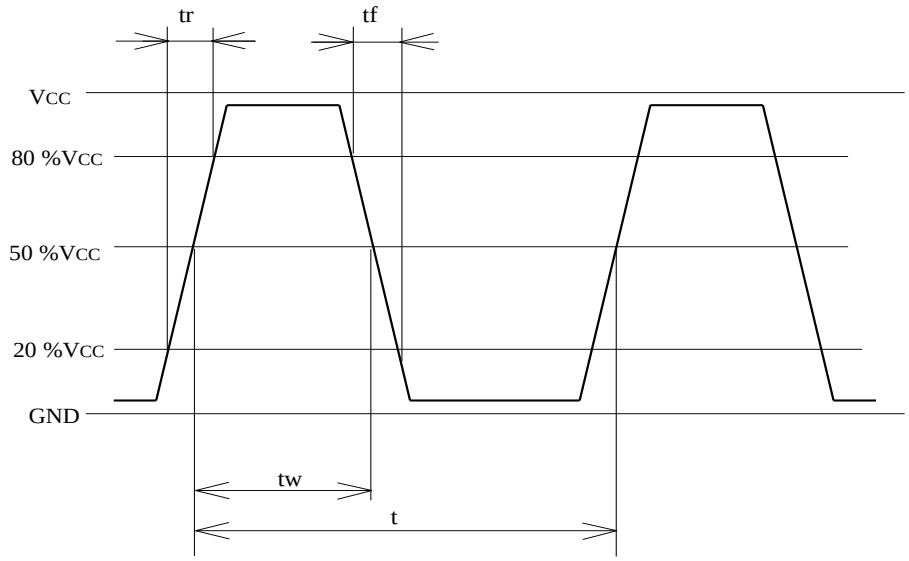
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Maximum supply voltage	Vcc-GND	-0.3	-	+4.0	V	-
Storage temperature	T_stg	-40	-	+125	ºC	Stored as bare product after unpacking
Input voltage	Vin	GND-0.5	-	Vcc+0.3	V	ST or OE terminal

2.Specifications(characteristics)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Output frequency	f0		16.000000		MHz	
Supply voltage	Vcc	1.62	-	3.63	V	Typ. 1.8V / 2.5V / 3.3V
Operating temperature	T_use	-40	-	+85	ºC	-
Frequency tolerance	f_tol	-15	-	+15	$x10^{-6}$	T_use : -40 to +85ºC
Current consumption	Icc	-	-	3.5	mA	Vcc=3.3V Typ., No load
Stand-by current	I_std	-	-	2.5	µA	Vcc=3.3V Typ., ST=GND
Disable current	I_dis	-	-	-	mA	-
Symmetry	SYM	45	-	55	%	50%Vcc, L_CMOS=<15pF
Output voltage	V_{OH}	90%Vcc	-	-	V	-
	V_{OL}	-	-	10%Vcc	V	-
Output load condition	L_CMOS	-	-	15	pF	CMOS Load
Input voltage	V_{IH}	70%Vcc	-	-	V	ST Terminal
	V_{IL}	-	-	30%Vcc	V	ST Terminal
Rise time	t_r	-	-	6	ns	20% to 80%Vcc,L_CMOS=15pF
Fall time	tf	-	-	6	ns	20% to 80%Vcc,L_CMOS=15pF
Disable time	t_stp	-	-	1	µs	Measured from the time OE or ST pin crosses 30%Vcc
Enable time	t_sta	-	-	-	µs	-
Resum time	t_res	-	-	3	ms	Measured from the time STpin crosses 70%Vcc
Start-up time	t_str	-	-	3	ms	Measured from the time Vcc reaches its rated minimum value, 1.62V
Frequency aging	f_age	-	-	-	$x10^{-6}$/Year	Included in Frequency tolerance First year

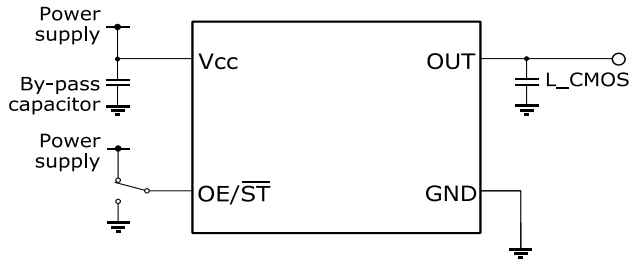
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3.Timing chart

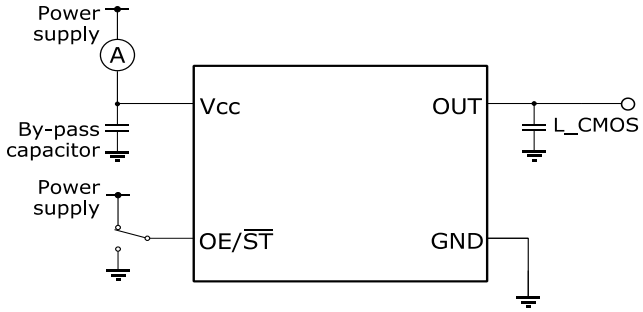


4.Test circuit

1) Waveform observation



2) Current consumption



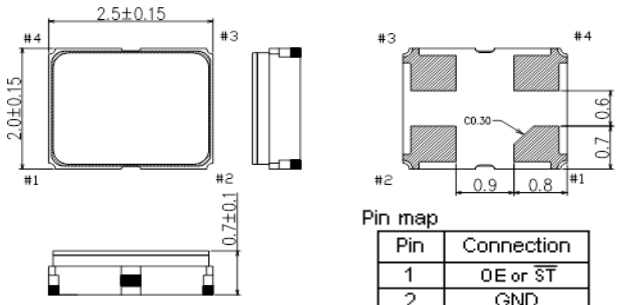
* Current consumption under the disable function should be OE = GND
Current consumption under the standby function should be ST = GND.

3) Measurement conditions

(1) L_CMOS includes probe capacitance.
(2) Mount a by-pass capacitor (approx. 0.01 to 0.1 µF) near the mains terminals of the oscillator (between Vcc and GND)

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5.External dimensions (Unit: mm)

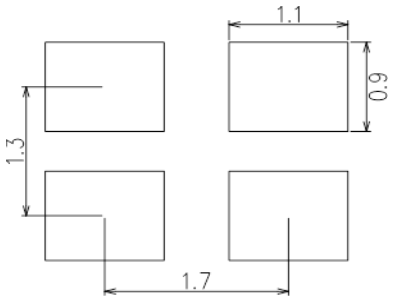


Pin map

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

OE Pin = "H" : Specified frequency output.
OE Pin = "L" : Output is low level (weak pull - down)
ST Pin = "H" : Specified frequency output.
ST Pin = "L" : Output is low level (weak pull - down), oscillation stops.

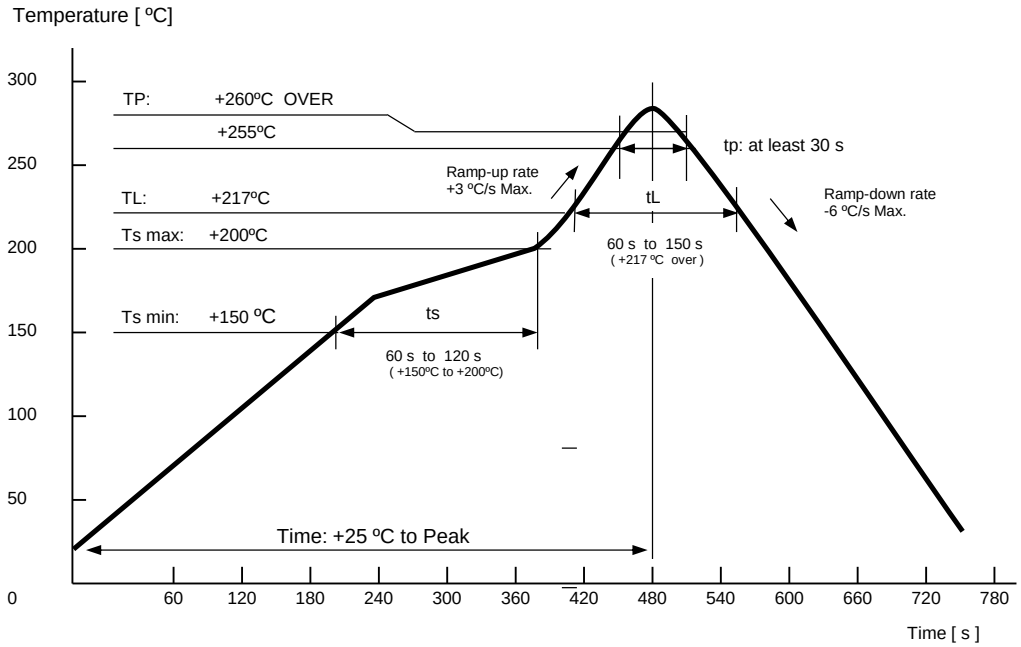
6.Footprint(Recommended) (Unit: mm)



In order to achieve optimum jitter performance, the 0.1 µF capacitor between VCC and GND should be placed. It is also recommended that the capacitors are placed on the device side of the PCB, as close to the device as possible and connected together with short wiring pattern.

7.Reflow profile

Reflow condition (Follow of JEDEC STD-020D.1)



8.Packing information

[1]Product number last 2 digits code(xx) description The recommended code is "00"

X1G0051810028xx

Code	Condition	Code	Condition
01	Any Q'ty vinyl bag(Tape cut)	14	1000pcs / Reel
11	Any Q'ty / Reel	15	2000pcs / Reel
12	250pcs / Reel	00	3000pcs / Reel

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[2] Taping specification

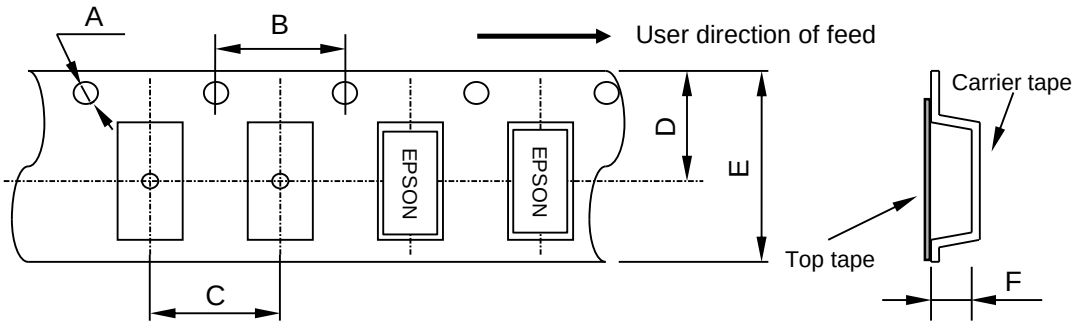
Subject to EIA-481 & IEC-60286

(1) Tape dimensions

Material of the Carrier Tape : PS

Material of the Top Tape : PET

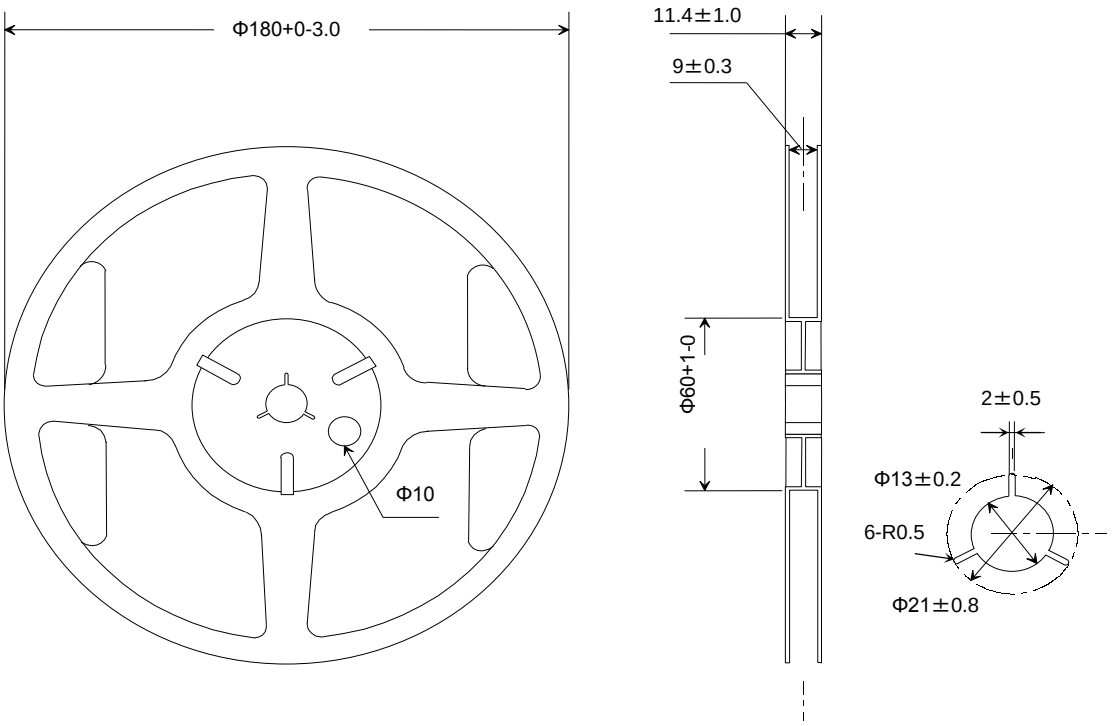
Unit: mm



Symbol	A	B	C	D	E	F
Value	Φ1.5	4.0	4.0	5.25	8.0	1.15

(2) Reel dimensions

Material of the Reel : PS



Form and Size of reel window shows are one of the example

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