

## Clock OSC

## SG3225HBN

Product name SG3225HBN 100.000000MHz CLGA  
 Product Number / Ordering code X1G0051410003xx

Please refer to the 8.Packing information about xx (last 2 digits)

Output waveform HCSL

Pb free / Complies with EU RoHS directive

Reference weight Typ. 26 mg

**1. Absolute maximum ratings**

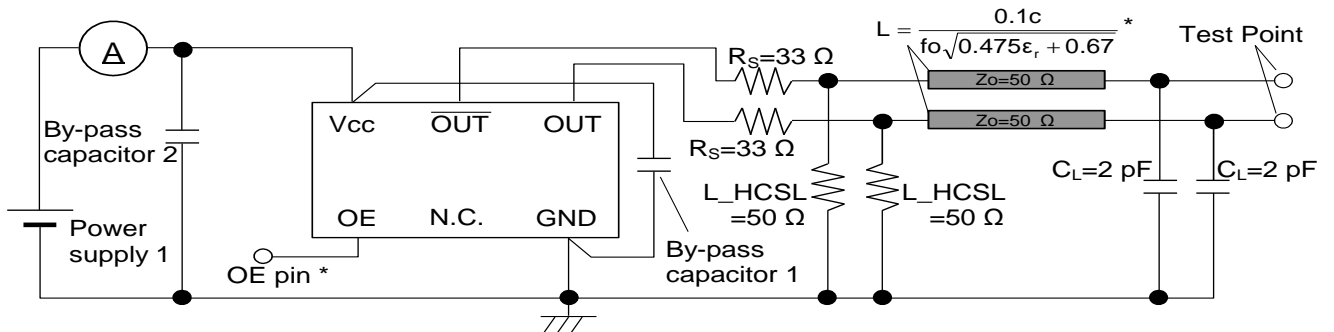
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Maximum supply voltage	V <sub>cc-GND</sub>	-0.5	-	4	V	-
Storage temperature	T <sub>stg</sub>	-55	-	125	°C	Storage as bare product
Input voltage	V <sub>in</sub>	-0.3	-	V <sub>cc</sub> +0.3	V	OE Terminal

**2. Specifications(characteristics)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Output frequency	f <sub>0</sub>	-	100.0000	-	MHz	
Supply voltage	V <sub>cc</sub>	3.135	3.3	3.465	V	-
Operating temperature	T <sub>use</sub>	-40	-	85	°C	-
Frequency tolerance	f <sub>tol</sub>	-100	-	100	x10 <sup>-6</sup>	-
Current consumption	I <sub>cc</sub>	-	25	35	mA	-
Disable current	I <sub>dis</sub>	-	-	15.0	mA	OE = GND
Symmetry	SYM	45	50	55	%	at outputs crossing point
Output voltage(HCSL)	V <sub>OH</sub>	0.66	-	0.85	V	DC level
	V <sub>OL</sub>	-0.15	-	0.15	V	DC level
Crossing voltage	V <sub>CR</sub>	0.25	-	0.55	V	-
Output load condition	L <sub>HCSL</sub>	-	50	-	Ω	-
	R <sub>s</sub>	-	33	-	Ω	-
Input voltage	V <sub>IH</sub>	70% V <sub>cc</sub>	-	-		OE Terminal
	V <sub>IL</sub>	-	-	30% V <sub>cc</sub>		
Differential output rise slew rate / fall slew rate	R <sub>r</sub>	1	-	4	V/ns	Between -0.15 V and 0.15 V of differential output
	R <sub>f</sub>	1	-	4	V/ns	
Start-up time	t <sub>str</sub>	-	-	10	ms	Time at minimum supply voltage to be 0 s
Jitter	t <sub>DJ</sub>	-	2.1	-	ps	Deterministic Jitter
	T <sub>RJ</sub>	-	1.5	-	ps	Random Jitter
	t <sub>RMS</sub>	-	1.7	-	ps	σ(RMS of total distribution)
	t <sub>p-p</sub>	-	14.8	-	ps	Peak to Peak
	t <sub>acc</sub>	-	1.7	-	ps	Accumulated Jitter(σ) n=2 to 50 000 cycles
Phase jitter	t <sub>pJ</sub>	-	110	180	fs	Offset Frequency: 12 kHz to 20 MHz
Phase noise	L(f)	-	-28.4	-	dBc/Hz	Offset 1 Hz
		-	-62.9	-	dBc/Hz	Offset 10 Hz
		-	-89.5	-	dBc/Hz	Offset 100 Hz
		-	-117.1	-	dBc/Hz	Offset 1 kHz
		-	-145.8	-	dBc/Hz	Offset 10 kHz
		-	-157.3	-	dBc/Hz	Offset 100 kHz
Frequency aging	f <sub>age</sub>	-	-	-	x10 <sup>-6</sup> /Year	Included in Frequency tolerance 10 years
		-	-	-		

### 3. Test circuit

1) To observe waveform and current



\* Each output line is same length.

\* To measure the disable current, OE pin is connected to GND.

2) Measurement condition

(1) Oscilloscope

- Bandwidth should be 5 times higher than DUT's output frequency (4 GHz).
- Probe ground should be placed closely from test point and lead length should be as short as possible.

(2) By-pass capacitor 1 (approx. 0.01  $\mu$ F to 0.1  $\mu$ F) places closely between Vcc and GND.

(3) By-pass capacitor 2 (approx. 10  $\mu$ F) places closely between power supply terminals on the board.

(4) Use the current meter whose internal impedance value is small.

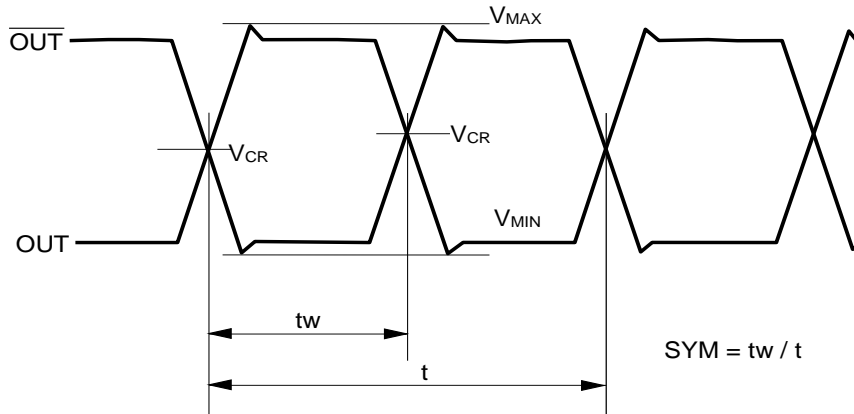
(5) Power supply

- Start up time (0 V  $\rightarrow$  90 %Vcc) of power source should be more than 150  $\mu$ s
- Impedance of power supply should be as low as possible.

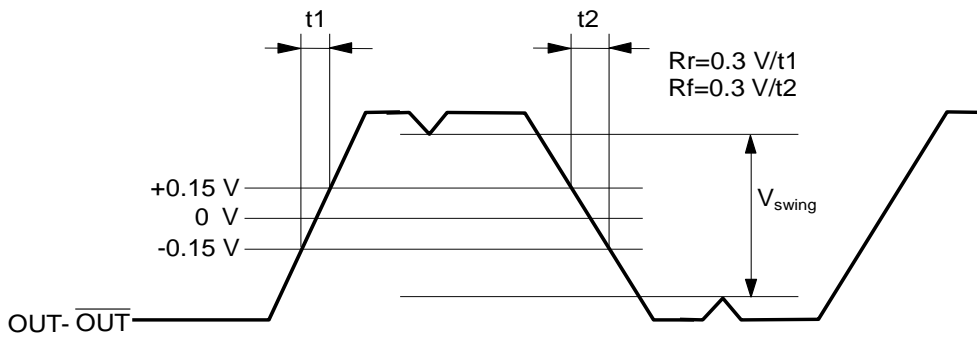
4. Timing chart

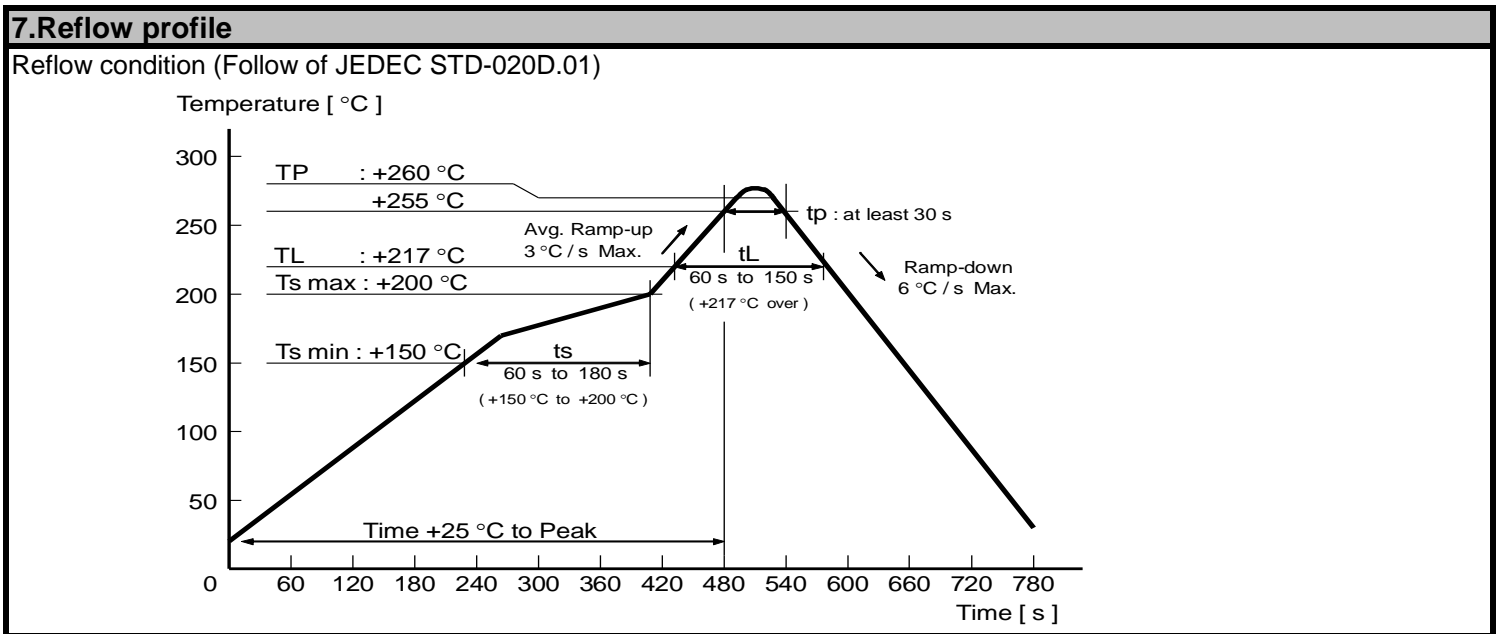
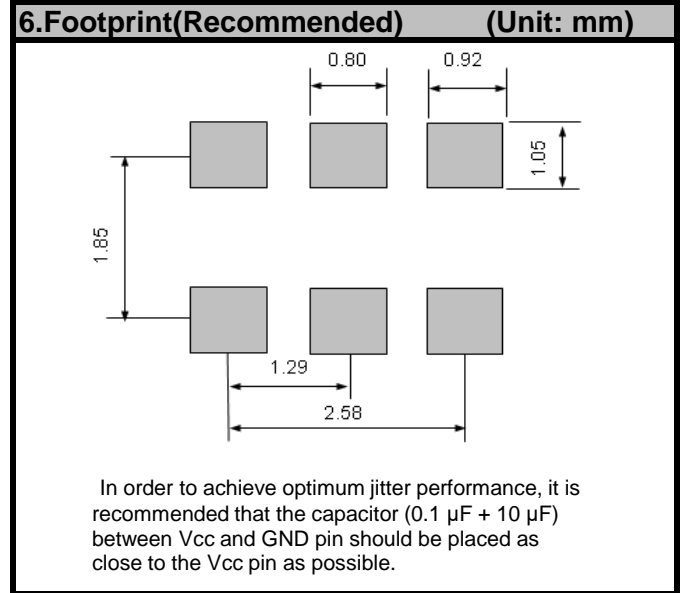
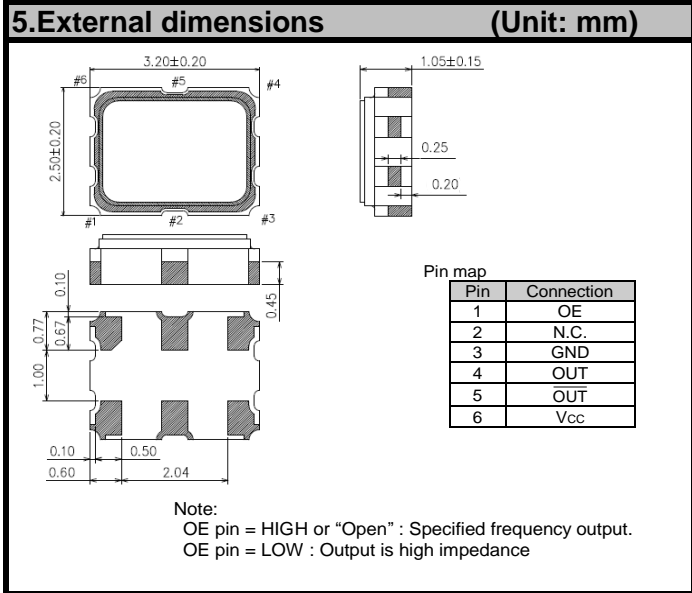
1) Output waveform and level

- OUT and  $\overline{\text{OUT}}$



- $\text{OUT} - \overline{\text{OUT}}$





### 8.Packing information

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

X1G0051410003xx

Code	Condition	Code	Condition
01	Any Q'ty vinyl bag(Tape cut)	13	500pcs / Reel
11	Any Q'ty / Reel	14	1000pcs / Reel
12	250pcs / Reel	00	2000pcs / Reel

[ 2 ] Taping specification

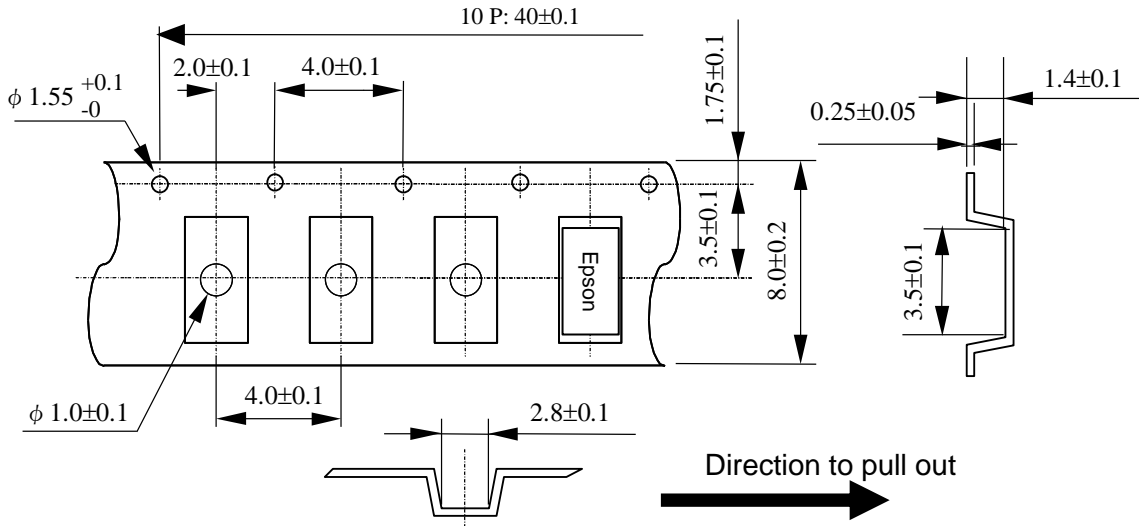
Subject to EIA-481 & IEC-60286

(1) Tape dimensions

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

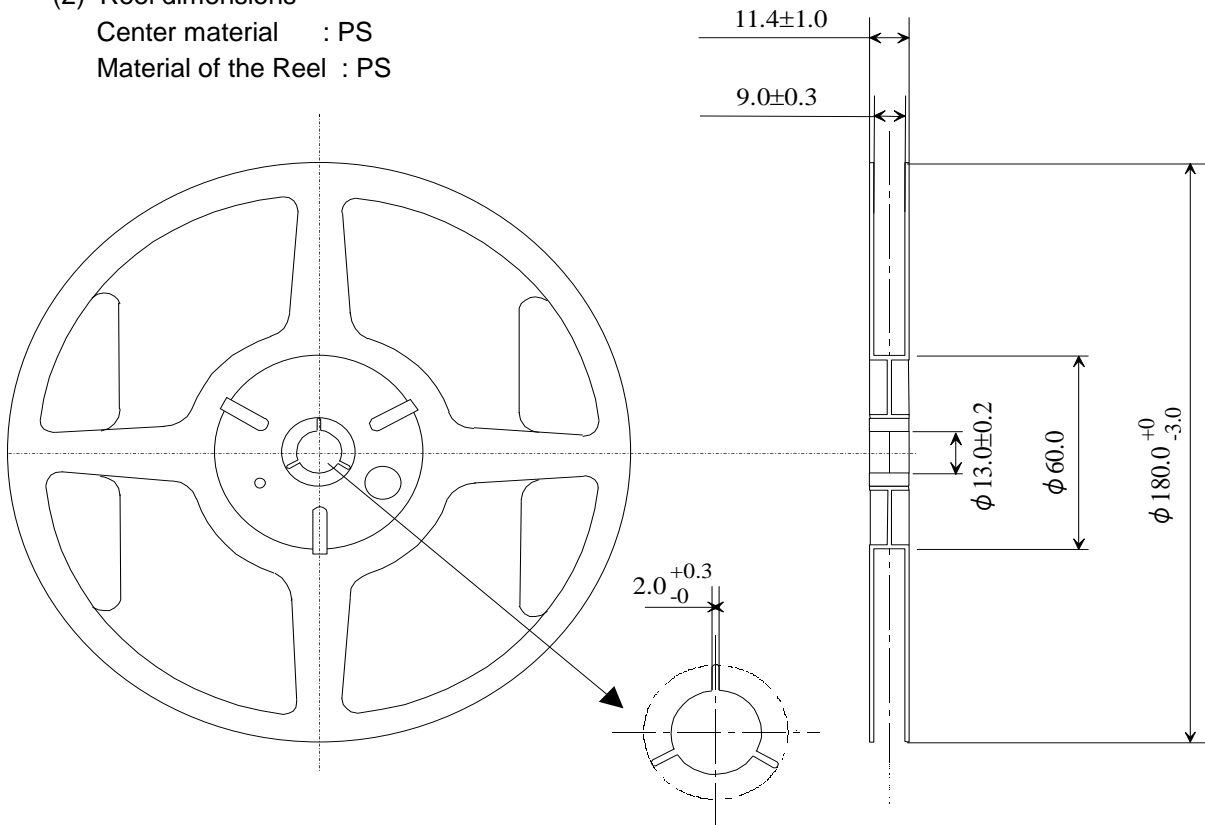
Unit: mm



(2) Reel dimensions

Center material : PS

Material of the Reel : PS



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