Clock OSC SG3225VEN

SEIKO EPSON CORPORATION

Product name SG3225VEN 156.250000MHz CJHA
Product Number / Ordering code X1G0053510036xx

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

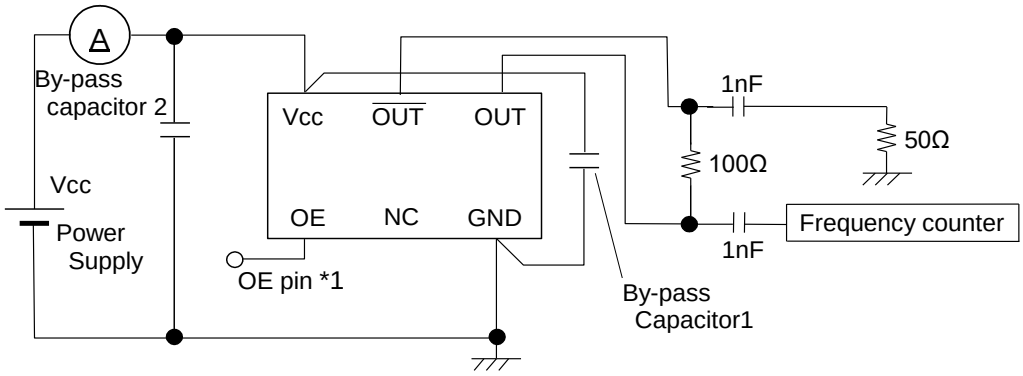
Output waveform LVDS
Pb free / Complies with EU RoHS directive
Reference weight Typ. 26 mg

1.Absolute maximum ratings						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Maximum supply voltage	Vcc-GND	-0.5	-	+4	V	-
Storage temperature	T_stg	-55	-	+125	ºC	Storage as single product
Input voltage	Vin	-0.5	-	Vcc+0.5	V	OE Terminal

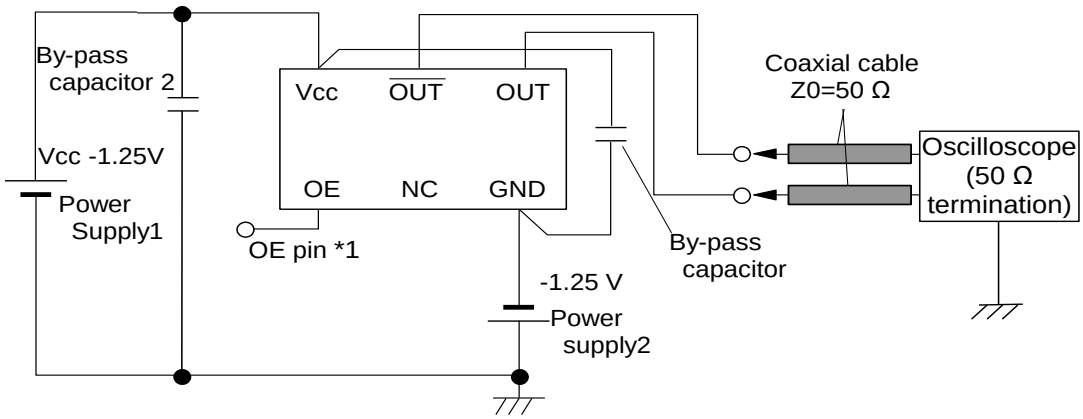
2.Specifications(characteristics)						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Output frequency	f0	-	156.2500	-	MHz	
Supply voltage	Vcc	3.135	3.3	3.465	V	-
Operating temperature	T_use	-40	-	+105	ºC	-
Frequency tolerance	f_tol	-50	-	+50	$x10^{-6}$	-
Current consumption	Icc	-	-	25	mA	OE=Vcc L_LVDS=100 ohm
Stand-by current	I_std	-	-	-	mA	-
Disable current	I_dis	-	-	15	mA	OE=GND
Symmetry	SYM	45	50	55	%	At output crossing point
Output voltage(LVDS)	V_{OD}	250	350	450	mV	VOD1 , VOD2
	dV_{OD}	-	-	50	mV	| VOD1 - VOD2 |
	Vos	1.15	1.25	1.35	V	VOS1 , VOS2
	dVos	-	-	50	mV	| VOS1 - VOS2 |
Output load condition(LVDS)	L_LVDS	-	100	-	Ω	-
Input voltage	V_{IH}	70% Vcc	-	-		OE Terminal
	V_{IL}	-	-	30% Vcc		OE Terminal
Rise time	t_r	-	-	300	ps	At 20% to 80% output swing
Fall time	tf	-	-	300	ps	At 20% to 80% output swing
Start-up time	t_str	-	-	10	ms	-
Jitter	t_{DJ}	-	1.1	-	ps	Deterministic Jitter
	T_{RJ}	-	0.6	-	ps	Random Jitter
	t_{RMS}	-	0.8	-	ps	δ(RMS of total distribution)
	t_{p-p}	-	6.8	-	ps	Peak to Peak
	t_{acc}	-	0.8	-	ps	Accumulated Jitter(δ) n=2 to 50000 cycles
Phase jitter	t_{PJ}	-	59.6	90	fs	Offset Frequency: 12kHz to 20MHz
Phase noise	L(f)	-	-49	-	dBc/Hz	Offset 1Hz
		-	-82	-	dBc/Hz	Offset 10Hz
		-	-111	-	dBc/Hz	Offset 100Hz
		-	-135	-	dBc/Hz	Offset 1kHz
		-	-149	-	dBc/Hz	Offset 10kHz
		-	-155	-	dBc/Hz	Offset 100kHz
		-	-160	-	dBc/Hz	Offset 1MHz
Frequency aging	f_age	-	-	-	$x10^{-6}$/Year	Included in Frequency tolerance 10 years
		-	-	-		-

3.Test circuit

1) To observe frequency and current



2) To observe output wave



*Each output line is same length

3) Measurement condition

A) Oscilloscope

- •Bandwidth should be 5 times higher than DUT's output frequency (2.5 GHz).
- •Probe ground should be placed closely from test point and lead length should be as short as possible.

B) By-pass capacitor 1 (approx. 0.1 µF) places closely between Vcc and GND.

C) By-pass capacitor 2 (approx. 10 µF) places closely between power supply terminals on the board.

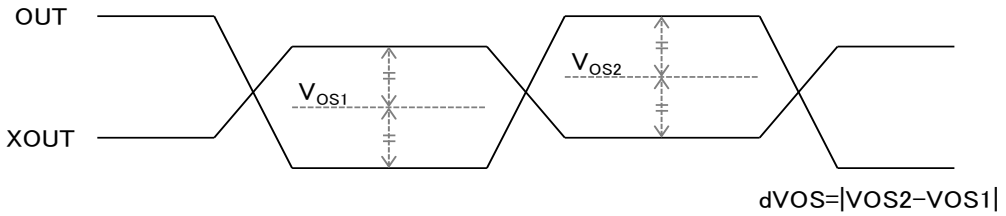
D) Use the current meter whose internal impedance value is small.

E) Power supply

- • Start up time (0 Vg90 %Vcc) of power source should be more than 150 µs
- • Impedance of power supply should be as low as possible.

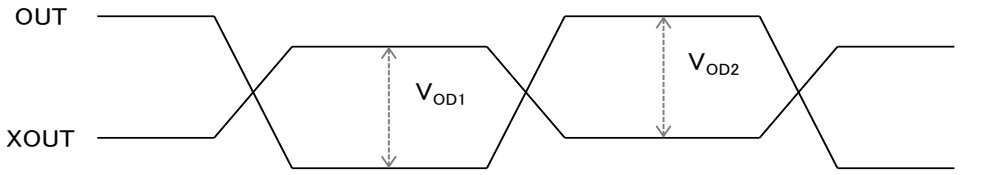
4.Timing chart

Output offset voltage



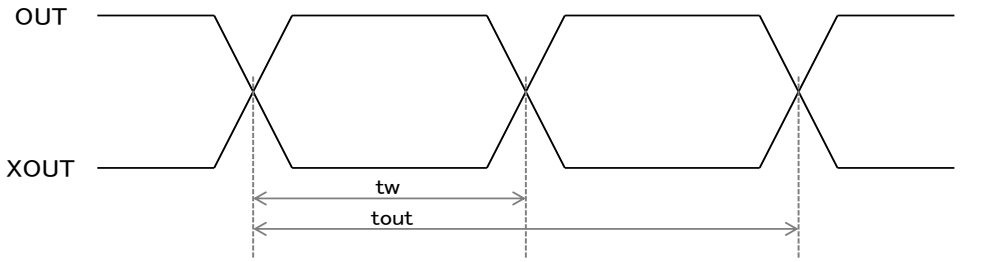
dVOS=|VOS2−VOS1|

Differential output voltage



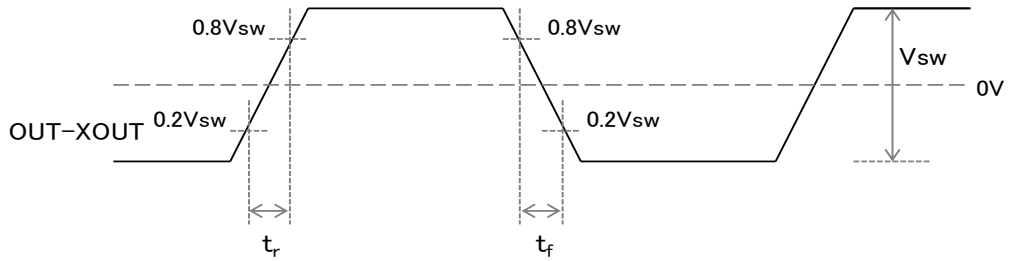
dVOD=|VOD2−VOD1|

Duty

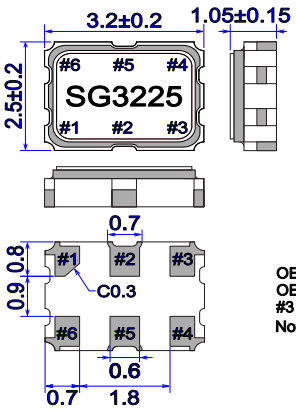


SYM=tw/tout ×100(%)

Rise time / Fall time



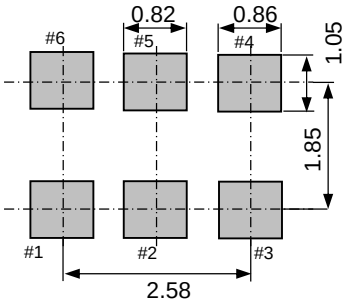
5.External dimensions (Unit: mm)



Pin	Connection
#1	OE
#2	N.C.(Open or Vcc))
#3	GND
#4	OUT(Positive)
#5	OUT(Negative)
#6	Vcc

OE pin = HIGH : Specified frequency output
OE pin = LOW : Output is high impedance
#3 is connected to the cover.
Not to scale.

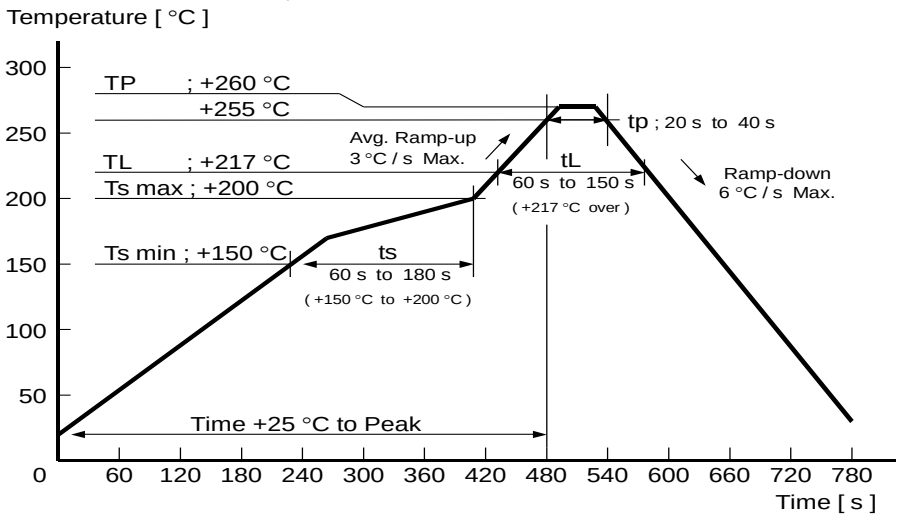
6.Footprint(Recommended) (Unit: mm)



In order to achieve optimum jitter performance, the 0.1 µF an7d 10 µF capacitor is required. These capacitors should be placed as close to Vcc (#6 pin) as possible. It is also recommended that the capacitors are placed on the device side of the PCB.

7.Reflow profile

Reflow condition (Follow of JEDEC STD-020D.01)



9.Packing information

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

X1G0053510036xx

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

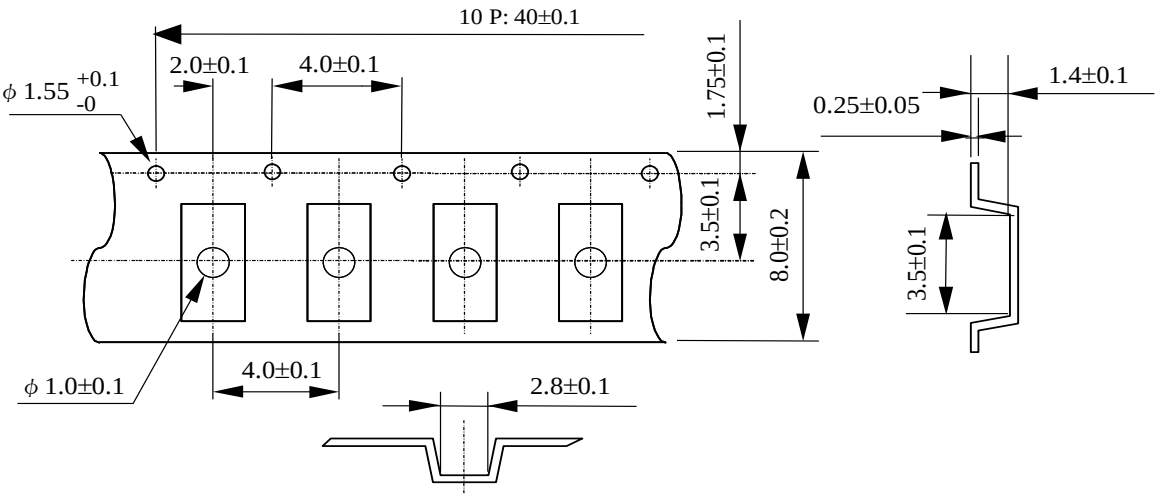
Subject to EIA-481 & IEC-60286

(1) Tape dimensions

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

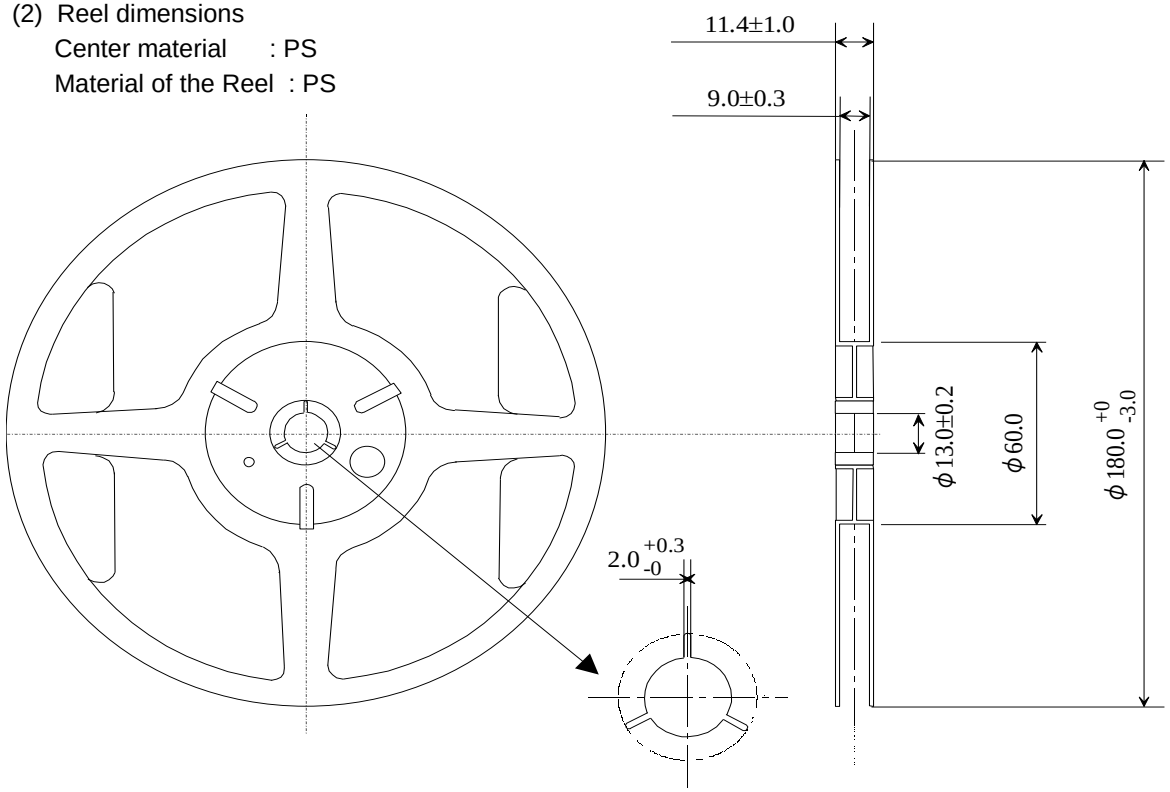
Unit: mm



(2) Reel dimensions

Center material : PS

Material of the Reel : PS



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