

Product name SG3225VEN 156.250000MHz DDGA

Product Number / Ordering code X1G0053510003xx

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

Output waveform LVDS

Pb free / Complies with EU RoHS directive

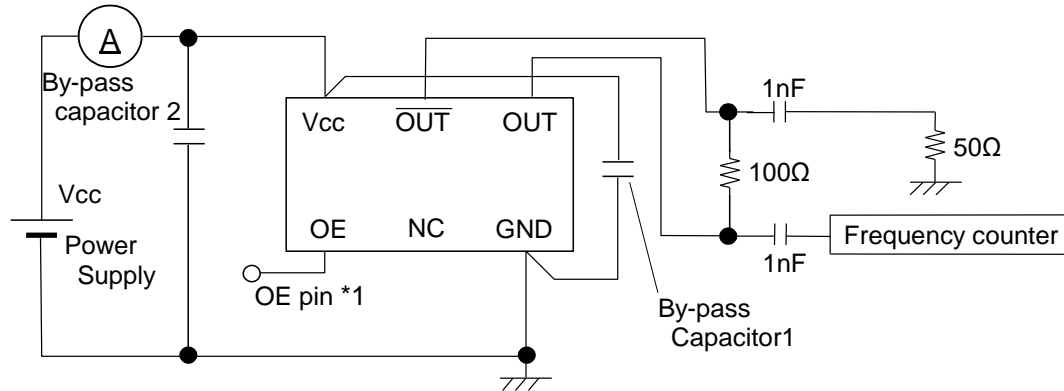
Reference weight Typ. 26 mg

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

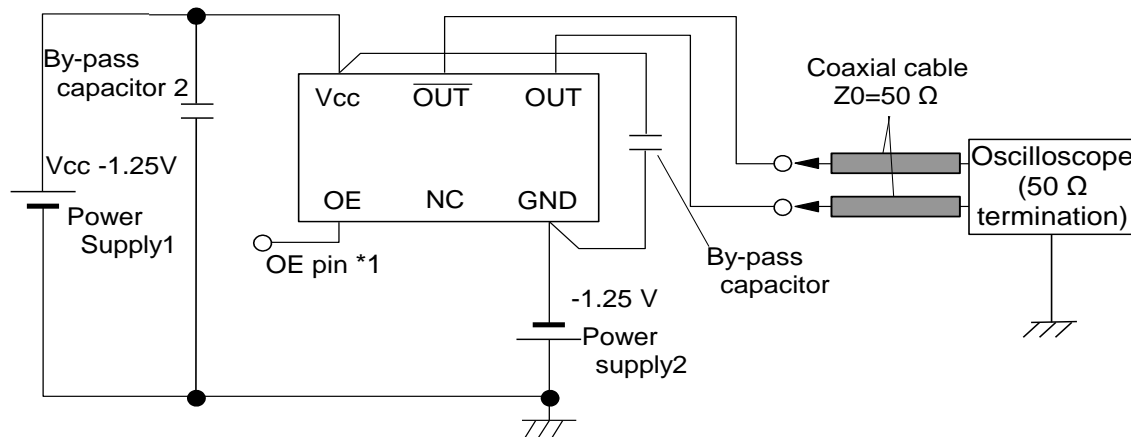
2.Specifications(characteristics)						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Output frequency	f <sub>0</sub>	-	156.2500	-	MHz	
Supply voltage	V <sub>cc</sub>	2.375	2.5	2.625	V	-
Operating temperature	T <sub>use</sub>	-40	-	+85	°C	-
Frequency tolerance	f <sub>tol</sub>	-25	-	+25	x10 <sup>-6</sup>	-
Current consumption	I <sub>cc</sub>	-	-	25	mA	OE=V <sub>cc</sub> L_LVDS=100 ohm
Stand-by current	I <sub>std</sub>	-	-	-	mA	-
Disable current	I <sub>dis</sub>	-	-	15	mA	OE=GND
Symmetry	SYM	45	50	55	%	At output crossing point
Output voltage(LVDS)	V <sub>OD</sub>	250	350	450	mV	VOD1 , VOD2
	dV <sub>OD</sub>	-	-	50	mV	VOD1 - VOD2
	V <sub>OS</sub>	1.15	1.25	1.35	V	VOS1 , VOS2
	dV <sub>OS</sub>	-	-	50	mV	VOS1 - VOS2
Output load condition(LVDS)	L_LVDS	-	100	-	Ω	-
Input voltage	V <sub>IH</sub>	70% V <sub>cc</sub>	-	-		OE Terminal
	V <sub>IL</sub>	-	-	30% V <sub>cc</sub>		OE Terminal
Rise time	t <sub>r</sub>	-	-	300	ps	At 20% to 80% output swing
Fall time	t <sub>f</sub>	-	-	300	ps	At 20% to 80% output swing
Start-up time	t <sub>str</sub>	-	-	10	ms	-
Phase jitter	t <sub>PJ</sub>	-	58.5	90	fs	Off set Frequency: 12kHz to 20MHz
Phase noise	L(f)	-	-51.5	-	dBc/Hz	Off set 1Hz
		-	-83	-	dBc/Hz	Off set 10Hz
		-	-111.2	-	dBc/Hz	Off set 100Hz
		-	-135.6	-	dBc/Hz	Off set 1kHz
		-	-149	-	dBc/Hz	Off set 10kHz
		-	-154.8	-	dBc/Hz	Off set 100kHz
		-	-160	-	dBc/Hz	Off set 1MHz
Frequency aging	f <sub>age</sub>	-	-	-	x10 <sup>-6</sup> /Year	Included in Frequency tolerance 5 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  $\mu$ F) places closely between Vcc and GND.

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

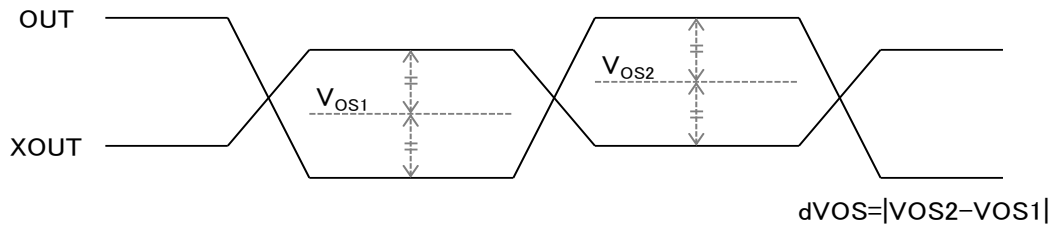
D) Use the current meter whose internal impedance value is small.

E) Power supply

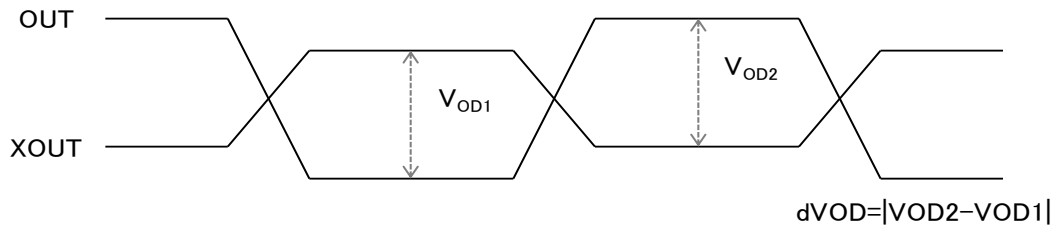
- Start up time (0 Vg90 %Vcc) of power source should be more than 150  $\mu$ s
- Impedance of power supply should be as low as possible.

4. Timing chart

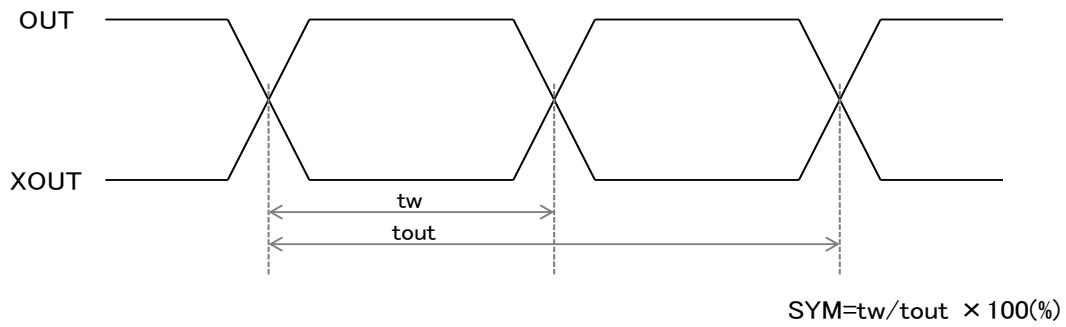
Output offset voltage



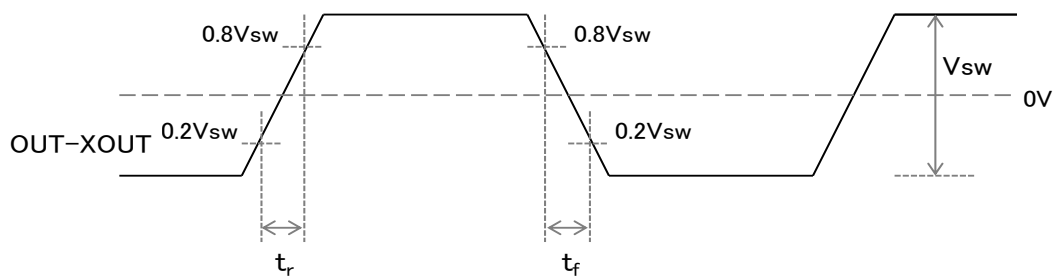
Differential output voltage



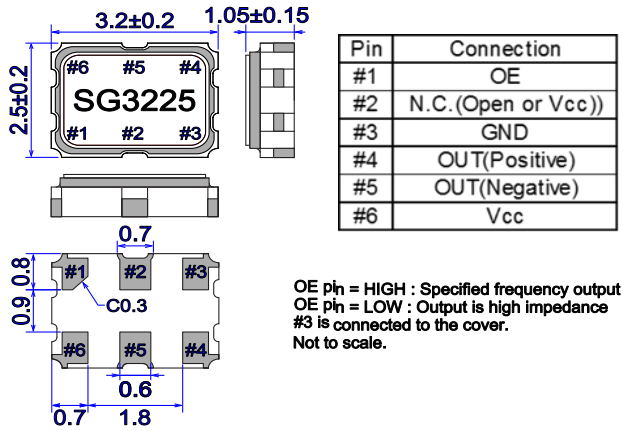
Duty



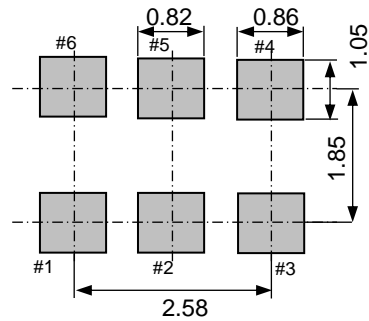
Rise time / Fall time



**5.External dimensions (Unit: mm)**



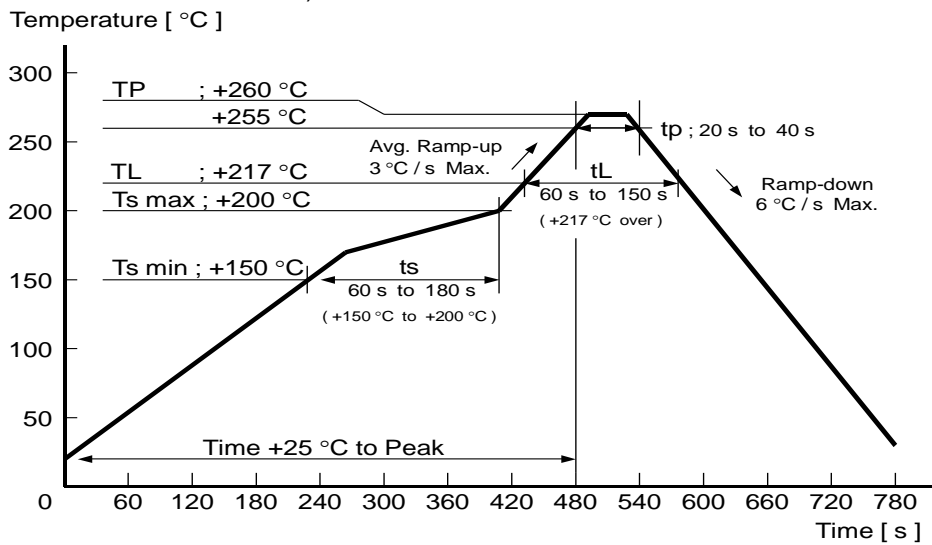
**6.Footprint(Recommended) (Unit: mm)**



In order to achieve optimum jitter performance, the 0.1  $\mu$ F an7d 10  $\mu$ F 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)



**8.Packing information**

[ 1 ] Product number last 2 digits code(xx) description

The recommended code is "00"

X1G0053510003xx

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

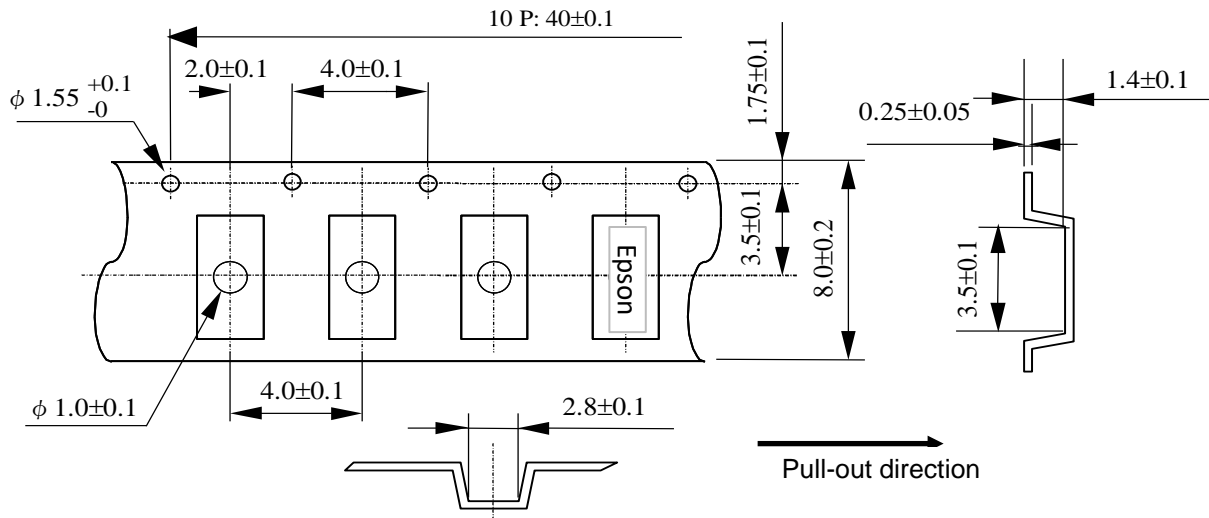
Subject to EIA-481 & IEC-60286

(1) Tape dimensions

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

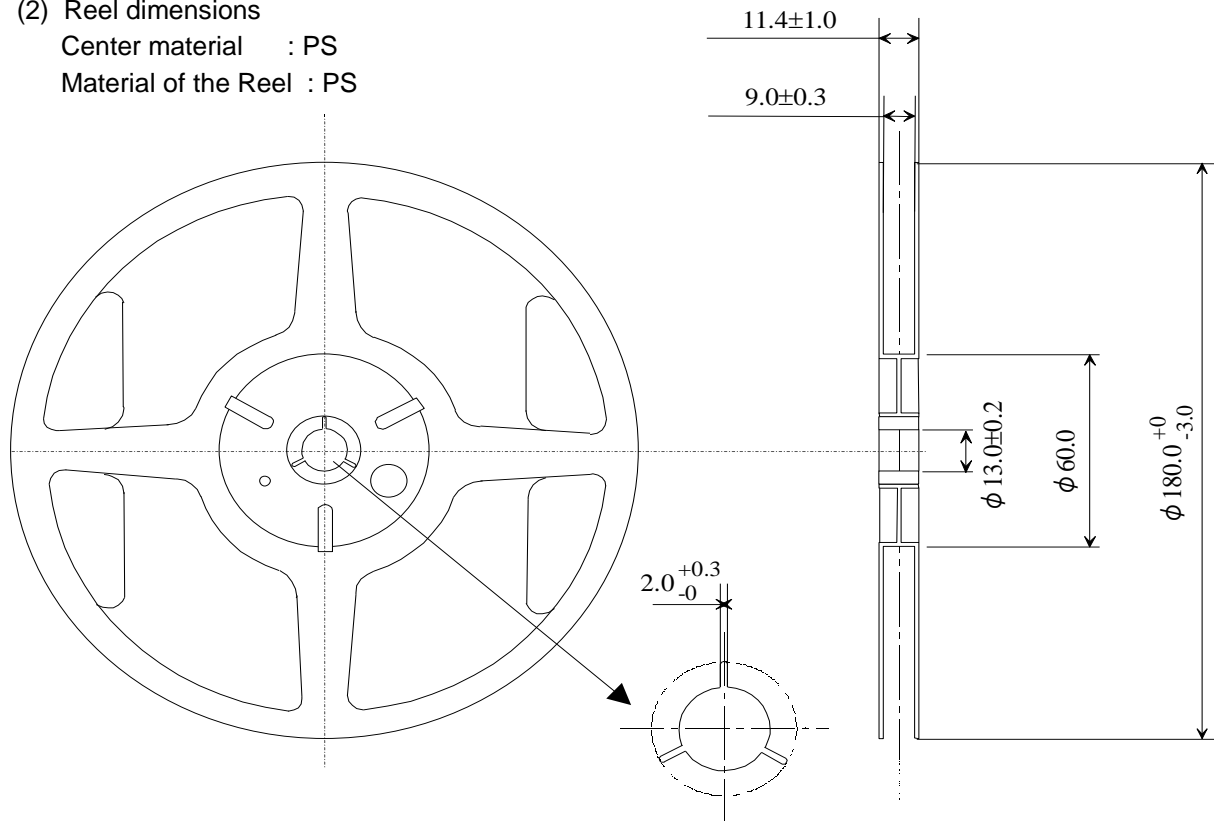
Unit: mm



(2) Reel dimensions

Center material : PS

Material of the Reel : PS



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