# DATA SHEET

*( DOC No. HX8695-B01-DS )*

## HX8695-B01

800CH TFT LCD Gate Driver

*Version 07 December, 2011*

**Himax Technologies, Inc.**
http://www.himax.com.tw

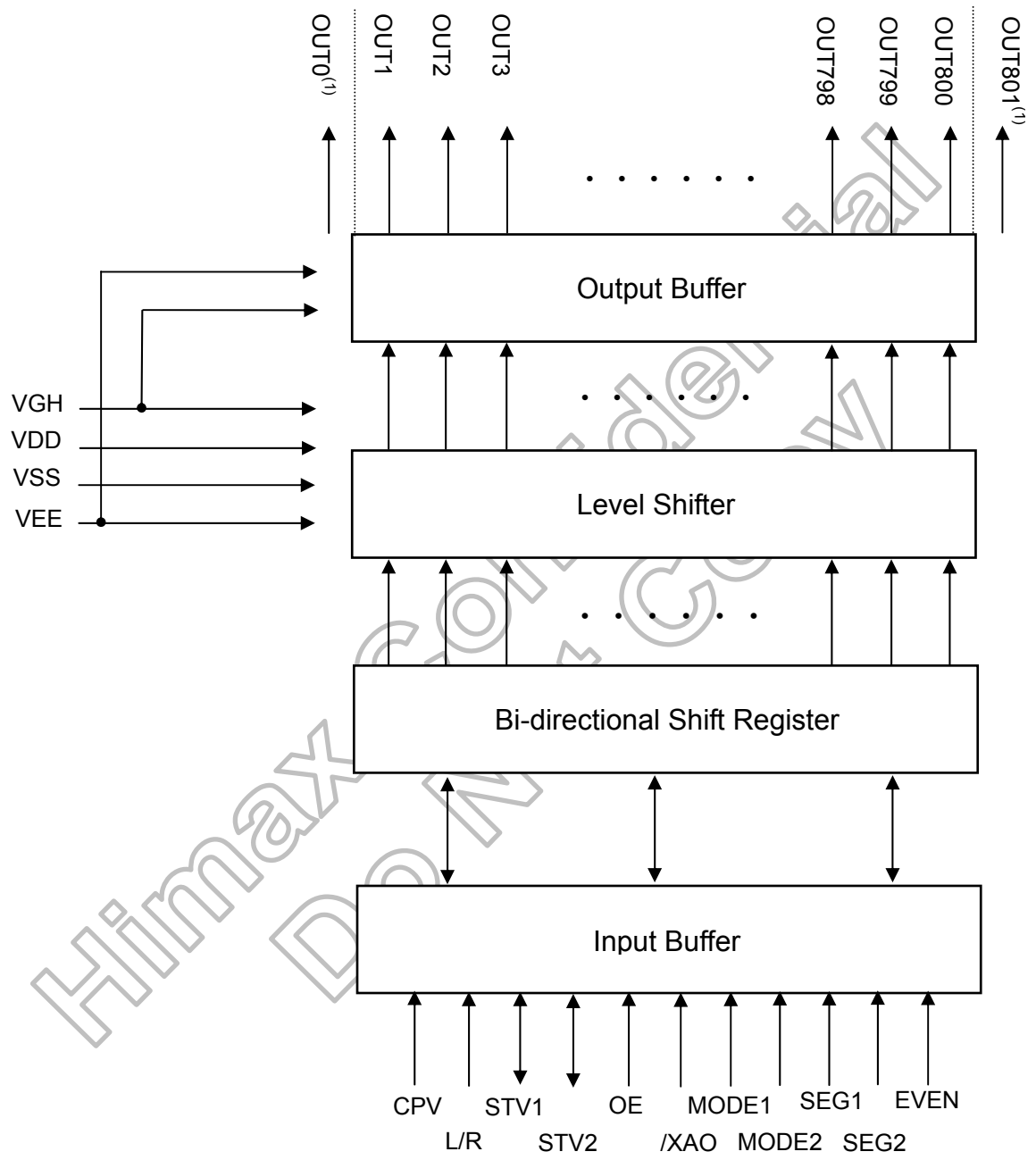
# 1. General Description

The HX8695-B01 is an 800-channel outputs gate driver, which is used for driving the gate line of TFT LCD panel. It is designed for 2-level output with 40V LCD driving voltage range.

# 2. Features

- 2-level output
- 800/768/720 channel outputs selectable with 2 dummy outputs
- Various scan function can support various dual gate driving sequence
- Maximum 200KHz operation frequency
- Digital supply voltage:2.3V to 3.6V
- LCD driving voltage range: 40V
- Bi-directional data shift capability
- Embedded with power off reset circuit
- High voltage CMOS process technology
- COG/COF package

# 3. Block Diagram




**Note:** (1) OUT0 and OUT801 are LCD panel auxiliary pins; these pins always output VEE level.

# 4. Pin Description

| Pin Name | I/O | Function | Description |
|---|---|---|---|
| CPV | In | Shift clock input | The clock for the internal shift registers. |
| **L/R** | **In** | **Shift direction control pin** | The shift direction of device internal shift register is controlled by this pin as shown below:<br>L/R =H:STV1→OUT1→OUT2→ • • • →OUT800→STV2.<br>L/R =L:STV2→OUT800→ • • • →OUT2→OUT1→STV1. |
| STV1<br>STV2 | I/O | Start pulse input/output pin | L/R=H, STV1 is used for start pulse input;<br>STV2 is used for start pulse output.<br>L/R =L, STV2 is used for start pulse input;<br>STV1 is used for start pulse output. |
| OE | In | Output enable control | The OE signal control the output enable.<br>OE=H: All driver outputs are fixed to VEE regardless of CPV. However, the content of shift register is notcleared.<br>OE=L: Normal operation. |
| /XAO | In | Output all-on control | When /XAO is set to L, all outputs are fixed to VGH. Note that this pin has higher priority than OE. However, the content of shift register is not cleared.<br>/XAO is pulled high to VDD internally. When it is not used, connecting to VDD is recommended. |
| **MODE1<br>MODE2** | **In** | **Channel mode selection** | Channel mode selection. MODE1 and MODE2 are pulled high internally.<br>Output channel / Disable channel / MODE1 / MODE2<br>800 / - / H / H<br>720 / 361~440 / L / H<br>768 / 385~416 / X / L |
| **SEG1<br>SEG2** | **In** | **Scan function selection** | SEG1 and SEG2 are pulled low internally.<br>Scan function / SEG1 / SEG2<br>Z1 / L / L<br>Z1 / L / H<br>弓 / H / L<br>Z2 / H / H |
| **EVEN** | **In** | **Frame selection** | EVEN is pulled low internally.<br>Frame / EVEN<br>Odd / L<br>Even / H |
| OUT1~<br>OUT800 | Out | Driver output | The output is either VGH or VEE for driving the gate line of TFT LCD panel. |
| OUT0<br>OUT801 | Out | Auxiliary pins | These two pins always output VEE level. |
| VDD | In | Power supply | Digital power supply. |
| VSS | In | Power supply | Grounding for VDD. |
| VGH | In | Power supply | Power supply for Gate on output. |
| VEE | In | Power supply | Power supply for Gate off output. |
| PATH1<br>PATH2 | In | Internal link | Linked together internal. |

# 5. Function Description

## 5.1 Device operation

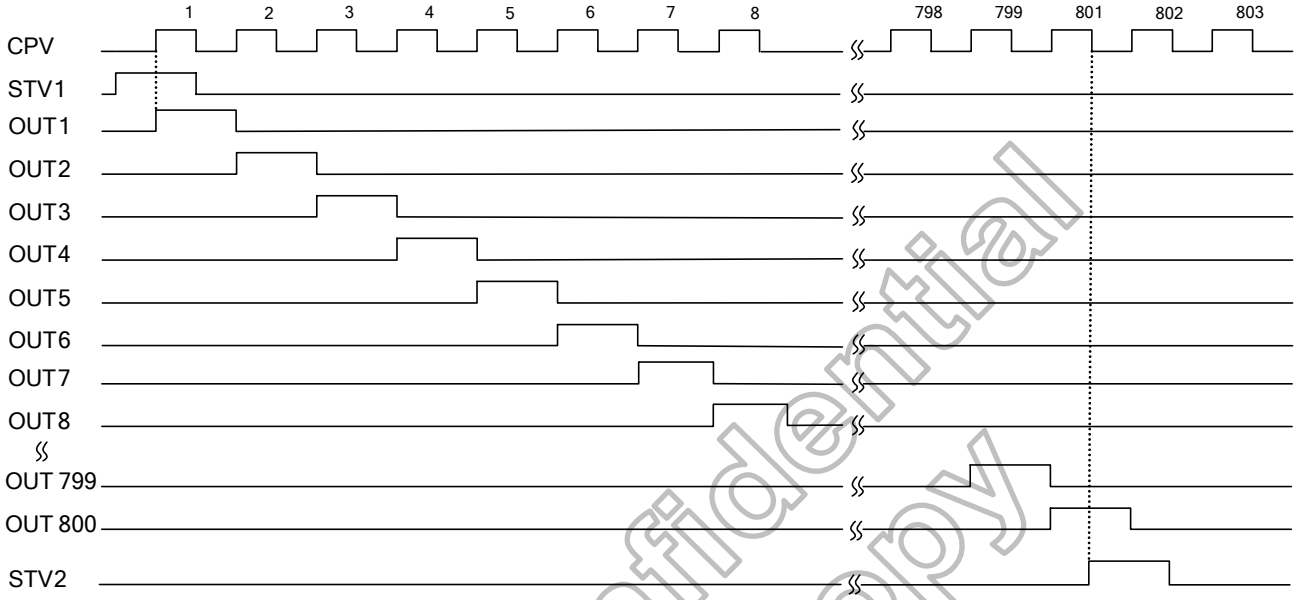
When L/R=H, MODE1=H and MODE2=H, the STV1 start pulse input is sensed on the rising edge of CPV and stored in the first stage of shift register, which makes the first scan signal output from the OUT1 pin. While stored data is transferred to the next stage shift register on the rising edge of next CPV, new data of STV1 is sensed and stored simultaneously.

The output pin (OUT1 to OUT800) supplies VGH voltage or VEE voltage to the LCD panel depending on the data stored in the shift register. For normal operation, a VGH voltage is outputted one by one from OUT1 to OUT800 in synchronization with CPV pulse. According to SEG1, SEG2, and EVEN pins setting, it is possible to get other different output sequence as the following waveform.

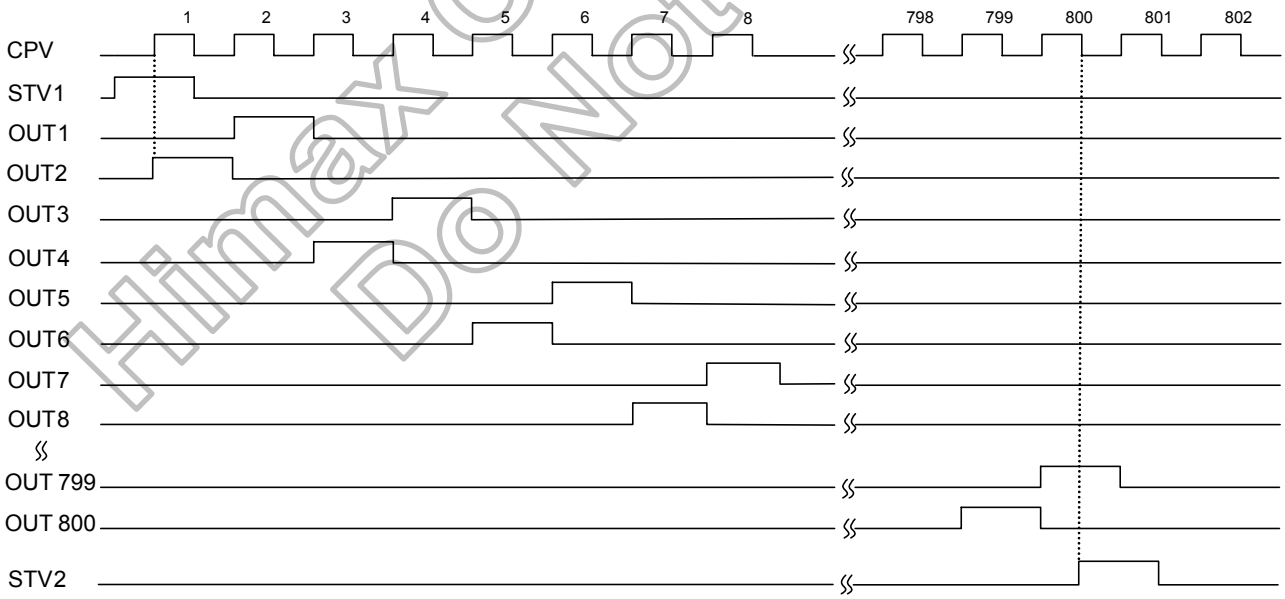
After 800 CPV rising edge are past, the STV2 goes up to high level at the 800$^{th}$ falling edge of CPV and goes down to low level at the 801$^{st}$ falling edge of CPV. This STV2 output signal becomes the STV1 start pulse input of next cascaded gate driver. When OE=H, the corresponding output channels are fixed to VEE level regardless of CPV. The channel output returns to normal status as soon as OE goes back to L.

HX8695-B01 is embedded with a power off reset circuit. When VDD drops below the threshold voltage $V_{POFF}$, the internal /XAO will be “L” regardless of the external XAO input, it makes all outputs rise to VGH level to reduce possible power off image residue.

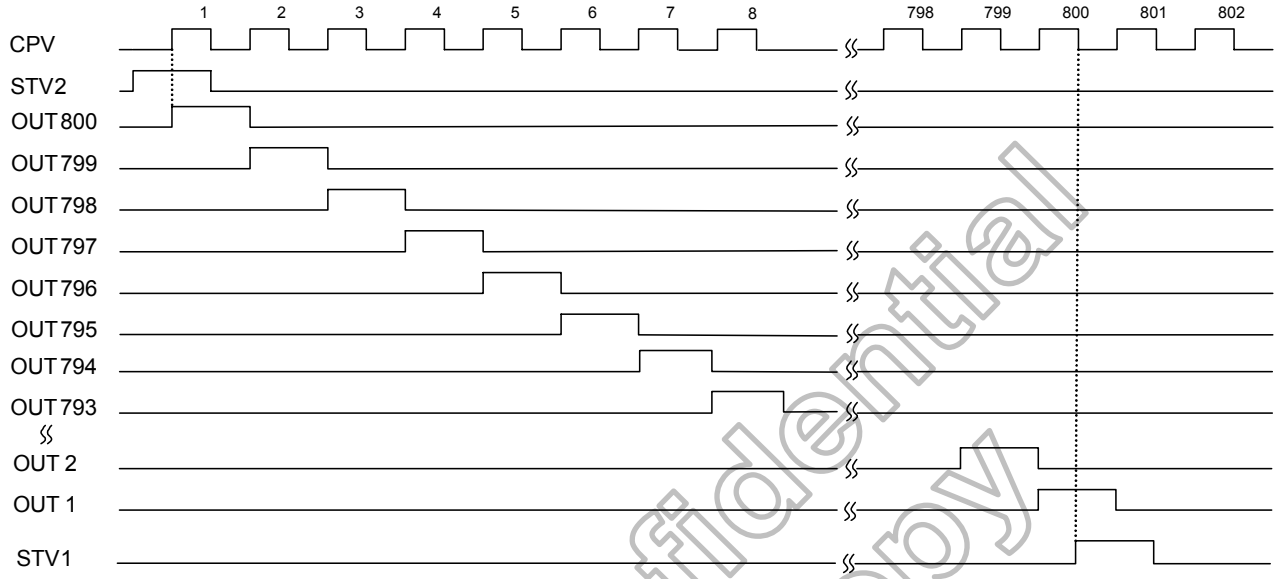
### A. Example of input/output timing (MODE1=H, MODE2=H, SEG1=L, SEG2=X, EVEN=L, L/R=H)



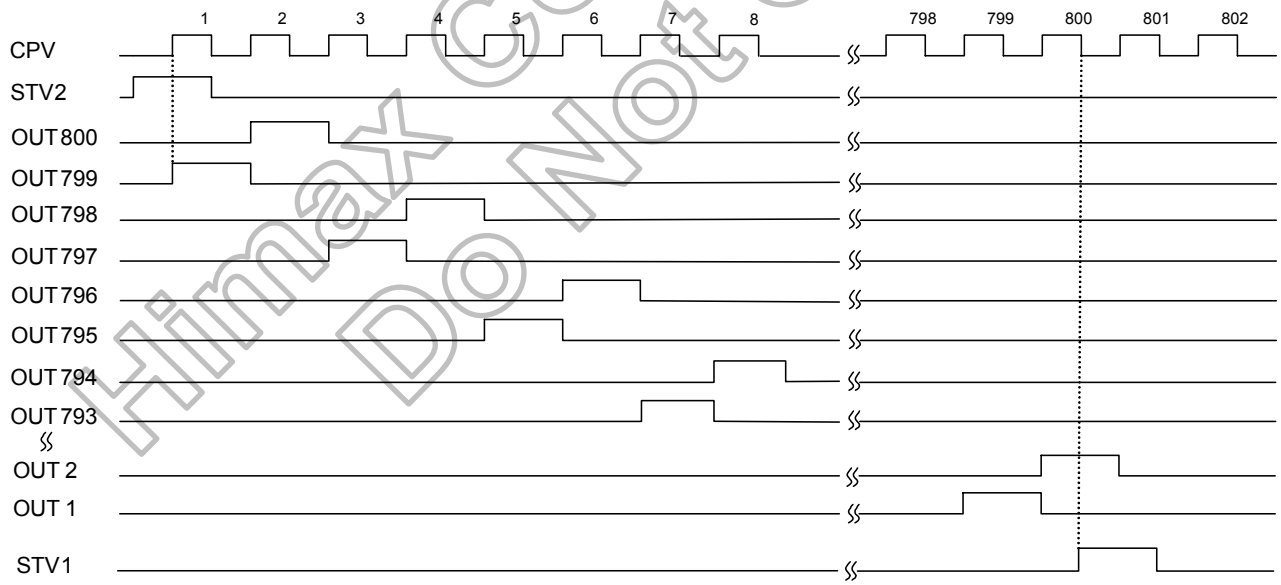

### B. Example of input/output timing (MODE1=H, MODE2=H, SEG1=L, SEG2=X, EVEN=H, L/R=H)



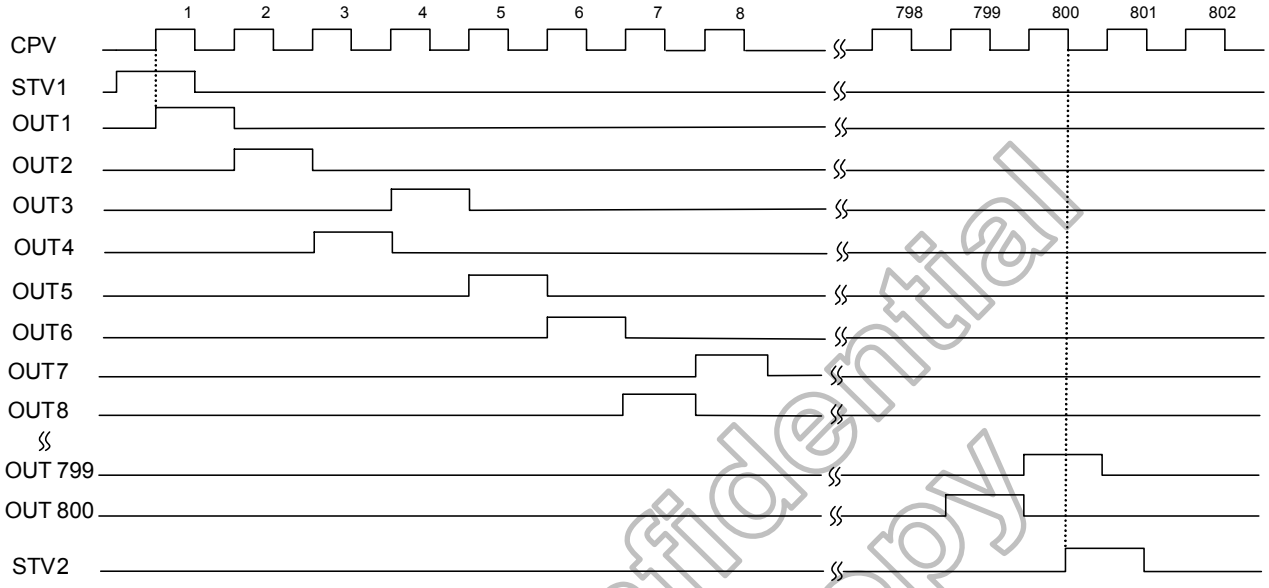
### C. Example of input/output timing (MODE1=H, MODE2=H, SEG1=L, SEG2=X, EVEN=L, L/R=L)



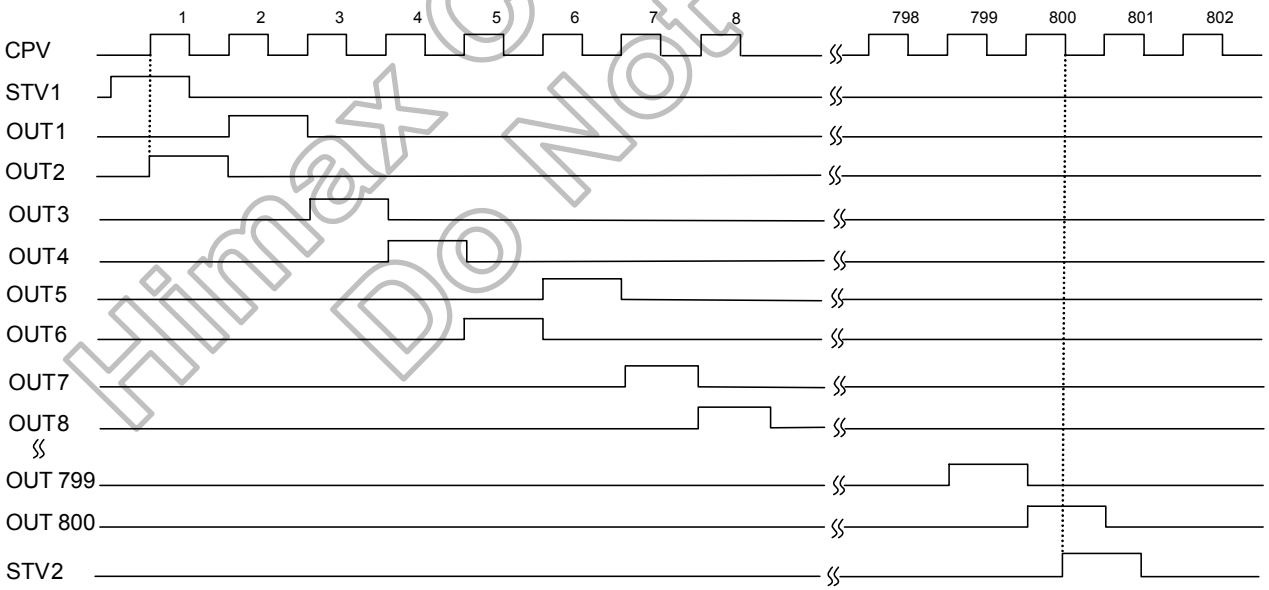

### D. Example of input/output timing (MODE1=H, MODE2=H, SEG1=L, SEG2=X, EVEN=H, L/R=L)



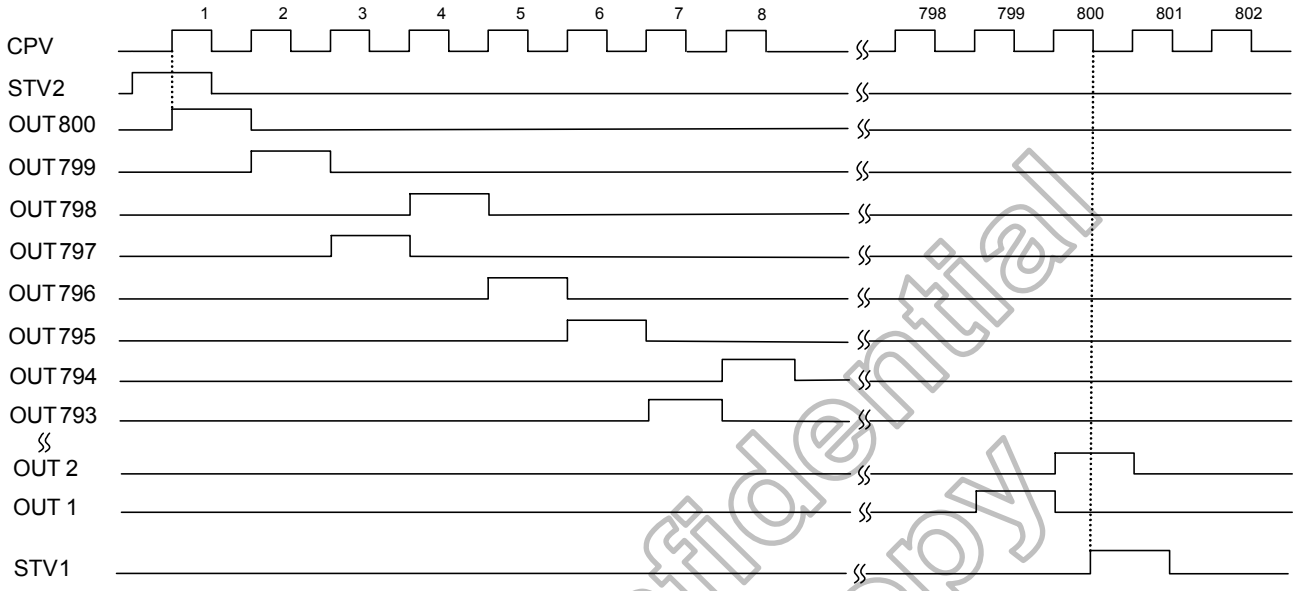
### E. Example of input/output timing (MODE1=H, MODE2=H, SEG1=H, SEG2=L, EVEN=L, L/R=H)



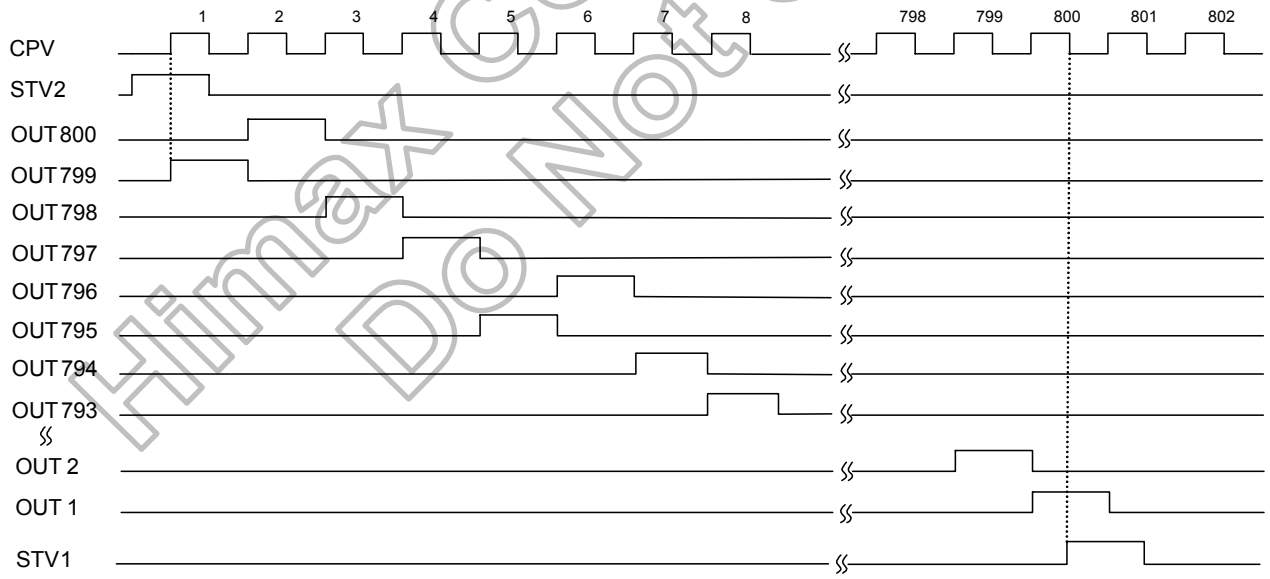

### F. Example of input/output timing (MODE1=H, MODE2=H, SEG1=H, SEG2=L, EVEN=H, L/R=H)



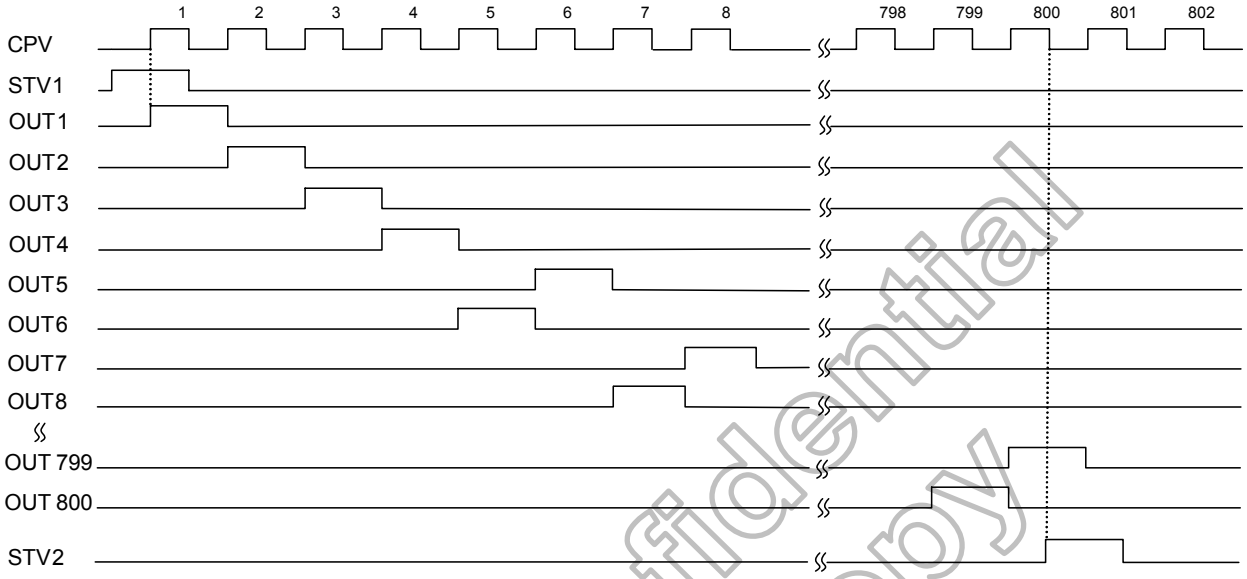
### G. Example of input/output timing (MODE1=H, MODE2=H,SEG1=H SEG2=L, EVEN=L, L/R=L)



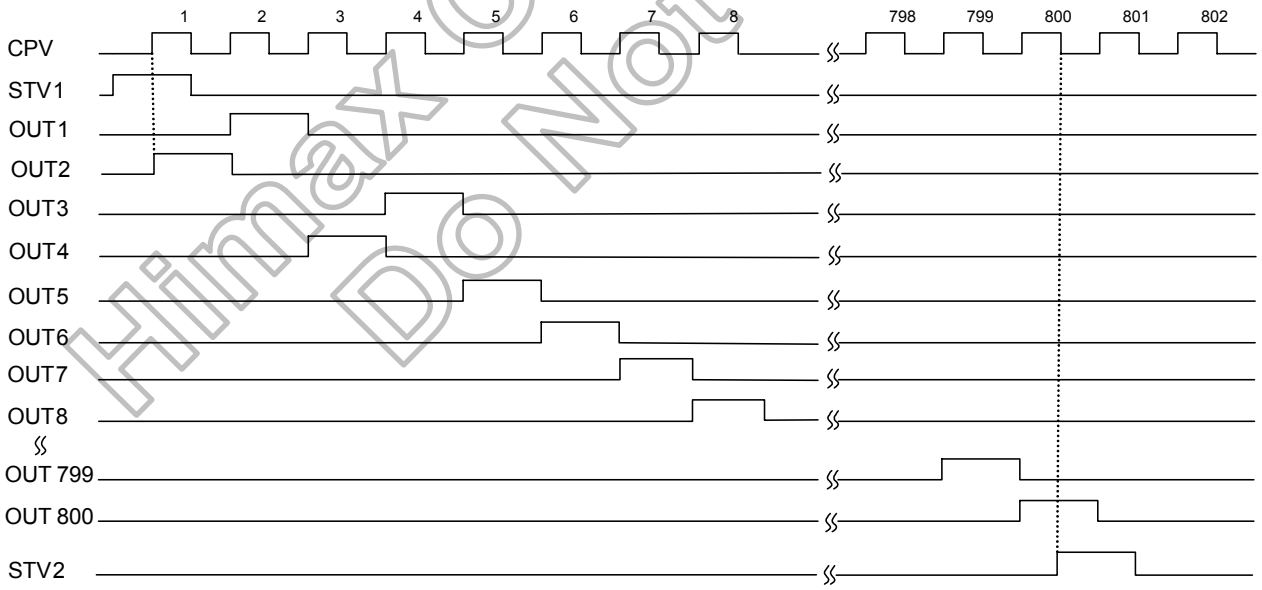

### H. Example of input/output timing (MODE1=H, MODE2=H, SEG1=H, SEG2=L, EVEN=H, L/R=L)



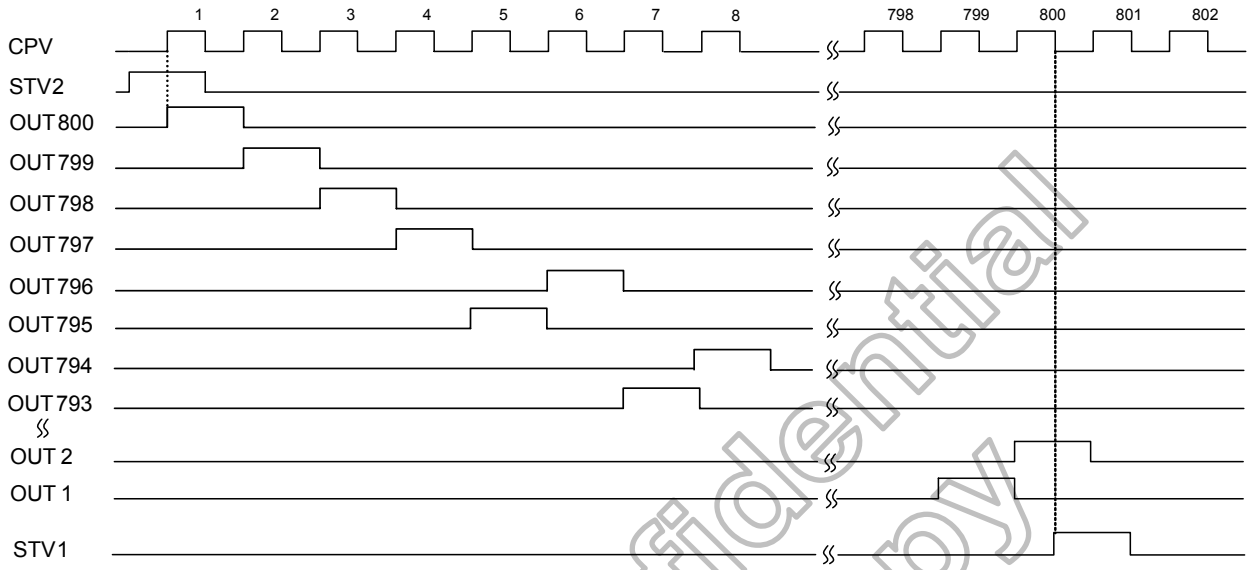
## I. Example of input/output timing (MODE1=H, MODE2=H, SEG1=H, SEG2=H, EVEN=L, L/R=H)



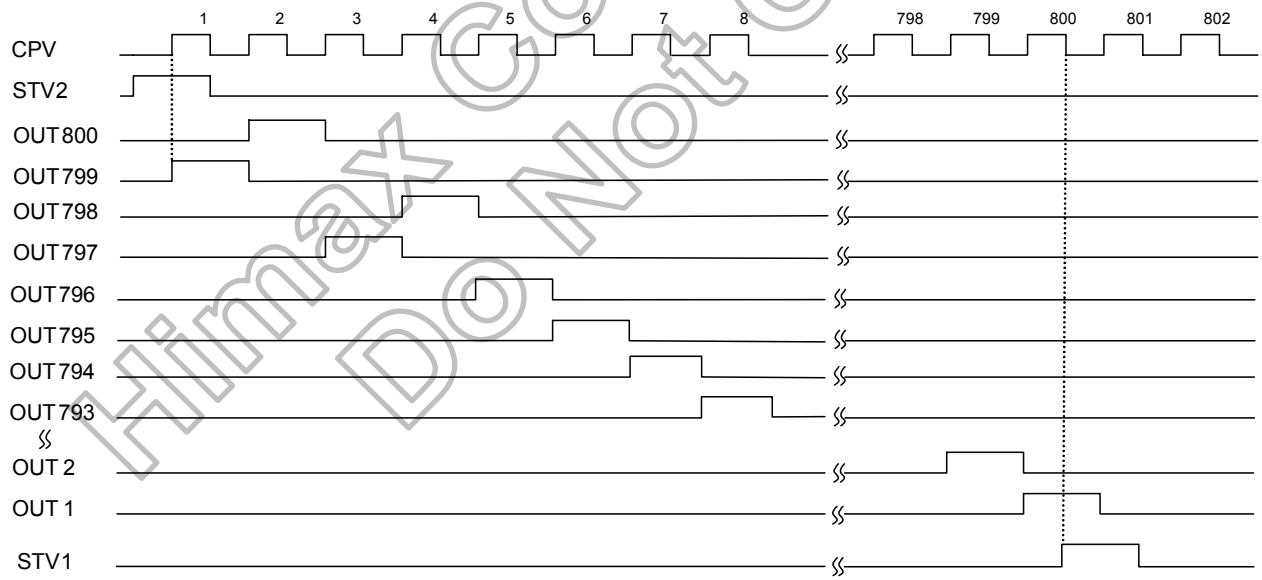

## J. Example of input/output timing (MODE1=H, MODE2=H, SEG1=H, SEG2=H, EVEN=H, L/R=H)



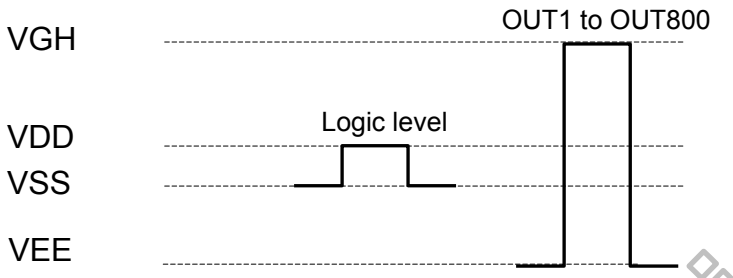
## K. Example of input/output timing (MODE1=H, MODE2=H, SEG1=H SEG2=H, EVEN=L, L/R=L)




## L. Example of input/output timing (MODE1=H, MODE2=H,SEG1=H, SEG2=H, EVEN=H, L/R=L)



## 5.2 Device power supply




The logic levels of CPV, L/R, OE, /XAO, MODE1, MODE2, SEG1, SEG2, EVEN, STV1 and STV2 have to swing between VDD for “H” and VSS for “L”.

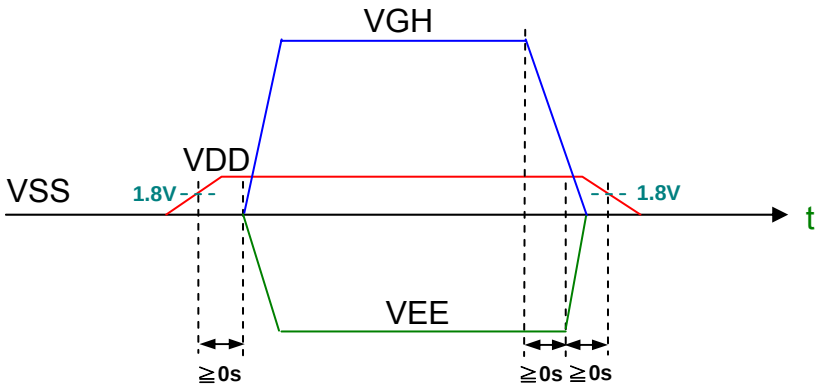
## 5.3 Power on/off sequence

HX8695-B01 has a latch up free design. However, to prevent possible power on display noise or possible power off image residue, the power on/off sequence shown below need to be followed.

When power on, VGH/VEE can start to be turned on after VDD reaches 1.8V. After VGH/VEE start to be turned on, CPV and STV should be not floating, and /XAO should be at VDD level or floating. The other control signals have no timing limitation. If the possible power on display noise is not concerned or the backlight is delayed to turn on to shadow the possible noise, there is no power on sequence limitation.

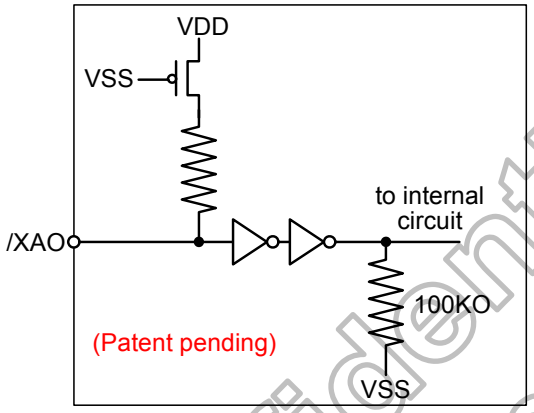
When power off, VGH/VEE must start to be turned off before VDD drops to 1.8V. If the possible power off image residue is not concerned or the backlight is turned off in advance to shadow the possible image residue, there is no power off sequence limitation.

When power on: VDD→VGH/VEE
When power off: VGH→VEE→VDD



### 5.4 /XAO input circuit

When /XAO=L, all the output channels are fixed to VGH level. Note that this pin has higher priority than OE. The content of the internal shift register is not affected when /XAO input is active.



# 6. DC Characteristics

## 6.1 Absolute maximum rating (VSS=0V)

| Parameter | Symbol | Spec. | | | Unit |
|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | |
| Power supply voltage 1 | VDD | -0.3 | - | +7.0 | V |
| Power supply voltage 2 | VGH | -0.3 | - | +42.0 | V |
| Power supply voltage 3 | VEE | VGH-42 | - | +0.3 | V |
| Input voltage | $V_{IN}$ | -0.3 | - | VDD+0.3 | V |
| Storage temperature | $T_{STG}$ | -55 | - | +125 | ℃ |

**Note:** Device will probably be damaged permanently in case that the stresses are over the absolute maximum ratings listed above.

## 6.2 Recommended operating conditions (VSS=0V)

| Parameter | Symbol | Spec. | | | Unit |
|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | |
| Power supply voltage 1 | VDD | 2.3 | 3.3 | 3.6 | V |
| Power supply voltage 2 | VGH | 7 | - | VEE+40 | V |
| Power supply voltage 3 | VEE | -20 | - | -5 | V |
| Power supply voltage 4 | VGH -VEE | 12 | - | 40 | V |
| Operation frequency | $F_{CPV}$ | - | - | 200 | KHz |
| Operation temperature | $T_A$ | -40 | - | +95 | ℃ |

## 6.3 Electrical characteristics (VSS=0V)

| Parameter | Symbol | Applicable pin | Condition | Spec. | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min. | Typ. | Max. | |
| Input H voltage | $V_{IH}$ | All input pins | - | 0.7VDD | - | VDD | V |
| Input L voltage | $V_{IL}$ | All input pins | - | VSS | - | 0.3VDD | |
| Output H voltage | $V_{OH}$ | STV1,2 | $I_{OH}$=40μA | VDD-0.4 | - | VDD | |
| Output L voltage | $V_{OL}$ | STV1,2 | $I_{OL}$=40μA | VSS | - | VSS+0.4 | |
| Output H resistance | $R_{OH}$ | OUT1 ~ OUT800 | $V_{OUT}$= VGH -0.5V | - | - | 1000 | Ω |
| Output L resistance | $R_{OL}$ | OUT1 ~ OUT800 | $V_{OUT}$= VEE+0.5V | - | - | 1000 | Ω |
| Input leakage current | $I_{IN}$ | Note(2) | - | -1.0 | - | +1.0 | μA |
| Pull high resistance | $R_{PU}$ | /XAO | - | 40 | - | 200 | kΩ |
| Pull low resistance | $R_{PD}$ | SEG1,2 | - | 40 | - | 200 | kΩ |
| Power off reset threshold voltage | $V_{POFF}$ | - | - | | 1.8 | | V |
| VGH Power consumption | $I_{VGH}$ | VGH | Note(1) | - | - | 200 | μA |
| VDD Power consumption | $I_{VDD}$ | VDD | | - | - | 100 | |

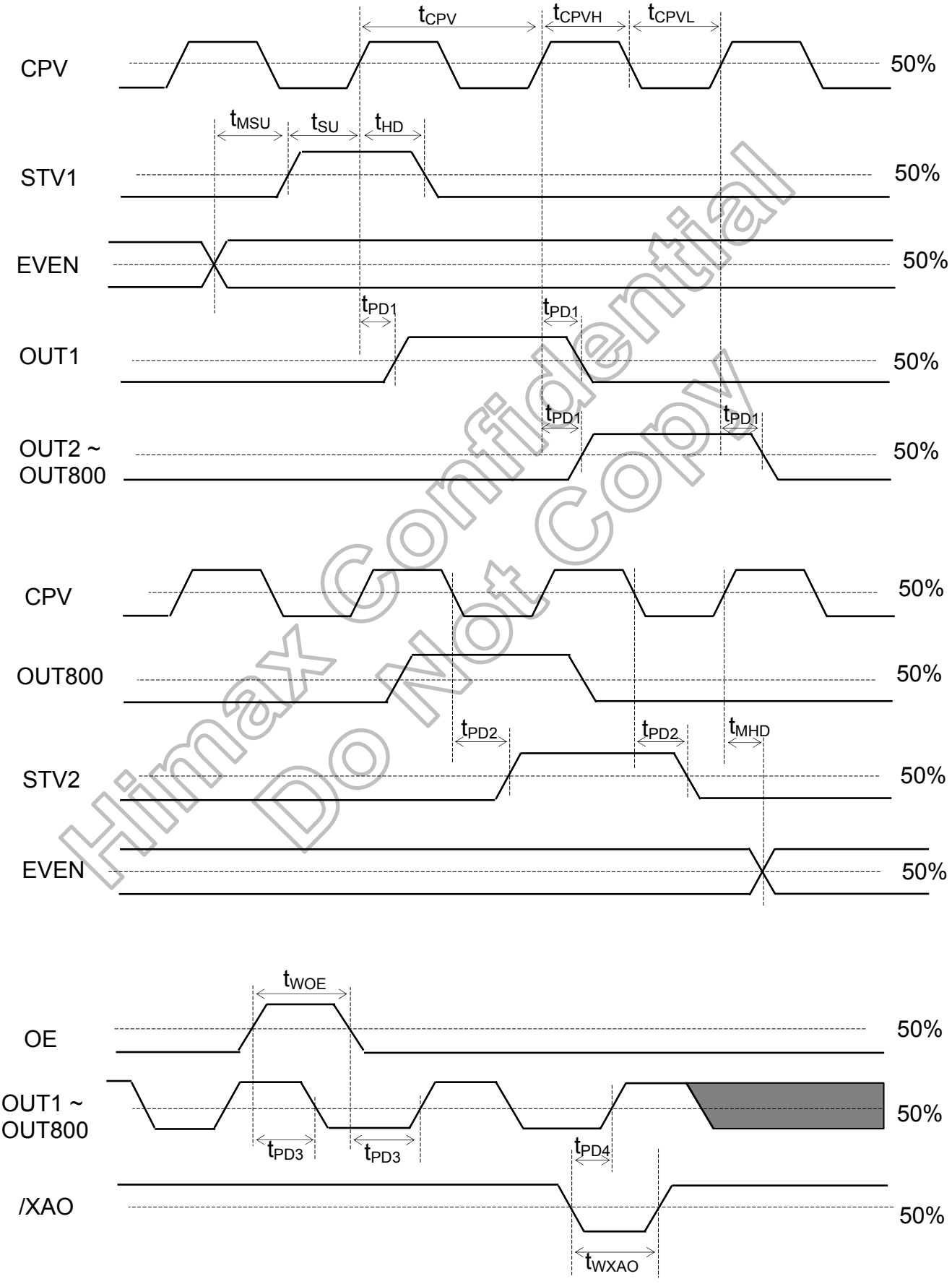
**Note:** (1) Power consumption in the following condition:
Output no load, VGH=20V, VEE=-8V, VDD=3.0V, $V_{IH}$=VDD, $V_{IL}$=VSS, $F_{CPV}$=50KHz, OE=$V_{IL}$, /XAO=$V_{IH}$.
(2) All input except /XAO.

# 7. AC Characteristics

| Parameter | Symbol | Condition | Spec. | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| CPV period | $t_{CPV}$ | - | 5 | - | - | μs |
| CPV pulse width | $t_{CPVH}$, $t_{CPVL}$ | 50% duty cycle | 0.5 | - | - | |
| OE pulse width | $t_{WOE}$ | - | 1 | - | - | |
| /XAO pulse width | $t_{WXAO}$ | - | 10 | - | - | |
| Data setup time | $t_{SU}$ | - | 1.0 | - | - | |
| Data hold time | $t_{HD}$ | - | 1.0 | - | - | |
| EVEN setup time | $t_{MSU}$ | - | 1.0 | - | - | |
| EVEN hold time | $t_{MHD}$ | - | 1.0 | - | - | |
| CPV to output delay time | $t_{PD1}$ | CL=300pF | - | - | 1.2 | |
| Start pulse output delay time | $t_{PD2}$ | Loading=30pF | - | - | 1.2 | |
| OE to output delay time | $t_{PD3}$ | CL=300pF | - | - | 0.8 | |
| /XAO to output delay time | $t_{PD4}$ | CL=300pF | - | - | 50 | |

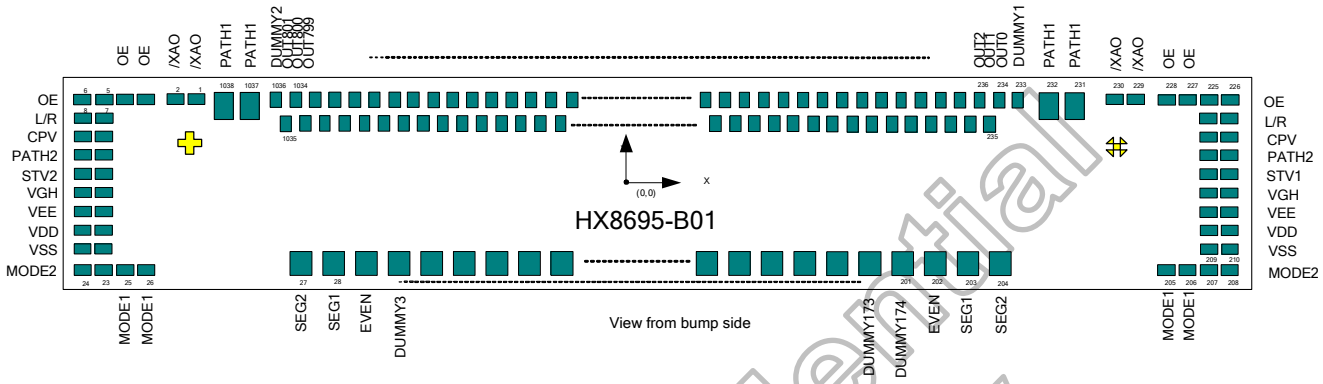
**Note:** The measurement point for all of above signals is at 50% of input/output amplitude.

## 8. Waveform



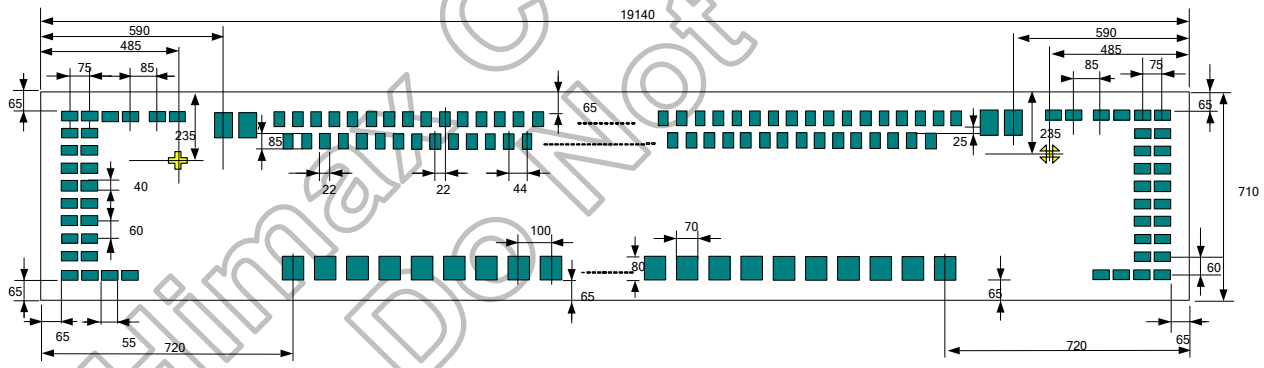
# 9. Pad Coordinates

## 9.1 HX8695-B01 gate driver bump location

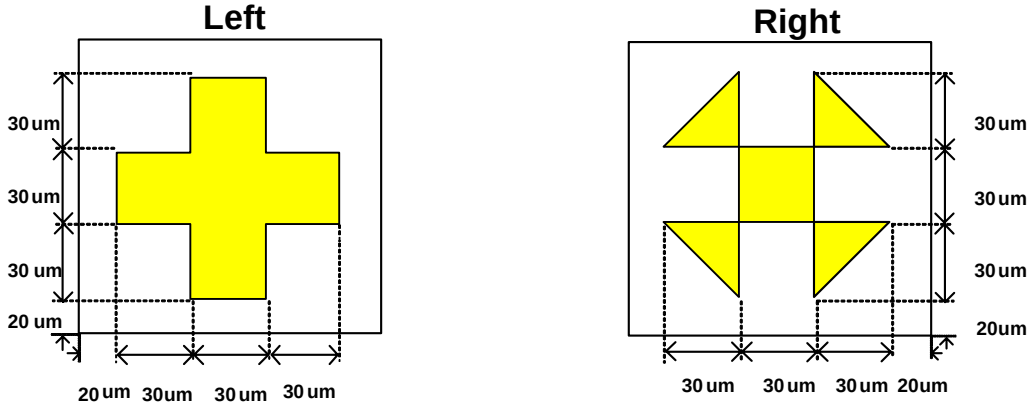



Chip size: 19140μm x 710μm (scribe line included)
Scribe line: 80μm
Bump height: 12 ± 3μm or 9 ± 2μm
Total area of IC bump: 2636680μm$^2$

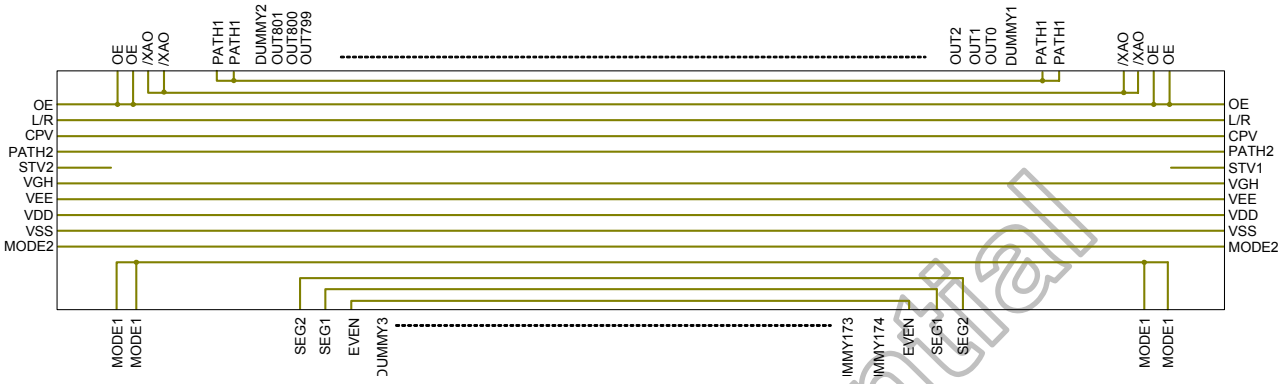
## 9.2 Bump outline dimensions




## 9.3 Alignment mark



## 9.4 Internal through link




| Through link | Resistance (Design value) |
|---|---|
| CPV | 400Ω |
| L/R | 400Ω |
| OE | 400Ω |
| /XAO | 400Ω |
| MODE1 | 400Ω |
| MODE2 | 400Ω |
| SEG1 | 400Ω |
| SEG2 | 400Ω |
| EVEN | 300Ω |
| PATH1 | 60Ω |
| PATH2 | 400Ω |
| VDD | 40Ω |
| VSS | 50Ω |
| VGH | 40Ω |
| VEE | 20Ω |

## 9.5 Bump center coordinates

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 1 | /XAO | -9092.5 | 270 | 55 x 40 |
| 2 | /XAO | -9167.5 | 270 | 55 x 40 |
| 3 | OE | -9252.5 | 270 | 55 x 40 |
| 4 | OE | -9327.5 | 270 | 55 x 40 |
| 5 | OE | -9402.5 | 270 | 55 x 40 |
| 6 | OE | -9477.5 | 270 | 55 x 40 |
| 7 | L/R | -9402.5 | 210 | 55 x 40 |
| 8 | L/R | -9477.5 | 210 | 55 x 40 |
| 9 | CPV | -9402.5 | 150 | 55 x 40 |
| 10 | CPV | -9477.5 | 150 | 55 x 40 |
| 11 | PATH2 | -9402.5 | 90 | 55 x 40 |
| 12 | PATH2 | -9477.5 | 90 | 55 x 40 |
| 13 | SVT2 | -9402.5 | 30 | 55 x 40 |
| 14 | SVT2 | -9477.5 | 30 | 55 x 40 |
| 15 | VGH | -9402.5 | -30 | 55 x 40 |
| 16 | VGH | -9477.5 | -30 | 55 x 40 |
| 17 | VEE | -9402.5 | -90 | 55 x 40 |
| 18 | VEE | -9477.5 | -90 | 55 x 40 |
| 19 | VDD | -9402.5 | -150 | 55 x 40 |
| 20 | VDD | -9477.5 | -150 | 55 x 40 |
| 21 | VSS | -9402.5 | -210 | 55 x 40 |
| 22 | VSS | -9477.5 | -210 | 55 x 40 |
| 23 | MODE2 | -9402.5 | -270 | 55 x 40 |
| 24 | MODE2 | -9477.5 | -270 | 55 x 40 |
| 25 | MODE1 | -9327.5 | -270 | 55 x 40 |
| 26 | MODE1 | -9252.5 | -270 | 55 x 40 |
| 27 | SEG2 | -8850 | -250 | 70 x 80 |
| 28 | SEG1 | -8750 | -250 | 70 x 80 |
| 29 | EVEN | -8650 | -250 | 70 x 80 |
| 30 | DUMMY3 | -8550 | -250 | 70 x 80 |
| 31 | DUMMY4 | -8450 | -250 | 70 x 80 |
| 32 | DUMMY5 | -8350 | -250 | 70 x 80 |
| 33 | DUMMY6 | -8250 | -250 | 70 x 80 |
| 34 | DUMMY7 | -8150 | -250 | 70 x 80 |
| 35 | DUMMY8 | -8050 | -250 | 70 x 80 |
| 36 | DUMMY9 | -7950 | -250 | 70 x 80 |
| 37 | DUMMY10 | -7850 | -250 | 70 x 80 |
| 38 | DUMMY11 | -7750 | -250 | 70 x 80 |
| 39 | DUMMY12 | -7650 | -250 | 70 x 80 |
| 40 | DUMMY13 | -7550 | -250 | 70 x 80 |
| 41 | DUMMY14 | -7450 | -250 | 70 x 80 |
| 42 | DUMMY15 | -7350 | -250 | 70 x 80 |
| 43 | DUMMY16 | -7250 | -250 | 70 x 80 |
| 44 | DUMMY17 | -7150 | -250 | 70 x 80 |
| 45 | DUMMY18 | -7050 | -250 | 70 x 80 |
| 46 | DUMMY19 | -6950 | -250 | 70 x 80 |
| 47 | DUMMY20 | -6850 | -250 | 70 x 80 |
| 48 | DUMMY21 | -6750 | -250 | 70 x 80 |
| 49 | DUMMY22 | -6650 | -250 | 70 x 80 |
| 50 | DUMMY23 | -6550 | -250 | 70 x 80 |
| 51 | DUMMY24 | -6450 | -250 | 70 x 80 |
| 52 | DUMMY25 | -6350 | -250 | 70 x 80 |
| 53 | DUMMY26 | -6250 | -250 | 70 x 80 |
| 54 | DUMMY27 | -6150 | -250 | 70 x 80 |
| 55 | DUMMY28 | -6050 | -250 | 70 x 80 |
| 56 | DUMMY29 | -5950 | -250 | 70 x 80 |
| 57 | DUMMY30 | -5850 | -250 | 70 x 80 |
| 58 | DUMMY31 | -5750 | -250 | 70 x 80 |
| 59 | DUMMY32 | -5650 | -250 | 70 x 80 |
| 60 | DUMMY33 | -5550 | -250 | 70 x 80 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 61 | DUMMY34 | -5450 | -250 | 70 x 80 |
| 62 | DUMMY35 | -5350 | -250 | 70 x 80 |
| 63 | DUMMY36 | -5250 | -250 | 70 x 80 |
| 64 | DUMMY37 | -5150 | -250 | 70 x 80 |
| 65 | DUMMY38 | -5050 | -250 | 70 x 80 |
| 66 | DUMMY39 | -4950 | -250 | 70 x 80 |
| 67 | DUMMY40 | -4850 | -250 | 70 x 80 |
| 68 | DUMMY41 | -4750 | -250 | 70 x 80 |
| 69 | DUMMY42 | -4650 | -250 | 70 x 80 |
| 70 | DUMMY43 | -4550 | -250 | 70 x 80 |
| 71 | DUMMY44 | -4450 | -250 | 70 x 80 |
| 72 | DUMMY45 | -4350 | -250 | 70 x 80 |
| 73 | DUMMY46 | -4250 | -250 | 70 x 80 |
| 74 | DUMMY47 | -4150 | -250 | 70 x 80 |
| 75 | DUMMY48 | -4050 | -250 | 70 x 80 |
| 76 | DUMMY49 | -3950 | -250 | 70 x 80 |
| 77 | DUMMY50 | -3850 | -250 | 70 x 80 |
| 78 | DUMMY51 | -3750 | -250 | 70 x 80 |
| 79 | DUMMY52 | -3650 | -250 | 70 x 80 |
| 80 | DUMMY53 | -3550 | -250 | 70 x 80 |
| 81 | DUMMY54 | -3450 | -250 | 70 x 80 |
| 82 | DUMMY55 | -3350 | -250 | 70 x 80 |
| 83 | DUMMY56 | -3250 | -250 | 70 x 80 |
| 84 | DUMMY57 | -3150 | -250 | 70 x 80 |
| 85 | DUMMY58 | -3050 | -250 | 70 x 80 |
| 86 | DUMMY59 | -2950 | -250 | 70 x 80 |
| 87 | DUMMY60 | -2850 | -250 | 70 x 80 |
| 88 | DUMMY61 | -2750 | -250 | 70 x 80 |
| 89 | DUMMY62 | -2650 | -250 | 70 x 80 |
| 90 | DUMMY63 | -2550 | -250 | 70 x 80 |
| 91 | DUMMY64 | -2450 | -250 | 70 x 80 |
| 92 | DUMMY65 | -2350 | -250 | 70 x 80 |
| 93 | DUMMY66 | -2250 | -250 | 70 x 80 |
| 94 | DUMMY67 | -2150 | -250 | 70 x 80 |
| 95 | DUMMY68 | -2050 | -250 | 70 x 80 |
| 96 | DUMMY69 | -1950 | -250 | 70 x 80 |
| 97 | DUMMY70 | -1850 | -250 | 70 x 80 |
| 98 | DUMMY71 | -1750 | -250 | 70 x 80 |
| 99 | DUMMY72 | -1650 | -250 | 70 x 80 |
| 100 | DUMMY73 | -1550 | -250 | 70 x 80 |
| 101 | DUMMY74 | -1450 | -250 | 70 x 80 |
| 102 | DUMMY75 | -1350 | -250 | 70 x 80 |
| 103 | DUMMY76 | -1250 | -250 | 70 x 80 |
| 104 | DUMMY77 | -1150 | -250 | 70 x 80 |
| 105 | DUMMY78 | -1050 | -250 | 70 x 80 |
| 106 | DUMMY79 | -950 | -250 | 70 x 80 |
| 107 | DUMMY80 | -850 | -250 | 70 x 80 |
| 108 | DUMMY81 | -750 | -250 | 70 x 80 |
| 109 | DUMMY82 | -650 | -250 | 70 x 80 |
| 110 | DUMMY83 | -550 | -250 | 70 x 80 |
| 111 | DUMMY84 | -450 | -250 | 70 x 80 |
| 112 | DUMMY85 | -350 | -250 | 70 x 80 |
| 113 | DUMMY86 | -250 | -250 | 70 x 80 |
| 114 | DUMMY87 | -150 | -250 | 70 x 80 |
| 115 | DUMMY88 | -50 | -250 | 70 x 80 |
| 116 | DUMMY89 | 50 | -250 | 70 x 80 |
| 117 | DUMMY90 | 150 | -250 | 70 x 80 |
| 118 | DUMMY91 | 250 | -250 | 70 x 80 |
| 119 | DUMMY92 | 350 | -250 | 70 x 80 |
| 120 | DUMMY93 | 450 | -250 | 70 x 80 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 121 | DUMMY94 | 550 | -250 | 70 x 80 |
| 122 | DUMMY95 | 650 | -250 | 70 x 80 |
| 123 | DUMMY96 | 750 | -250 | 70 x 80 |
| 124 | DUMMY97 | 850 | -250 | 70 x 80 |
| 125 | DUMMY98 | 950 | -250 | 70 x 80 |
| 126 | DUMMY99 | 1050 | -250 | 70 x 80 |
| 127 | DUMMY100 | 1150 | -250 | 70 x 80 |
| 128 | DUMMY101 | 1250 | -250 | 70 x 80 |
| 129 | DUMMY102 | 1350 | -250 | 70 x 80 |
| 130 | DUMMY103 | 1450 | -250 | 70 x 80 |
| 131 | DUMMY104 | 1550 | -250 | 70 x 80 |
| 132 | DUMMY105 | 1650 | -250 | 70 x 80 |
| 133 | DUMMY106 | 1750 | -250 | 70 x 80 |
| 134 | DUMMY107 | 1850 | -250 | 70 x 80 |
| 135 | DUMMY108 | 1950 | -250 | 70 x 80 |
| 136 | DUMMY109 | 2050 | -250 | 70 x 80 |
| 137 | DUMMY110 | 2150 | -250 | 70 x 80 |
| 138 | DUMMY111 | 2250 | -250 | 70 x 80 |
| 139 | DUMMY112 | 2350 | -250 | 70 x 80 |
| 140 | DUMMY113 | 2450 | -250 | 70 x 80 |
| 141 | DUMMY114 | 2550 | -250 | 70 x 80 |
| 142 | DUMMY115 | 2650 | -250 | 70 x 80 |
| 143 | DUMMY116 | 2750 | -250 | 70 x 80 |
| 144 | DUMMY117 | 2850 | -250 | 70 x 80 |
| 145 | DUMMY118 | 2950 | -250 | 70 x 80 |
| 146 | DUMMY119 | 3050 | -250 | 70 x 80 |
| 147 | DUMMY120 | 3150 | -250 | 70 x 80 |
| 148 | DUMMY121 | 3250 | -250 | 70 x 80 |
| 149 | DUMMY122 | 3350 | -250 | 70 x 80 |
| 150 | DUMMY123 | 3450 | -250 | 70 x 80 |
| 151 | DUMMY124 | 3550 | -250 | 70 x 80 |
| 152 | DUMMY125 | 3650 | -250 | 70 x 80 |
| 153 | DUMMY126 | 3750 | -250 | 70 x 80 |
| 154 | DUMMY127 | 3850 | -250 | 70 x 80 |
| 155 | DUMMY128 | 3950 | -250 | 70 x 80 |
| 156 | DUMMY129 | 4050 | -250 | 70 x 80 |
| 157 | DUMMY130 | 4150 | -250 | 70 x 80 |
| 158 | DUMMY131 | 4250 | -250 | 70 x 80 |
| 159 | DUMMY132 | 4350 | -250 | 70 x 80 |
| 160 | DUMMY133 | 4450 | -250 | 70 x 80 |
| 161 | DUMMY134 | 4550 | -250 | 70 x 80 |
| 162 | DUMMY135 | 4650 | -250 | 70 x 80 |
| 163 | DUMMY136 | 4750 | -250 | 70 x 80 |
| 164 | DUMMY137 | 4850 | -250 | 70 x 80 |
| 165 | DUMMY138 | 4950 | -250 | 70 x 80 |
| 166 | DUMMY139 | 5050 | -250 | 70 x 80 |
| 167 | DUMMY140 | 5150 | -250 | 70 x 80 |
| 168 | DUMMY141 | 5250 | -250 | 70 x 80 |
| 169 | DUMMY142 | 5350 | -250 | 70 x 80 |
| 170 | DUMMY143 | 5450 | -250 | 70 x 80 |
| 171 | DUMMY144 | 5550 | -250 | 70 x 80 |
| 172 | DUMMY145 | 5650 | -250 | 70 x 80 |
| 173 | DUMMY146 | 5750 | -250 | 70 x 80 |
| 174 | DUMMY147 | 5850 | -250 | 70 x 80 |
| 175 | DUMMY148 | 5950 | -250 | 70 x 80 |
| 176 | DUMMY149 | 6050 | -250 | 70 x 80 |
| 177 | DUMMY150 | 6150 | -250 | 70 x 80 |
| 178 | DUMMY151 | 6250 | -250 | 70 x 80 |
| 179 | DUMMY152 | 6350 | -250 | 70 x 80 |
| 180 | DUMMY153 | 6450 | -250 | 70 x 80 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 181 | DUMMY154 | 6550 | -250 | 70 x 80 |
| 182 | DUMMY155 | 6650 | -250 | 70 x 80 |
| 183 | DUMMY156 | 6750 | -250 | 70 x 80 |
| 184 | DUMMY157 | 6850 | -250 | 70 x 80 |
| 185 | DUMMY158 | 6950 | -250 | 70 x 80 |
| 186 | DUMMY159 | 7050 | -250 | 70 x 80 |
| 187 | DUMMY160 | 7150 | -250 | 70 x 80 |
| 188 | DUMMY161 | 7250 | -250 | 70 x 80 |
| 189 | DUMMY162 | 7350 | -250 | 70 x 80 |
| 190 | DUMMY163 | 7450 | -250 | 70 x 80 |
| 191 | DUMMY164 | 7550 | -250 | 70 x 80 |
| 192 | DUMMY165 | 7650 | -250 | 70 x 80 |
| 193 | DUMMY166 | 7750 | -250 | 70 x 80 |
| 194 | DUMMY167 | 7850 | -250 | 70 x 80 |
| 195 | DUMMY168 | 7950 | -250 | 70 x 80 |
| 196 | DUMMY169 | 8050 | -250 | 70 x 80 |
| 197 | DUMMY170 | 8150 | -250 | 70 x 80 |
| 198 | DUMMY171 | 8250 | -250 | 70 x 80 |
| 199 | DUMMY172 | 8350 | -250 | 70 x 80 |
| 200 | DUMMY173 | 8450 | -250 | 70 x 80 |
| 201 | DUMMY174 | 8550 | -250 | 70 x 80 |
| 202 | EVEN | 8650 | -250 | 70 x 80 |
| 203 | SEG1 | 8750 | -250 | 70 x 80 |
| 204 | SEG2 | 8850 | -250 | 70 x 80 |
| 205 | MODE1 | 9252.5 | -270 | 55 x 40 |
| 206 | MODE1 | 9327.5 | -270 | 55 x 40 |
| 207 | MODE2 | 9402.5 | -270 | 55 x 40 |
| 208 | MODE2 | 9477.5 | -270 | 55 x 40 |
| 209 | VSS | 9402.5 | -210 | 55 x 40 |
| 210 | VSS | 9477.5 | -210 | 55 x 40 |
| 211 | VDD | 9402.5 | -150 | 55 x 40 |
| 212 | VDD | 9477.5 | -150 | 55 x 40 |
| 213 | VEE | 9402.5 | -90 | 55 x 40 |
| 214 | VEE | 9477.5 | -90 | 55 x 40 |
| 215 | VGH | 9402.5 | -30 | 55 x 40 |
| 216 | VGH | 9477.5 | -30 | 55 x 40 |
| 217 | SVT1 | 9402.5 | 30 | 55 x 40 |
| 218 | SVT1 | 9477.5 | 30 | 55 x 40 |
| 219 | PATH2 | 9402.5 | 90 | 55 x 40 |
| 220 | PATH2 | 9477.5 | 90 | 55 x 40 |
| 221 | CPV | 9402.5 | 150 | 55 x 40 |
| 222 | CPV | 9477.5 | 150 | 55 x 40 |
| 223 | L/R | 9402.5 | 210 | 55 x 40 |
| 224 | L/R | 9477.5 | 210 | 55 x 40 |
| 225 | OE | 9402.5 | 270 | 55 x 40 |
| 226 | OE | 9477.5 | 270 | 55 x 40 |
| 227 | OE | 9327.5 | 270 | 55 x 40 |
| 228 | OE | 9252.5 | 270 | 55 x 40 |
| 229 | /XAO | 9167.5 | 270 | 55 x 40 |
| 230 | /XAO | 9092.5 | 270 | 55 x 40 |
| 231 | PATH1 | 8980 | 235 | 50 x 110 |
| 232 | PATH1 | 8910 | 235 | 50 x 110 |
| 233 | DUMMY1 | 8844 | 247.5 | 22 x 85 |
| 234 | OUT0 | 8800 | 247.5 | 22 x 85 |
| 235 | OUT1 | 8778 | 137.5 | 22 x 85 |
| 236 | OUT2 | 8756 | 247.5 | 22 x 85 |
| 237 | OUT3 | 8734 | 137.5 | 22 x 85 |
| 238 | OUT4 | 8712 | 247.5 | 22 x 85 |
| 239 | OUT5 | 8690 | 137.5 | 22 x 85 |
| 240 | OUT6 | 8668 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 241 | OUT7 | 8646 | 137.5 | 22 x 85 |
| 242 | OUT8 | 8624 | 247.5 | 22 x 85 |
| 243 | OUT9 | 8602 | 137.5 | 22 x 85 |
| 244 | OUT10 | 8580 | 247.5 | 22 x 85 |
| 245 | OUT11 | 8558 | 137.5 | 22 x 85 |
| 246 | OUT12 | 8536 | 247.5 | 22 x 85 |
| 247 | OUT13 | 8514 | 137.5 | 22 x 85 |
| 248 | OUT14 | 8492 | 247.5 | 22 x 85 |
| 249 | OUT15 | 8470 | 137.5 | 22 x 85 |
| 250 | OUT16 | 8448 | 247.5 | 22 x 85 |
| 251 | OUT17 | 8426 | 137.5 | 22 x 85 |
| 252 | OUT18 | 8404 | 247.5 | 22 x 85 |
| 253 | OUT19 | 8382 | 137.5 | 22 x 85 |
| 254 | OUT20 | 8360 | 247.5 | 22 x 85 |
| 255 | OUT21 | 8338 | 137.5 | 22 x 85 |
| 256 | OUT22 | 8316 | 247.5 | 22 x 85 |
| 257 | OUT23 | 8294 | 137.5 | 22 x 85 |
| 258 | OUT24 | 8272 | 247.5 | 22 x 85 |
| 259 | OUT25 | 8250 | 137.5 | 22 x 85 |
| 260 | OUT26 | 8228 | 247.5 | 22 x 85 |
| 261 | OUT27 | 8206 | 137.5 | 22 x 85 |
| 262 | OUT28 | 8184 | 247.5 | 22 x 85 |
| 263 | OUT29 | 8162 | 137.5 | 22 x 85 |
| 264 | OUT30 | 8140 | 247.5 | 22 x 85 |
| 265 | OUT31 | 8118 | 137.5 | 22 x 85 |
| 266 | OUT32 | 8096 | 247.5 | 22 x 85 |
| 267 | OUT33 | 8074 | 137.5 | 22 x 85 |
| 268 | OUT34 | 8052 | 247.5 | 22 x 85 |
| 269 | OUT35 | 8030 | 137.5 | 22 x 85 |
| 270 | OUT36 | 8008 | 247.5 | 22 x 85 |
| 271 | OUT37 | 7986 | 137.5 | 22 x 85 |
| 272 | OUT38 | 7964 | 247.5 | 22 x 85 |
| 273 | OUT39 | 7942 | 137.5 | 22 x 85 |
| 274 | OUT40 | 7920 | 247.5 | 22 x 85 |
| 275 | OUT41 | 7898 | 137.5 | 22 x 85 |
| 276 | OUT42 | 7876 | 247.5 | 22 x 85 |
| 277 | OUT43 | 7854 | 137.5 | 22 x 85 |
| 278 | OUT44 | 7832 | 247.5 | 22 x 85 |
| 279 | OUT45 | 7810 | 137.5 | 22 x 85 |
| 280 | OUT46 | 7788 | 247.5 | 22 x 85 |
| 281 | OUT47 | 7766 | 137.5 | 22 x 85 |
| 282 | OUT48 | 7744 | 247.5 | 22 x 85 |
| 283 | OUT49 | 7722 | 137.5 | 22 x 85 |
| 284 | OUT50 | 7700 | 247.5 | 22 x 85 |
| 285 | OUT51 | 7678 | 137.5 | 22 x 85 |
| 286 | OUT52 | 7656 | 247.5 | 22 x 85 |
| 287 | OUT53 | 7634 | 137.5 | 22 x 85 |
| 288 | OUT54 | 7612 | 247.5 | 22 x 85 |
| 289 | OUT55 | 7590 | 137.5 | 22 x 85 |
| 290 | OUT56 | 7568 | 247.5 | 22 x 85 |
| 291 | OUT57 | 7546 | 137.5 | 22 x 85 |
| 292 | OUT58 | 7524 | 247.5 | 22 x 85 |
| 293 | OUT59 | 7502 | 137.5 | 22 x 85 |
| 294 | OUT60 | 7480 | 247.5 | 22 x 85 |
| 295 | OUT61 | 7458 | 137.5 | 22 x 85 |
| 296 | OUT62 | 7436 | 247.5 | 22 x 85 |
| 297 | OUT63 | 7414 | 137.5 | 22 x 85 |
| 298 | OUT64 | 7392 | 247.5 | 22 x 85 |
| 299 | OUT65 | 7370 | 137.5 | 22 x 85 |
| 300 | OUT66 | 7348 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 301 | OUT67 | 7326 | 137.5 | 22 x 85 |
| 302 | OUT68 | 7304 | 247.5 | 22 x 85 |
| 303 | OUT69 | 7282 | 137.5 | 22 x 85 |
| 304 | OUT70 | 7260 | 247.5 | 22 x 85 |
| 305 | OUT71 | 7238 | 137.5 | 22 x 85 |
| 306 | OUT72 | 7216 | 247.5 | 22 x 85 |
| 307 | OUT73 | 7194 | 137.5 | 22 x 85 |
| 308 | OUT74 | 7172 | 247.5 | 22 x 85 |
| 309 | OUT75 | 7150 | 137.5 | 22 x 85 |
| 310 | OUT76 | 7128 | 247.5 | 22 x 85 |
| 311 | OUT77 | 7106 | 137.5 | 22 x 85 |
| 312 | OUT78 | 7084 | 247.5 | 22 x 85 |
| 313 | OUT79 | 7062 | 137.5 | 22 x 85 |
| 314 | OUT80 | 7040 | 247.5 | 22 x 85 |
| 315 | OUT81 | 7018 | 137.5 | 22 x 85 |
| 316 | OUT82 | 6996 | 247.5 | 22 x 85 |
| 317 | OUT83 | 6974 | 137.5 | 22 x 85 |
| 318 | OUT84 | 6952 | 247.5 | 22 x 85 |
| 319 | OUT85 | 6930 | 137.5 | 22 x 85 |
| 320 | OUT86 | 6908 | 247.5 | 22 x 85 |
| 321 | OUT87 | 6886 | 137.5 | 22 x 85 |
| 322 | OUT88 | 6864 | 247.5 | 22 x 85 |
| 323 | OUT89 | 6842 | 137.5 | 22 x 85 |
| 324 | OUT90 | 6820 | 247.5 | 22 x 85 |
| 325 | OUT91 | 6798 | 137.5 | 22 x 85 |
| 326 | OUT92 | 6776 | 247.5 | 22 x 85 |
| 327 | OUT93 | 6754 | 137.5 | 22 x 85 |
| 328 | OUT94 | 6732 | 247.5 | 22 x 85 |
| 329 | OUT95 | 6710 | 137.5 | 22 x 85 |
| 330 | OUT96 | 6688 | 247.5 | 22 x 85 |
| 331 | OUT97 | 6666 | 137.5 | 22 x 85 |
| 332 | OUT98 | 6644 | 247.5 | 22 x 85 |
| 333 | OUT99 | 6622 | 137.5 | 22 x 85 |
| 334 | OUT100 | 6600 | 247.5 | 22 x 85 |
| 335 | OUT101 | 6578 | 137.5 | 22 x 85 |
| 336 | OUT102 | 6556 | 247.5 | 22 x 85 |
| 337 | OUT103 | 6534 | 137.5 | 22 x 85 |
| 338 | OUT104 | 6512 | 247.5 | 22 x 85 |
| 339 | OUT105 | 6490 | 137.5 | 22 x 85 |
| 340 | OUT106 | 6468 | 247.5 | 22 x 85 |
| 341 | OUT107 | 6446 | 137.5 | 22 x 85 |
| 342 | OUT108 | 6424 | 247.5 | 22 x 85 |
| 343 | OUT109 | 6402 | 137.5 | 22 x 85 |
| 344 | OUT110 | 6380 | 247.5 | 22 x 85 |
| 345 | OUT111 | 6358 | 137.5 | 22 x 85 |
| 346 | OUT112 | 6336 | 247.5 | 22 x 85 |
| 347 | OUT113 | 6314 | 137.5 | 22 x 85 |
| 348 | OUT114 | 6292 | 247.5 | 22 x 85 |
| 349 | OUT115 | 6270 | 137.5 | 22 x 85 |
| 350 | OUT116 | 6248 | 247.5 | 22 x 85 |
| 351 | OUT117 | 6226 | 137.5 | 22 x 85 |
| 352 | OUT118 | 6204 | 247.5 | 22 x 85 |
| 353 | OUT119 | 6182 | 137.5 | 22 x 85 |
| 354 | OUT120 | 6160 | 247.5 | 22 x 85 |
| 355 | OUT121 | 6138 | 137.5 | 22 x 85 |
| 356 | OUT122 | 6116 | 247.5 | 22 x 85 |
| 357 | OUT123 | 6094 | 137.5 | 22 x 85 |
| 358 | OUT124 | 6072 | 247.5 | 22 x 85 |
| 359 | OUT125 | 6050 | 137.5 | 22 x 85 |
| 360 | OUT126 | 6028 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 361 | OUT127 | 6006 | 137.5 | 22 x 85 |
| 362 | OUT128 | 5984 | 247.5 | 22 x 85 |
| 363 | OUT129 | 5962 | 137.5 | 22 x 85 |
| 364 | OUT130 | 5940 | 247.5 | 22 x 85 |
| 365 | OUT131 | 5918 | 137.5 | 22 x 85 |
| 366 | OUT132 | 5896 | 247.5 | 22 x 85 |
| 367 | OUT133 | 5874 | 137.5 | 22 x 85 |
| 368 | OUT134 | 5852 | 247.5 | 22 x 85 |
| 369 | OUT135 | 5830 | 137.5 | 22 x 85 |
| 370 | OUT136 | 5808 | 247.5 | 22 x 85 |
| 371 | OUT137 | 5786 | 137.5 | 22 x 85 |
| 372 | OUT138 | 5764 | 247.5 | 22 x 85 |
| 373 | OUT139 | 5742 | 137.5 | 22 x 85 |
| 374 | OUT140 | 5720 | 247.5 | 22 x 85 |
| 375 | OUT141 | 5698 | 137.5 | 22 x 85 |
| 376 | OUT142 | 5676 | 247.5 | 22 x 85 |
| 377 | OUT143 | 5654 | 137.5 | 22 x 85 |
| 378 | OUT144 | 5632 | 247.5 | 22 x 85 |
| 379 | OUT145 | 5610 | 137.5 | 22 x 85 |
| 380 | OUT146 | 5588 | 247.5 | 22 x 85 |
| 381 | OUT147 | 5566 | 137.5 | 22 x 85 |
| 382 | OUT148 | 5544 | 247.5 | 22 x 85 |
| 383 | OUT149 | 5522 | 137.5 | 22 x 85 |
| 384 | OUT150 | 5500 | 247.5 | 22 x 85 |
| 385 | OUT151 | 5478 | 137.5 | 22 x 85 |
| 386 | OUT152 | 5456 | 247.5 | 22 x 85 |
| 387 | OUT153 | 5434 | 137.5 | 22 x 85 |
| 388 | OUT154 | 5412 | 247.5 | 22 x 85 |
| 389 | OUT155 | 5390 | 137.5 | 22 x 85 |
| 390 | OUT156 | 5368 | 247.5 | 22 x 85 |
| 391 | OUT157 | 5346 | 137.5 | 22 x 85 |
| 392 | OUT158 | 5324 | 247.5 | 22 x 85 |
| 393 | OUT159 | 5302 | 137.5 | 22 x 85 |
| 394 | OUT160 | 5280 | 247.5 | 22 x 85 |
| 395 | OUT161 | 5258 | 137.5 | 22 x 85 |
| 396 | OUT162 | 5236 | 247.5 | 22 x 85 |
| 397 | OUT163 | 5214 | 137.5 | 22 x 85 |
| 398 | OUT164 | 5192 | 247.5 | 22 x 85 |
| 399 | OUT165 | 5170 | 137.5 | 22 x 85 |
| 400 | OUT166 | 5148 | 247.5 | 22 x 85 |
| 401 | OUT167 | 5126 | 137.5 | 22 x 85 |
| 402 | OUT168 | 5104 | 247.5 | 22 x 85 |
| 403 | OUT169 | 5082 | 137.5 | 22 x 85 |
| 404 | OUT170 | 5060 | 247.5 | 22 x 85 |
| 405 | OUT171 | 5038 | 137.5 | 22 x 85 |
| 406 | OUT172 | 5016 | 247.5 | 22 x 85 |
| 407 | OUT173 | 4994 | 137.5 | 22 x 85 |
| 408 | OUT174 | 4972 | 247.5 | 22 x 85 |
| 409 | OUT175 | 4950 | 137.5 | 22 x 85 |
| 410 | OUT176 | 4928 | 247.5 | 22 x 85 |
| 411 | OUT177 | 4906 | 137.5 | 22 x 85 |
| 412 | OUT178 | 4884 | 247.5 | 22 x 85 |
| 413 | OUT179 | 4862 | 137.5 | 22 x 85 |
| 414 | OUT180 | 4840 | 247.5 | 22 x 85 |
| 415 | OUT181 | 4818 | 137.5 | 22 x 85 |
| 416 | OUT182 | 4796 | 247.5 | 22 x 85 |
| 417 | OUT183 | 4774 | 137.5 | 22 x 85 |
| 418 | OUT184 | 4752 | 247.5 | 22 x 85 |
| 419 | OUT185 | 4730 | 137.5 | 22 x 85 |
| 420 | OUT186 | 4708 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 421 | OUT187 | 4686 | 137.5 | 22 x 85 |
| 422 | OUT188 | 4664 | 247.5 | 22 x 85 |
| 423 | OUT189 | 4642 | 137.5 | 22 x 85 |
| 424 | OUT190 | 4620 | 247.5 | 22 x 85 |
| 425 | OUT191 | 4598 | 137.5 | 22 x 85 |
| 426 | OUT192 | 4576 | 247.5 | 22 x 85 |
| 427 | OUT193 | 4554 | 137.5 | 22 x 85 |
| 428 | OUT194 | 4532 | 247.5 | 22 x 85 |
| 429 | OUT195 | 4510 | 137.5 | 22 x 85 |
| 430 | OUT196 | 4488 | 247.5 | 22 x 85 |
| 431 | OUT197 | 4466 | 137.5 | 22 x 85 |
| 432 | OUT198 | 4444 | 247.5 | 22 x 85 |
| 433 | OUT199 | 4422 | 137.5 | 22 x 85 |
| 434 | OUT200 | 4400 | 247.5 | 22 x 85 |
| 435 | OUT201 | 4378 | 137.5 | 22 x 85 |
| 436 | OUT202 | 4356 | 247.5 | 22 x 85 |
| 437 | OUT203 | 4334 | 137.5 | 22 x 85 |
| 438 | OUT204 | 4312 | 247.5 | 22 x 85 |
| 439 | OUT205 | 4290 | 137.5 | 22 x 85 |
| 440 | OUT206 | 4268 | 247.5 | 22 x 85 |
| 441 | OUT207 | 4246 | 137.5 | 22 x 85 |
| 442 | OUT208 | 4224 | 247.5 | 22 x 85 |
| 443 | OUT209 | 4202 | 137.5 | 22 x 85 |
| 444 | OUT210 | 4180 | 247.5 | 22 x 85 |
| 445 | OUT211 | 4158 | 137.5 | 22 x 85 |
| 446 | OUT212 | 4136 | 247.5 | 22 x 85 |
| 447 | OUT213 | 4114 | 137.5 | 22 x 85 |
| 448 | OUT214 | 4092 | 247.5 | 22 x 85 |
| 449 | OUT215 | 4070 | 137.5 | 22 x 85 |
| 450 | OUT216 | 4048 | 247.5 | 22 x 85 |
| 451 | OUT217 | 4026 | 137.5 | 22 x 85 |
| 452 | OUT218 | 4004 | 247.5 | 22 x 85 |
| 453 | OUT219 | 3982 | 137.5 | 22 x 85 |
| 454 | OUT220 | 3960 | 247.5 | 22 x 85 |
| 455 | OUT221 | 3938 | 137.5 | 22 x 85 |
| 456 | OUT222 | 3916 | 247.5 | 22 x 85 |
| 457 | OUT223 | 3894 | 137.5 | 22 x 85 |
| 458 | OUT224 | 3872 | 247.5 | 22 x 85 |
| 459 | OUT225 | 3850 | 137.5 | 22 x 85 |
| 460 | OUT226 | 3828 | 247.5 | 22 x 85 |
| 461 | OUT227 | 3806 | 137.5 | 22 x 85 |
| 462 | OUT228 | 3784 | 247.5 | 22 x 85 |
| 463 | OUT229 | 3762 | 137.5 | 22 x 85 |
| 464 | OUT230 | 3740 | 247.5 | 22 x 85 |
| 465 | OUT231 | 3718 | 137.5 | 22 x 85 |
| 466 | OUT232 | 3696 | 247.5 | 22 x 85 |
| 467 | OUT233 | 3674 | 137.5 | 22 x 85 |
| 468 | OUT234 | 3652 | 247.5 | 22 x 85 |
| 469 | OUT235 | 3630 | 137.5 | 22 x 85 |
| 470 | OUT236 | 3608 | 247.5 | 22 x 85 |
| 471 | OUT237 | 3586 | 137.5 | 22 x 85 |
| 472 | OUT238 | 3564 | 247.5 | 22 x 85 |
| 473 | OUT239 | 3542 | 137.5 | 22 x 85 |
| 474 | OUT240 | 3520 | 247.5 | 22 x 85 |
| 475 | OUT241 | 3498 | 137.5 | 22 x 85 |
| 476 | OUT242 | 3476 | 247.5 | 22 x 85 |
| 477 | OUT243 | 3454 | 137.5 | 22 x 85 |
| 478 | OUT244 | 3432 | 247.5 | 22 x 85 |
| 479 | OUT245 | 3410 | 137.5 | 22 x 85 |
| 480 | OUT246 | 3388 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 481 | OUT247 | 3366 | 137.5 | 22 x 85 |
| 482 | OUT248 | 3344 | 247.5 | 22 x 85 |
| 483 | OUT249 | 3322 | 137.5 | 22 x 85 |
| 484 | OUT250 | 3300 | 247.5 | 22 x 85 |
| 485 | OUT251 | 3278 | 137.5 | 22 x 85 |
| 486 | OUT252 | 3256 | 247.5 | 22 x 85 |
| 487 | OUT253 | 3234 | 137.5 | 22 x 85 |
| 488 | OUT254 | 3212 | 247.5 | 22 x 85 |
| 489 | OUT255 | 3190 | 137.5 | 22 x 85 |
| 490 | OUT256 | 3168 | 247.5 | 22 x 85 |
| 491 | OUT257 | 3146 | 137.5 | 22 x 85 |
| 492 | OUT258 | 3124 | 247.5 | 22 x 85 |
| 493 | OUT259 | 3102 | 137.5 | 22 x 85 |
| 494 | OUT260 | 3080 | 247.5 | 22 x 85 |
| 495 | OUT261 | 3058 | 137.5 | 22 x 85 |
| 496 | OUT262 | 3036 | 247.5 | 22 x 85 |
| 497 | OUT263 | 3014 | 137.5 | 22 x 85 |
| 498 | OUT264 | 2992 | 247.5 | 22 x 85 |
| 499 | OUT265 | 2970 | 137.5 | 22 x 85 |
| 500 | OUT266 | 2948 | 247.5 | 22 x 85 |
| 501 | OUT267 | 2926 | 137.5 | 22 x 85 |
| 502 | OUT268 | 2904 | 247.5 | 22 x 85 |
| 503 | OUT269 | 2882 | 137.5 | 22 x 85 |
| 504 | OUT270 | 2860 | 247.5 | 22 x 85 |
| 505 | OUT271 | 2838 | 137.5 | 22 x 85 |
| 506 | OUT272 | 2816 | 247.5 | 22 x 85 |
| 507 | OUT273 | 2794 | 137.5 | 22 x 85 |
| 508 | OUT274 | 2772 | 247.5 | 22 x 85 |
| 509 | OUT275 | 2750 | 137.5 | 22 x 85 |
| 510 | OUT276 | 2728 | 247.5 | 22 x 85 |
| 511 | OUT277 | 2706 | 137.5 | 22 x 85 |
| 512 | OUT278 | 2684 | 247.5 | 22 x 85 |
| 513 | OUT279 | 2662 | 137.5 | 22 x 85 |
| 514 | OUT280 | 2640 | 247.5 | 22 x 85 |
| 515 | OUT281 | 2618 | 137.5 | 22 x 85 |
| 516 | OUT282 | 2596 | 247.5 | 22 x 85 |
| 517 | OUT283 | 2574 | 137.5 | 22 x 85 |
| 518 | OUT284 | 2552 | 247.5 | 22 x 85 |
| 519 | OUT285 | 2530 | 137.5 | 22 x 85 |
| 520 | OUT286 | 2508 | 247.5 | 22 x 85 |
| 521 | OUT287 | 2486 | 137.5 | 22 x 85 |
| 522 | OUT288 | 2464 | 247.5 | 22 x 85 |
| 523 | OUT289 | 2442 | 137.5 | 22 x 85 |
| 524 | OUT290 | 2420 | 247.5 | 22 x 85 |
| 525 | OUT291 | 2398 | 137.5 | 22 x 85 |
| 526 | OUT292 | 2376 | 247.5 | 22 x 85 |
| 527 | OUT293 | 2354 | 137.5 | 22 x 85 |
| 528 | OUT294 | 2332 | 247.5 | 22 x 85 |
| 529 | OUT295 | 2310 | 137.5 | 22 x 85 |
| 530 | OUT296 | 2288 | 247.5 | 22 x 85 |
| 531 | OUT297 | 2266 | 137.5 | 22 x 85 |
| 532 | OUT298 | 2244 | 247.5 | 22 x 85 |
| 533 | OUT299 | 2222 | 137.5 | 22 x 85 |
| 534 | OUT300 | 2200 | 247.5 | 22 x 85 |
| 535 | OUT301 | 2178 | 137.5 | 22 x 85 |
| 536 | OUT302 | 2156 | 247.5 | 22 x 85 |
| 537 | OUT303 | 2134 | 137.5 | 22 x 85 |
| 538 | OUT304 | 2112 | 247.5 | 22 x 85 |
| 539 | OUT305 | 2090 | 137.5 | 22 x 85 |
| 540 | OUT306 | 2068 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 541 | OUT307 | 2046 | 137.5 | 22 x 85 |
| 542 | OUT308 | 2024 | 247.5 | 22 x 85 |
| 543 | OUT309 | 2002 | 137.5 | 22 x 85 |
| 544 | OUT310 | 1980 | 247.5 | 22 x 85 |
| 545 | OUT311 | 1958 | 137.5 | 22 x 85 |
| 546 | OUT312 | 1936 | 247.5 | 22 x 85 |
| 547 | OUT313 | 1914 | 137.5 | 22 x 85 |
| 548 | OUT314 | 1892 | 247.5 | 22 x 85 |
| 549 | OUT315 | 1870 | 137.5 | 22 x 85 |
| 550 | OUT316 | 1848 | 247.5 | 22 x 85 |
| 551 | OUT317 | 1826 | 137.5 | 22 x 85 |
| 552 | OUT318 | 1804 | 247.5 | 22 x 85 |
| 553 | OUT319 | 1782 | 137.5 | 22 x 85 |
| 554 | OUT320 | 1760 | 247.5 | 22 x 85 |
| 555 | OUT321 | 1738 | 137.5 | 22 x 85 |
| 556 | OUT322 | 1716 | 247.5 | 22 x 85 |
| 557 | OUT323 | 1694 | 137.5 | 22 x 85 |
| 558 | OUT324 | 1672 | 247.5 | 22 x 85 |
| 559 | OUT325 | 1650 | 137.5 | 22 x 85 |
| 560 | OUT326 | 1628 | 247.5 | 22 x 85 |
| 561 | OUT327 | 1606 | 137.5 | 22 x 85 |
| 562 | OUT328 | 1584 | 247.5 | 22 x 85 |
| 563 | OUT329 | 1562 | 137.5 | 22 x 85 |
| 564 | OUT330 | 1540 | 247.5 | 22 x 85 |
| 565 | OUT331 | 1518 | 137.5 | 22 x 85 |
| 566 | OUT332 | 1496 | 247.5 | 22 x 85 |
| 567 | OUT333 | 1474 | 137.5 | 22 x 85 |
| 568 | OUT334 | 1452 | 247.5 | 22 x 85 |
| 569 | OUT335 | 1430 | 137.5 | 22 x 85 |
| 570 | OUT336 | 1408 | 247.5 | 22 x 85 |
| 571 | OUT337 | 1386 | 137.5 | 22 x 85 |
| 572 | OUT338 | 1364 | 247.5 | 22 x 85 |
| 573 | OUT339 | 1342 | 137.5 | 22 x 85 |
| 574 | OUT340 | 1320 | 247.5 | 22 x 85 |
| 575 | OUT341 | 1298 | 137.5 | 22 x 85 |
| 576 | OUT342 | 1276 | 247.5 | 22 x 85 |
| 577 | OUT343 | 1254 | 137.5 | 22 x 85 |
| 578 | OUT344 | 1232 | 247.5 | 22 x 85 |
| 579 | OUT345 | 1210 | 137.5 | 22 x 85 |
| 580 | OUT346 | 1188 | 247.5 | 22 x 85 |
| 581 | OUT347 | 1166 | 137.5 | 22 x 85 |
| 582 | OUT348 | 1144 | 247.5 | 22 x 85 |
| 583 | OUT349 | 1122 | 137.5 | 22 x 85 |
| 584 | OUT350 | 1100 | 247.5 | 22 x 85 |
| 585 | OUT351 | 1078 | 137.5 | 22 x 85 |
| 586 | OUT352 | 1056 | 247.5 | 22 x 85 |
| 587 | OUT353 | 1034 | 137.5 | 22 x 85 |
| 588 | OUT354 | 1012 | 247.5 | 22 x 85 |
| 589 | OUT355 | 990 | 137.5 | 22 x 85 |
| 590 | OUT356 | 968 | 247.5 | 22 x 85 |
| 591 | OUT357 | 946 | 137.5 | 22 x 85 |
| 592 | OUT358 | 924 | 247.5 | 22 x 85 |
| 593 | OUT359 | 902 | 137.5 | 22 x 85 |
| 594 | OUT360 | 880 | 247.5 | 22 x 85 |
| 595 | OUT361 | 858 | 137.5 | 22 x 85 |
| 596 | OUT362 | 836 | 247.5 | 22 x 85 |
| 597 | OUT363 | 814 | 137.5 | 22 x 85 |
| 598 | OUT364 | 792 | 247.5 | 22 x 85 |
| 599 | OUT365 | 770 | 137.5 | 22 x 85 |
| 600 | OUT366 | 748 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 601 | OUT367 | 726 | 137.5 | 22 x 85 |
| 602 | OUT368 | 704 | 247.5 | 22 x 85 |
| 603 | OUT369 | 682 | 137.5 | 22 x 85 |
| 604 | OUT370 | 660 | 247.5 | 22 x 85 |
| 605 | OUT371 | 638 | 137.5 | 22 x 85 |
| 606 | OUT372 | 616 | 247.5 | 22 x 85 |
| 607 | OUT373 | 594 | 137.5 | 22 x 85 |
| 608 | OUT374 | 572 | 247.5 | 22 x 85 |
| 609 | OUT375 | 550 | 137.5 | 22 x 85 |
| 610 | OUT376 | 528 | 247.5 | 22 x 85 |
| 611 | OUT377 | 506 | 137.5 | 22 x 85 |
| 612 | OUT378 | 484 | 247.5 | 22 x 85 |
| 613 | OUT379 | 462 | 137.5 | 22 x 85 |
| 614 | OUT380 | 440 | 247.5 | 22 x 85 |
| 615 | OUT381 | 418 | 137.5 | 22 x 85 |
| 616 | OUT382 | 396 | 247.5 | 22 x 85 |
| 617 | OUT383 | 374 | 137.5 | 22 x 85 |
| 618 | OUT384 | 352 | 247.5 | 22 x 85 |
| 619 | OUT385 | 330 | 137.5 | 22 x 85 |
| 620 | OUT386 | 308 | 247.5 | 22 x 85 |
| 621 | OUT387 | 286 | 137.5 | 22 x 85 |
| 622 | OUT388 | 264 | 247.5 | 22 x 85 |
| 623 | OUT389 | 242 | 137.5 | 22 x 85 |
| 624 | OUT390 | 220 | 247.5 | 22 x 85 |
| 625 | OUT391 | 198 | 137.5 | 22 x 85 |
| 626 | OUT392 | 176 | 247.5 | 22 x 85 |
| 627 | OUT393 | 154 | 137.5 | 22 x 85 |
| 628 | OUT394 | 132 | 247.5 | 22 x 85 |
| 629 | OUT395 | 110 | 137.5 | 22 x 85 |
| 630 | OUT396 | 88 | 247.5 | 22 x 85 |
| 631 | OUT397 | 66 | 137.5 | 22 x 85 |
| 632 | OUT398 | 44 | 247.5 | 22 x 85 |
| 633 | OUT399 | 22 | 137.5 | 22 x 85 |
| 634 | OUT400 | 0 | 247.5 | 22 x 85 |
| 635 | OUT401 | -22 | 137.5 | 22 x 85 |
| 636 | OUT402 | -44 | 247.5 | 22 x 85 |
| 637 | OUT403 | -66 | 137.5 | 22 x 85 |
| 638 | OUT404 | -88 | 247.5 | 22 x 85 |
| 639 | OUT405 | -110 | 137.5 | 22 x 85 |
| 640 | OUT406 | -132 | 247.5 | 22 x 85 |
| 641 | OUT407 | -154 | 137.5 | 22 x 85 |
| 642 | OUT408 | -176 | 247.5 | 22 x 85 |
| 643 | OUT409 | -198 | 137.5 | 22 x 85 |
| 644 | OUT410 | -220 | 247.5 | 22 x 85 |
| 645 | OUT411 | -242 | 137.5 | 22 x 85 |
| 646 | OUT412 | -264 | 247.5 | 22 x 85 |
| 647 | OUT413 | -286 | 137.5 | 22 x 85 |
| 648 | OUT414 | -308 | 247.5 | 22 x 85 |
| 649 | OUT415 | -330 | 137.5 | 22 x 85 |
| 650 | OUT416 | -352 | 247.5 | 22 x 85 |
| 651 | OUT417 | -374 | 137.5 | 22 x 85 |
| 652 | OUT418 | -396 | 247.5 | 22 x 85 |
| 653 | OUT419 | -418 | 137.5 | 22 x 85 |
| 654 | OUT420 | -440 | 247.5 | 22 x 85 |
| 655 | OUT421 | -462 | 137.5 | 22 x 85 |
| 656 | OUT422 | -484 | 247.5 | 22 x 85 |
| 657 | OUT423 | -506 | 137.5 | 22 x 85 |
| 658 | OUT424 | -528 | 247.5 | 22 x 85 |
| 659 | OUT425 | -550 | 137.5 | 22 x 85 |
| 660 | OUT426 | -572 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 661 | OUT427 | -594 | 137.5 | 22 x 85 |
| 662 | OUT428 | -616 | 247.5 | 22 x 85 |
| 663 | OUT429 | -638 | 137.5 | 22 x 85 |
| 664 | OUT430 | -660 | 247.5 | 22 x 85 |
| 665 | OUT431 | -682 | 137.5 | 22 x 85 |
| 666 | OUT432 | -704 | 247.5 | 22 x 85 |
| 667 | OUT433 | -726 | 137.5 | 22 x 85 |
| 668 | OUT434 | -748 | 247.5 | 22 x 85 |
| 669 | OUT435 | -770 | 137.5 | 22 x 85 |
| 670 | OUT436 | -792 | 247.5 | 22 x 85 |
| 671 | OUT437 | -814 | 137.5 | 22 x 85 |
| 672 | OUT438 | -836 | 247.5 | 22 x 85 |
| 673 | OUT439 | -858 | 137.5 | 22 x 85 |
| 674 | OUT440 | -880 | 247.5 | 22 x 85 |
| 675 | OUT441 | -902 | 137.5 | 22 x 85 |
| 676 | OUT442 | -924 | 247.5 | 22 x 85 |
| 677 | OUT443 | -946 | 137.5 | 22 x 85 |
| 678 | OUT444 | -968 | 247.5 | 22 x 85 |
| 679 | OUT445 | -990 | 137.5 | 22 x 85 |
| 680 | OUT446 | -1012 | 247.5 | 22 x 85 |
| 681 | OUT447 | -1034 | 137.5 | 22 x 85 |
| 682 | OUT448 | -1056 | 247.5 | 22 x 85 |
| 683 | OUT449 | -1078 | 137.5 | 22 x 85 |
| 684 | OUT450 | -1100 | 247.5 | 22 x 85 |
| 685 | OUT451 | -1122 | 137.5 | 22 x 85 |
| 686 | OUT452 | -1144 | 247.5 | 22 x 85 |
| 687 | OUT453 | -1166 | 137.5 | 22 x 85 |
| 688 | OUT454 | -1188 | 247.5 | 22 x 85 |
| 689 | OUT455 | -1210 | 137.5 | 22 x 85 |
| 690 | OUT456 | -1232 | 247.5 | 22 x 85 |
| 691 | OUT457 | -1254 | 137.5 | 22 x 85 |
| 692 | OUT458 | -1276 | 247.5 | 22 x 85 |
| 693 | OUT459 | -1298 | 137.5 | 22 x 85 |
| 694 | OUT460 | -1320 | 247.5 | 22 x 85 |
| 695 | OUT461 | -1342 | 137.5 | 22 x 85 |
| 696 | OUT462 | -1364 | 247.5 | 22 x 85 |
| 697 | OUT463 | -1386 | 137.5 | 22 x 85 |
| 698 | OUT464 | -1408 | 247.5 | 22 x 85 |
| 699 | OUT465 | -1430 | 137.5 | 22 x 85 |
| 700 | OUT466 | -1452 | 247.5 | 22 x 85 |
| 701 | OUT467 | -1474 | 137.5 | 22 x 85 |
| 702 | OUT468 | -1496 | 247.5 | 22 x 85 |
| 703 | OUT469 | -1518 | 137.5 | 22 x 85 |
| 704 | OUT470 | -1540 | 247.5 | 22 x 85 |
| 705 | OUT471 | -1562 | 137.5 | 22 x 85 |
| 706 | OUT472 | -1584 | 247.5 | 22 x 85 |
| 707 | OUT473 | -1606 | 137.5 | 22 x 85 |
| 708 | OUT474 | -1628 | 247.5 | 22 x 85 |
| 709 | OUT475 | -1650 | 137.5 | 22 x 85 |
| 710 | OUT476 | -1672 | 247.5 | 22 x 85 |
| 711 | OUT477 | -1694 | 137.5 | 22 x 85 |
| 712 | OUT478 | -1716 | 247.5 | 22 x 85 |
| 713 | OUT479 | -1738 | 137.5 | 22 x 85 |
| 714 | OUT480 | -1760 | 247.5 | 22 x 85 |
| 715 | OUT481 | -1782 | 137.5 | 22 x 85 |
| 716 | OUT482 | -1804 | 247.5 | 22 x 85 |
| 717 | OUT483 | -1826 | 137.5 | 22 x 85 |
| 718 | OUT484 | -1848 | 247.5 | 22 x 85 |
| 719 | OUT485 | -1870 | 137.5 | 22 x 85 |
| 720 | OUT486 | -1892 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 721 | OUT487 | -1914 | 137.5 | 22 x 85 |
| 722 | OUT488 | -1936 | 247.5 | 22 x 85 |
| 723 | OUT489 | -1958 | 137.5 | 22 x 85 |
| 724 | OUT490 | -1980 | 247.5 | 22 x 85 |
| 725 | OUT491 | -2002 | 137.5 | 22 x 85 |
| 726 | OUT492 | -2024 | 247.5 | 22 x 85 |
| 727 | OUT493 | -2046 | 137.5 | 22 x 85 |
| 728 | OUT494 | -2068 | 247.5 | 22 x 85 |
| 729 | OUT495 | -2090 | 137.5 | 22 x 85 |
| 730 | OUT496 | -2112 | 247.5 | 22 x 85 |
| 731 | OUT497 | -2134 | 137.5 | 22 x 85 |
| 732 | OUT498 | -2156 | 247.5 | 22 x 85 |
| 733 | OUT499 | -2178 | 137.5 | 22 x 85 |
| 734 | OUT500 | -2200 | 247.5 | 22 x 85 |
| 735 | OUT501 | -2222 | 137.5 | 22 x 85 |
| 736 | OUT502 | -2244 | 247.5 | 22 x 85 |
| 737 | OUT503 | -2266 | 137.5 | 22 x 85 |
| 738 | OUT504 | -2288 | 247.5 | 22 x 85 |
| 739 | OUT505 | -2310 | 137.5 | 22 x 85 |
| 740 | OUT506 | -2332 | 247.5 | 22 x 85 |
| 741 | OUT507 | -2354 | 137.5 | 22 x 85 |
| 742 | OUT508 | -2376 | 247.5 | 22 x 85 |
| 743 | OUT509 | -2398 | 137.5 | 22 x 85 |
| 744 | OUT510 | -2420 | 247.5 | 22 x 85 |
| 745 | OUT511 | -2442 | 137.5 | 22 x 85 |
| 746 | OUT512 | -2464 | 247.5 | 22 x 85 |
| 747 | OUT513 | -2486 | 137.5 | 22 x 85 |
| 748 | OUT514 | -2508 | 247.5 | 22 x 85 |
| 749 | OUT515 | -2530 | 137.5 | 22 x 85 |
| 750 | OUT516 | -2552 | 247.5 | 22 x 85 |
| 751 | OUT517 | -2574 | 137.5 | 22 x 85 |
| 752 | OUT518 | -2596 | 247.5 | 22 x 85 |
| 753 | OUT519 | -2618 | 137.5 | 22 x 85 |
| 754 | OUT520 | -2640 | 247.5 | 22 x 85 |
| 755 | OUT521 | -2662 | 137.5 | 22 x 85 |
| 756 | OUT522 | -2684 | 247.5 | 22 x 85 |
| 757 | OUT523 | -2706 | 137.5 | 22 x 85 |
| 758 | OUT524 | -2728 | 247.5 | 22 x 85 |
| 759 | OUT525 | -2750 | 137.5 | 22 x 85 |
| 760 | OUT526 | -2772 | 247.5 | 22 x 85 |
| 761 | OUT527 | -2794 | 137.5 | 22 x 85 |
| 762 | OUT528 | -2816 | 247.5 | 22 x 85 |
| 763 | OUT529 | -2838 | 137.5 | 22 x 85 |
| 764 | OUT530 | -2860 | 247.5 | 22 x 85 |
| 765 | OUT531 | -2882 | 137.5 | 22 x 85 |
| 766 | OUT532 | -2904 | 247.5 | 22 x 85 |
| 767 | OUT533 | -2926 | 137.5 | 22 x 85 |
| 768 | OUT534 | -2948 | 247.5 | 22 x 85 |
| 769 | OUT535 | -2970 | 137.5 | 22 x 85 |
| 770 | OUT536 | -2992 | 247.5 | 22 x 85 |
| 771 | OUT537 | -3014 | 137.5 | 22 x 85 |
| 772 | OUT538 | -3036 | 247.5 | 22 x 85 |
| 773 | OUT539 | -3058 | 137.5 | 22 x 85 |
| 774 | OUT540 | -3080 | 247.5 | 22 x 85 |
| 775 | OUT541 | -3102 | 137.5 | 22 x 85 |
| 776 | OUT542 | -3124 | 247.5 | 22 x 85 |
| 777 | OUT543 | -3146 | 137.5 | 22 x 85 |
| 778 | OUT544 | -3168 | 247.5 | 22 x 85 |
| 779 | OUT545 | -3190 | 137.5 | 22 x 85 |
| 780 | OUT546 | -3212 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 781 | OUT547 | -3234 | 137.5 | 22 x 85 |
| 782 | OUT548 | -3256 | 247.5 | 22 x 85 |
| 783 | OUT549 | -3278 | 137.5 | 22 x 85 |
| 784 | OUT550 | -3300 | 247.5 | 22 x 85 |
| 785 | OUT551 | -3322 | 137.5 | 22 x 85 |
| 786 | OUT552 | -3344 | 247.5 | 22 x 85 |
| 787 | OUT553 | -3366 | 137.5 | 22 x 85 |
| 788 | OUT554 | -3388 | 247.5 | 22 x 85 |
| 789 | OUT555 | -3410 | 137.5 | 22 x 85 |
| 790 | OUT556 | -3432 | 247.5 | 22 x 85 |
| 791 | OUT557 | -3454 | 137.5 | 22 x 85 |
| 792 | OUT558 | -3476 | 247.5 | 22 x 85 |
| 793 | OUT559 | -3498 | 137.5 | 22 x 85 |
| 794 | OUT560 | -3520 | 247.5 | 22 x 85 |
| 795 | OUT561 | -3542 | 137.5 | 22 x 85 |
| 796 | OUT562 | -3564 | 247.5 | 22 x 85 |
| 797 | OUT563 | -3586 | 137.5 | 22 x 85 |
| 798 | OUT564 | -3608 | 247.5 | 22 x 85 |
| 799 | OUT565 | -3630 | 137.5 | 22 x 85 |
| 800 | OUT566 | -3652 | 247.5 | 22 x 85 |
| 801 | OUT567 | -3674 | 137.5 | 22 x 85 |
| 802 | OUT568 | -3696 | 247.5 | 22 x 85 |
| 803 | OUT569 | -3718 | 137.5 | 22 x 85 |
| 804 | OUT570 | -3740 | 247.5 | 22 x 85 |
| 805 | OUT571 | -3762 | 137.5 | 22 x 85 |
| 806 | OUT572 | -3784 | 247.5 | 22 x 85 |
| 807 | OUT573 | -3806 | 137.5 | 22 x 85 |
| 808 | OUT574 | -3828 | 247.5 | 22 x 85 |
| 809 | OUT575 | -3850 | 137.5 | 22 x 85 |
| 810 | OUT576 | -3872 | 247.5 | 22 x 85 |
| 811 | OUT577 | -3894 | 137.5 | 22 x 85 |
| 812 | OUT578 | -3916 | 247.5 | 22 x 85 |
| 813 | OUT579 | -3938 | 137.5 | 22 x 85 |
| 814 | OUT580 | -3960 | 247.5 | 22 x 85 |
| 815 | OUT581 | -3982 | 137.5 | 22 x 85 |
| 816 | OUT582 | -4004 | 247.5 | 22 x 85 |
| 817 | OUT583 | -4026 | 137.5 | 22 x 85 |
| 818 | OUT584 | -4048 | 247.5 | 22 x 85 |
| 819 | OUT585 | -4070 | 137.5 | 22 x 85 |
| 820 | OUT586 | -4092 | 247.5 | 22 x 85 |
| 821 | OUT587 | -4114 | 137.5 | 22 x 85 |
| 822 | OUT588 | -4136 | 247.5 | 22 x 85 |
| 823 | OUT589 | -4158 | 137.5 | 22 x 85 |
| 824 | OUT590 | -4180 | 247.5 | 22 x 85 |
| 825 | OUT591 | -4202 | 137.5 | 22 x 85 |
| 826 | OUT592 | -4224 | 247.5 | 22 x 85 |
| 827 | OUT593 | -4246 | 137.5 | 22 x 85 |
| 828 | OUT594 | -4268 | 247.5 | 22 x 85 |
| 829 | OUT595 | -4290 | 137.5 | 22 x 85 |
| 830 | OUT596 | -4312 | 247.5 | 22 x 85 |
| 831 | OUT597 | -4334 | 137.5 | 22 x 85 |
| 832 | OUT598 | -4356 | 247.5 | 22 x 85 |
| 833 | OUT599 | -4378 | 137.5 | 22 x 85 |
| 834 | OUT600 | -4400 | 247.5 | 22 x 85 |
| 835 | OUT601 | -4422 | 137.5 | 22 x 85 |
| 836 | OUT602 | -4444 | 247.5 | 22 x 85 |
| 837 | OUT603 | -4466 | 137.5 | 22 x 85 |
| 838 | OUT604 | -4488 | 247.5 | 22 x 85 |
| 839 | OUT605 | -4510 | 137.5 | 22 x 85 |
| 840 | OUT606 | -4532 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 841 | OUT607 | -4554 | 137.5 | 22 x 85 |
| 842 | OUT608 | -4576 | 247.5 | 22 x 85 |
| 843 | OUT609 | -4598 | 137.5 | 22 x 85 |
| 844 | OUT610 | -4620 | 247.5 | 22 x 85 |
| 845 | OUT611 | -4642 | 137.5 | 22 x 85 |
| 846 | OUT612 | -4664 | 247.5 | 22 x 85 |
| 847 | OUT613 | -4686 | 137.5 | 22 x 85 |
| 848 | OUT614 | -4708 | 247.5 | 22 x 85 |
| 849 | OUT615 | -4730 | 137.5 | 22 x 85 |
| 850 | OUT616 | -4752 | 247.5 | 22 x 85 |
| 851 | OUT617 | -4774 | 137.5 | 22 x 85 |
| 852 | OUT618 | -4796 | 247.5 | 22 x 85 |
| 853 | OUT619 | -4818 | 137.5 | 22 x 85 |
| 854 | OUT620 | -4840 | 247.5 | 22 x 85 |
| 855 | OUT621 | -4862 | 137.5 | 22 x 85 |
| 856 | OUT622 | -4884 | 247.5 | 22 x 85 |
| 857 | OUT623 | -4906 | 137.5 | 22 x 85 |
| 858 | OUT624 | -4928 | 247.5 | 22 x 85 |
| 859 | OUT625 | -4950 | 137.5 | 22 x 85 |
| 860 | OUT626 | -4972 | 247.5 | 22 x 85 |
| 861 | OUT627 | -4994 | 137.5 | 22 x 85 |
| 862 | OUT628 | -5016 | 247.5 | 22 x 85 |
| 863 | OUT629 | -5038 | 137.5 | 22 x 85 |
| 864 | OUT630 | -5060 | 247.5 | 22 x 85 |
| 865 | OUT631 | -5082 | 137.5 | 22 x 85 |
| 866 | OUT632 | -5104 | 247.5 | 22 x 85 |
| 867 | OUT633 | -5126 | 137.5 | 22 x 85 |
| 868 | OUT634 | -5148 | 247.5 | 22 x 85 |
| 869 | OUT635 | -5170 | 137.5 | 22 x 85 |
| 870 | OUT636 | -5192 | 247.5 | 22 x 85 |
| 871 | OUT637 | -5214 | 137.5 | 22 x 85 |
| 872 | OUT638 | -5236 | 247.5 | 22 x 85 |
| 873 | OUT639 | -5258 | 137.5 | 22 x 85 |
| 874 | OUT640 | -5280 | 247.5 | 22 x 85 |
| 875 | OUT641 | -5302 | 137.5 | 22 x 85 |
| 876 | OUT642 | -5324 | 247.5 | 22 x 85 |
| 877 | OUT643 | -5346 | 137.5 | 22 x 85 |
| 878 | OUT644 | -5368 | 247.5 | 22 x 85 |
| 879 | OUT645 | -5390 | 137.5 | 22 x 85 |
| 880 | OUT646 | -5412 | 247.5 | 22 x 85 |
| 881 | OUT647 | -5434 | 137.5 | 22 x 85 |
| 882 | OUT648 | -5456 | 247.5 | 22 x 85 |
| 883 | OUT649 | -5478 | 137.5 | 22 x 85 |
| 884 | OUT650 | -5500 | 247.5 | 22 x 85 |
| 885 | OUT651 | -5522 | 137.5 | 22 x 85 |
| 886 | OUT652 | -5544 | 247.5 | 22 x 85 |
| 887 | OUT653 | -5566 | 137.5 | 22 x 85 |
| 888 | OUT654 | -5588 | 247.5 | 22 x 85 |
| 889 | OUT655 | -5610 | 137.5 | 22 x 85 |
| 890 | OUT656 | -5632 | 247.5 | 22 x 85 |
| 891 | OUT657 | -5654 | 137.5 | 22 x 85 |
| 892 | OUT658 | -5676 | 247.5 | 22 x 85 |
| 893 | OUT659 | -5698 | 137.5 | 22 x 85 |
| 894 | OUT660 | -5720 | 247.5 | 22 x 85 |
| 895 | OUT661 | -5742 | 137.5 | 22 x 85 |
| 896 | OUT662 | -5764 | 247.5 | 22 x 85 |
| 897 | OUT663 | -5786 | 137.5 | 22 x 85 |
| 898 | OUT664 | -5808 | 247.5 | 22 x 85 |
| 899 | OUT665 | -5830 | 137.5 | 22 x 85 |
| 900 | OUT666 | -5852 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 901 | OUT667 | -5874 | 137.5 | 22 x 85 |
| 902 | OUT668 | -5896 | 247.5 | 22 x 85 |
| 903 | OUT669 | -5918 | 137.5 | 22 x 85 |
| 904 | OUT670 | -5940 | 247.5 | 22 x 85 |
| 905 | OUT671 | -5962 | 137.5 | 22 x 85 |
| 906 | OUT672 | -5984 | 247.5 | 22 x 85 |
| 907 | OUT673 | -6006 | 137.5 | 22 x 85 |
| 908 | OUT674 | -6028 | 247.5 | 22 x 85 |
| 909 | OUT675 | -6050 | 137.5 | 22 x 85 |
| 910 | OUT676 | -6072 | 247.5 | 22 x 85 |
| 911 | OUT677 | -6094 | 137.5 | 22 x 85 |
| 912 | OUT678 | -6116 | 247.5 | 22 x 85 |
| 913 | OUT679 | -6138 | 137.5 | 22 x 85 |
| 914 | OUT680 | -6160 | 247.5 | 22 x 85 |
| 915 | OUT681 | -6182 | 137.5 | 22 x 85 |
| 916 | OUT682 | -6204 | 247.5 | 22 x 85 |
| 917 | OUT683 | -6226 | 137.5 | 22 x 85 |
| 918 | OUT684 | -6248 | 247.5 | 22 x 85 |
| 919 | OUT685 | -6270 | 137.5 | 22 x 85 |
| 920 | OUT686 | -6292 | 247.5 | 22 x 85 |
| 921 | OUT687 | -6314 | 137.5 | 22 x 85 |
| 922 | OUT688 | -6336 | 247.5 | 22 x 85 |
| 923 | OUT689 | -6358 | 137.5 | 22 x 85 |
| 924 | OUT690 | -6380 | 247.5 | 22 x 85 |
| 925 | OUT691 | -6402 | 137.5 | 22 x 85 |
| 926 | OUT692 | -6424 | 247.5 | 22 x 85 |
| 927 | OUT693 | -6446 | 137.5 | 22 x 85 |
| 928 | OUT694 | -6468 | 247.5 | 22 x 85 |
| 929 | OUT695 | -6490 | 137.5 | 22 x 85 |
| 930 | OUT696 | -6512 | 247.5 | 22 x 85 |
| 931 | OUT697 | -6534 | 137.5 | 22 x 85 |
| 932 | OUT698 | -6556 | 247.5 | 22 x 85 |
| 933 | OUT699 | -6578 | 137.5 | 22 x 85 |
| 934 | OUT700 | -6600 | 247.5 | 22 x 85 |
| 935 | OUT701 | -6622 | 137.5 | 22 x 85 |
| 936 | OUT702 | -6644 | 247.5 | 22 x 85 |
| 937 | OUT703 | -6666 | 137.5 | 22 x 85 |
| 938 | OUT704 | -6688 | 247.5 | 22 x 85 |
| 939 | OUT705 | -6710 | 137.5 | 22 x 85 |
| 940 | OUT706 | -6732 | 247.5 | 22 x 85 |
| 941 | OUT707 | -6754 | 137.5 | 22 x 85 |
| 942 | OUT708 | -6776 | 247.5 | 22 x 85 |
| 943 | OUT709 | -6798 | 137.5 | 22 x 85 |
| 944 | OUT710 | -6820 | 247.5 | 22 x 85 |
| 945 | OUT711 | -6842 | 137.5 | 22 x 85 |
| 946 | OUT712 | -6864 | 247.5 | 22 x 85 |
| 947 | OUT713 | -6886 | 137.5 | 22 x 85 |
| 948 | OUT714 | -6908 | 247.5 | 22 x 85 |
| 949 | OUT715 | -6930 | 137.5 | 22 x 85 |
| 950 | OUT716 | -6952 | 247.5 | 22 x 85 |
| 951 | OUT717 | -6974 | 137.5 | 22 x 85 |
| 952 | OUT718 | -6996 | 247.5 | 22 x 85 |
| 953 | OUT719 | -7018 | 137.5 | 22 x 85 |
| 954 | OUT720 | -7040 | 247.5 | 22 x 85 |
| 955 | OUT721 | -7062 | 137.5 | 22 x 85 |
| 956 | OUT722 | -7084 | 247.5 | 22 x 85 |
| 957 | OUT723 | -7106 | 137.5 | 22 x 85 |
| 958 | OUT724 | -7128 | 247.5 | 22 x 85 |
| 959 | OUT725 | -7150 | 137.5 | 22 x 85 |
| 960 | OUT726 | -7172 | 247.5 | 22 x 85 |

| No. | Name | X | Y | Bump size(μm) |
|---|---|---|---|---|
| 961 | OUT727 | -7194 | 137.5 | 22 x 85 |
| 962 | OUT728 | -7216 | 247.5 | 22 x 85 |
| 963 | OUT729 | -7238 | 137.5 | 22 x 85 |
| 964 | OUT730 | -7260 | 247.5 | 22 x 85 |
| 965 | OUT731 | -7282 | 137.5 | 22 x 85 |
| 966 | OUT732 | -7304 | 247.5 | 22 x 85 |
| 967 | OUT733 | -7326 | 137.5 | 22 x 85 |
| 968 | OUT734 | -7348 | 247.5 | 22 x 85 |
| 969 | OUT735 | -7370 | 137.5 | 22 x 85 |
| 970 | OUT736 | -7392 | 247.5 | 22 x 85 |
| 971 | OUT737 | -7414 | 137.5 | 22 x 85 |
| 972 | OUT738 | -7436 | 247.5 | 22 x 85 |
| 973 | OUT739 | -7458 | 137.5 | 22 x 85 |
| 974 | OUT740 | -7480 | 247.5 | 22 x 85 |
| 975 | OUT741 | -7502 | 137.5 | 22 x 85 |
| 976 | OUT742 | -7524 | 247.5 | 22 x 85 |
| 977 | OUT743 | -7546 | 137.5 | 22 x 85 |
| 978 | OUT744 | -7568 | 247.5 | 22 x 85 |
| 979 | OUT745 | -7590 | 137.5 | 22 x 85 |
| 980 | OUT746 | -7612 | 247.5 | 22 x 85 |
| 981 | OUT747 | -7634 | 137.5 | 22 x 85 |
| 982 | OUT748 | -7656 | 247.5 | 22 x 85 |
| 983 | OUT749 | -7678 | 137.5 | 22 x 85 |
| 984 | OUT750 | -7700 | 247.5 | 22 x 85 |
| 985 | OUT751 | -7722 | 137.5 | 22 x 85 |
| 986 | OUT752 | -7744 | 247.5 | 22 x 85 |
| 987 | OUT753 | -7766 | 137.5 | 22 x 85 |
| 988 | OUT754 | -7788 | 247.5 | 22 x 85 |
| 989 | OUT755 | -7810 | 137.5 | 22 x 85 |
| 990 | OUT756 | -7832 | 247.5 | 22 x 85 |
| 991 | OUT757 | -7854 | 137.5 | 22 x 85 |
| 992 | OUT758 | -7876 | 247.5 | 22 x 85 |
| 993 | OUT759 | -7898 | 137.5 | 22 x 85 |
| 994 | OUT760 | -7920 | 247.5 | 22 x 85 |
| 995 | OUT761 | -7942 | 137.5 | 22 x 85 |
| 996 | OUT762 | -7964 | 247.5 | 22 x 85 |
| 997 | OUT763 | -7986 | 137.5 | 22 x 85 |
| 998 | OUT764 | -8008 | 247.5 | 22 x 85 |
| 999 | OUT765 | -8030 | 137.5 | 22 x 85 |
| 1000 | OUT766 | -8052 | 247.5 | 22 x 85 |
| 1001 | OUT767 | -8074 | 137.5 | 22 x 85 |
| 1002 | OUT768 | -8096 | 247.5 | 22 x 85 |
| 1003 | OUT769 | -8118 | 137.5 | 22 x 85 |
| 1004 | OUT770 | -8140 | 247.5 | 22 x 85 |
| 1005 | OUT771 | -8162 | 137.5 | 22 x 85 |
| 1006 | OUT772 | -8184 | 247.5 | 22 x 85 |
| 1007 | OUT773 | -8206 | 137.5 | 22 x 85 |
| 1008 | OUT774 | -8228 | 247.5 | 22 x 85 |
| 1009 | OUT775 | -8250 | 137.5 | 22 x 85 |
| 1010 | OUT776 | -8272 | 247.5 | 22 x 85 |
| 1011 | OUT777 | -8294 | 137.5 | 22 x 85 |
| 1012 | OUT778 | -8316 | 247.5 | 22 x 85 |
| 1013 | OUT779 | -8338 | 137.5 | 22 x 85 |
| 1014 | OUT780 | -8360 | 247.5 | 22 x 85 |
| 1015 | OUT781 | -8382 | 137.5 | 22 x 85 |
| 1016 | OUT782 | -8404 | 247.5 | 22 x 85 |
| 1017 | OUT783 | -8426 | 137.5 | 22 x 85 |
| 1018 | OUT784 | -8448 | 247.5 | 22 x 85 |
| 1019 | OUT785 | -8470 | 137.5 | 22 x 85 |
| 1020 | OUT786 | -8492 | 247.5 | 22 x 85 |
| 1021 | OUT787 | -8514 | 137.5 | 22 x 85 |
| 1022 | OUT788 | -8536 | 247.5 | 22 x 85 |
| 1023 | OUT789 | -8558 | 137.5 | 22 x 85 |
| 1024 | OUT790 | -8580 | 247.5 | 22 x 85 |
| 1025 | OUT791 | -8602 | 137.5 | 22 x 85 |
| 1026 | OUT792 | -8624 | 247.5 | 22 x 85 |
| 1027 | OUT793 | -8646 | 137.5 | 22 x 85 |
| 1028 | OUT794 | -8668 | 247.5 | 22 x 85 |
| 1029 | OUT795 | -8690 | 137.5 | 22 x 85 |
| 1030 | OUT796 | -8712 | 247.5 | 22 x 85 |
| 1031 | OUT797 | -8734 | 137.5 | 22 x 85 |
| 1032 | OUT798 | -8756 | 247.5 | 22 x 85 |
| 1033 | OUT799 | -8778 | 137.5 | 22 x 85 |
| 1034 | OUT800 | -8800 | 247.5 | 22 x 85 |
| 1035 | OUT801 | -8822 | 137.5 | 22 x 85 |
| 1036 | DUMMY2 | -8844 | 247.5 | 22 x 85 |
| 1037 | PATH1 | -8910 | 235 | 50 x 110 |
| 1038 | PATH1 | -8980 | 235 | 50 x 110 |

### 9.5 Alignment mark center coordinates

| Name | X | Y |
|---|---|---|
| L_AMK | -9085.0 | 120.0 |
| R_AMK | 9085.0 | 120.0 |

# 10. Ordering Information

| Part No. | Package |
|---|---|
| HX8695-B01XPDxxx | X: mean fab code<br>PD: mean COG<br>xxx: mean chip thickness (μm), (default 400μm) |

# 11. Revision History

| Version | Date | Description of Changes |
|---|---|---|
| 01 | 2009/06/09 | New setup |
| | 2009/06/23 | All pages<br>Modify VGL → VEE |
| | 2009/10/21 | All pages<br>Remove 'preliminary' wording<br>Page 15<br>Add 'Total area of IC bump' |
| 02 | 2010/05/31 | Page 12<br>Add section 5.4 /XAO input circuit<br>Page 17<br>Add section 9.4 Internal through link |
| 03 | 2010/09/01 | Page 12<br>Modify section 5.3 'Power on/off sequence'<br>Page 17<br>Modify the bump height from 15 ± 3μm to 12 ± 3μm |
| 04 | 2011/04/13 | Page 15<br>Modify CPV pulse width spec. from 2.5μs to 0.5μs<br>Page 28<br>Modfy 'Ordering Information' |
| 05 | 2011/08/30 | Page 2, 5 & 14<br>Add power off reset function |
| 06 | 2011/11/09 | Page 16<br>Update section 8 Waveform. |
| 07 | 2011/12/27 | Page 17<br>Modify the bump height from 12 ± 3μm to 12 ± 3μm or 9 ± 2μm |