

1200/1152/1080/960-Output Channels TFT LCD Gate Driver

Specification Preliminary

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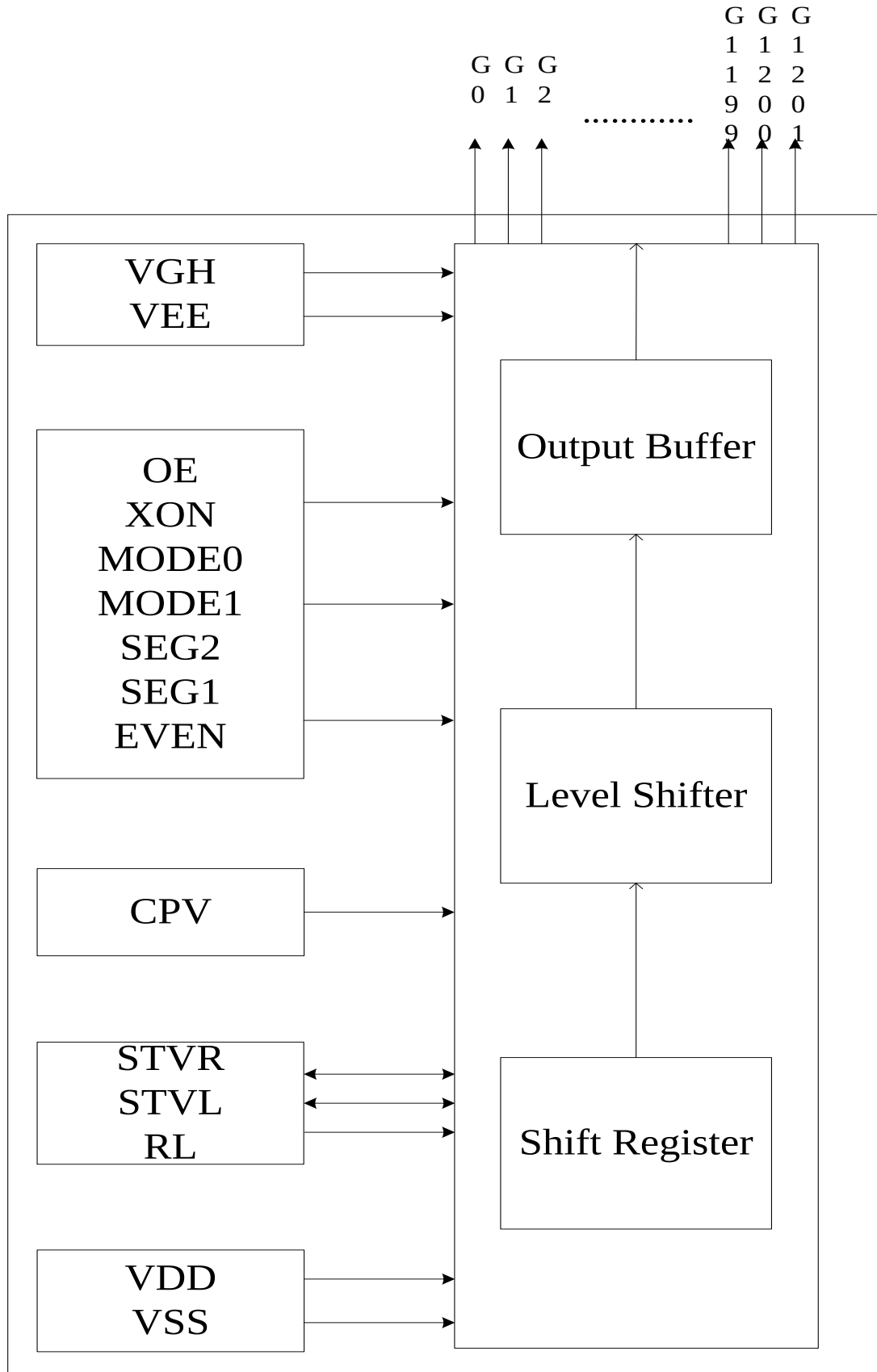
1. Introduction

The ILI5120 is a 1200/1152/1080/960-channel outputs gate driver used for driving the gate of TFT LCD panel. After a start pulse is triggered, output pins will output high-driving voltage pulses sequentially for the gate signals of the LCD Panel. This chip also provides shift up/down selection and cascade functions for dot expansion.

2. Features

- Gate driver for TFT-LCD panels
- 1200/1152/1080/960 channel outputs and 2 dummy outputs
- Bi-directional data shift function
- Driving voltage: VEE+40V
- Maximum +40V output driving voltage
- Cascade dot-expansion function
- Maximum 200KHz operation frequency
- 2.3 ~ 3.6V logical interface
- High voltage CMOS process technology
- COG/COF package

3. Block Diagram



* Note: (1) G0 and G1201 are LCD panel auxiliary pins. These pins always keep at VEE.

4. Pin Descriptions

Pin Name	I/O	Function	Descriptions															
CPV	I	Shift clock input	Clock signal for internal shift register.															
SEG1 SEG2 (Pull-low)	I	Output sequence control	This pin controls the driver output sequence Remark:pull low <table><tr><td>SEG2</td><td>SEG1</td><td>Scan type</td></tr><tr><td>L</td><td>L</td><td>Z</td></tr><tr><td>H</td><td>L</td><td>Z</td></tr><tr><td>L</td><td>H</td><td>弓</td></tr><tr><td>H</td><td>H</td><td>Z+弓</td></tr></table> Scan function select,default SEG1=L,SEG2=L.	SEG2	SEG1	Scan type	L	L	Z	H	L	Z	L	H	弓	H	H	Z+弓
SEG2	SEG1	Scan type																
L	L	Z																
H	L	Z																
L	H	弓																
H	H	Z+弓																
EVEN (Pull-low)		Frame control	This pin decides to inverse output sequence or not in odd or even frame. Remark:pull low <table><tr><td>Frame</td><td>EVEN</td></tr><tr><td>Odd</td><td>L(Default)</td></tr><tr><td>Even</td><td>H</td></tr></table>	Frame	EVEN	Odd	L(Default)	Even	H									
Frame	EVEN																	
Odd	L(Default)																	
Even	H																	
RL (Pull-low)	I	Shift direction control pin	This pin controls the output shifting direction as listed below. Remark:pull low RL =H:STVR→G1→G2→...→G1199→G1200→STVL RL =L(Default):STVL→G1200→G1199→...→G2→G1→STVR															
STVR STVL	I/O	Start pulse input/output pin	These two pins are the device start pulse input or output pin. The function of these two pins depends on the status of RL pin. <table><tr><td></td><td>STVR</td><td>STVL</td></tr><tr><td>RL=H</td><td>input</td><td>output</td></tr><tr><td>RL=L</td><td>output</td><td>input</td></tr></table>		STVR	STVL	RL=H	input	output	RL=L	output	input						
	STVR	STVL																
RL=H	input	output																
RL=L	output	input																
OE1 OE2 OE3	I	Output enable control	The OE1 signal controls the G1,G4....G1195,G1198 The OE2 signal controls the G2,G5....G1196,G1199 The OE3 signal controls the G3,G6....G1197,G1200															
XON (Pull-high)	I	Output all-on control	When XON input pin is L, all the output pins are forced to VGH level. Note that this pin has higher priority than OE. The chip internal shift register is not cleared when XON input is active. Remark: Also it has an internal pull high resistor, keep it to VDD is preferred when unused.															

Pin Name	I/O	Function	Descriptions			
MODE (Pull-high)	I	Output Channel number selection	They is the output channel number selection pin: Remark:pull high			
			MODE1	MODE0	Output channel	Remark
			H	H	1200	Default
			H	L	1152	G577~G624 fixed to VEE
			L	H	1080	G541~G660 fixed to VEE
			L	L	960	G481~G720 fixed to VEE
G1 ~ G1200	O	Driver output pins for driving gate electrode of LCD	The output voltage is either VGH or VEE for driving the gate electrode of TFT LCD panel depending on the data stored in shift register and the state of OE			
G0 G1201	O	Auxiliary pins	LCD panel auxiliary pins, these pins always output VEE level.			
VGH	P	Power supply	Power supply for Gate drive output High			
VDD	P	Power supply	Digital power			
VSS	P	Power supply	Digital ground			
VEE	P	Power supply	Power supply for Gate drive output low.			
PATH1~3	-	Internal link	Linked together internal.			

Note1: I: Input; O: Output; I/O: Input/Output; P: Power; S: Shorted line;

Note2: The unused input pins are recommended that this pin be connected to either VDD or VSS.

5. Operation Description

5.1 Device operation principle

In the condition of MODE0=H, MODE1=H & RL=H, the STVR start pulse input is sensed at the rising edge of CPV and stored in the first stage of shift register, which causes the first scan signal is outputted from the OUT1 output pin. While stored data is transferred to the next stage shift register at the rising edge of next CPV, new data of STVR is sensed and stored simultaneously.

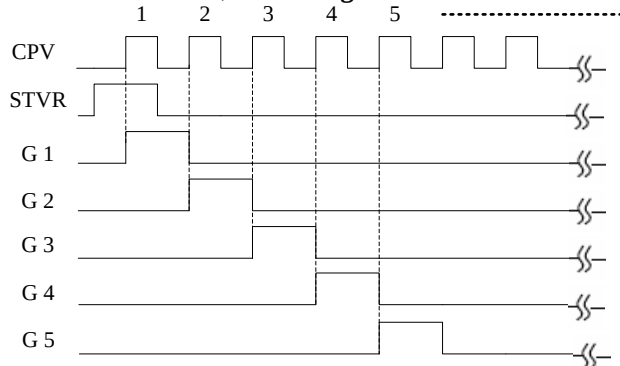
The output pin (G1 to G1200) supplies VGH voltage or VEE voltage to the LCD panel depending on the data stored in the shift register. For normal operation, a VGH voltage is outputted one by one from G1 to G1200 in sync with CPV pulse.

After 1200 CLK rising edge are past, the STVL goes up to high level at the 800th falling edge of CPV and goes down to low level at the 1201st falling edge of CPV. This STVL output signal becomes the STVR start pulse input of next cascaded gate driver device.

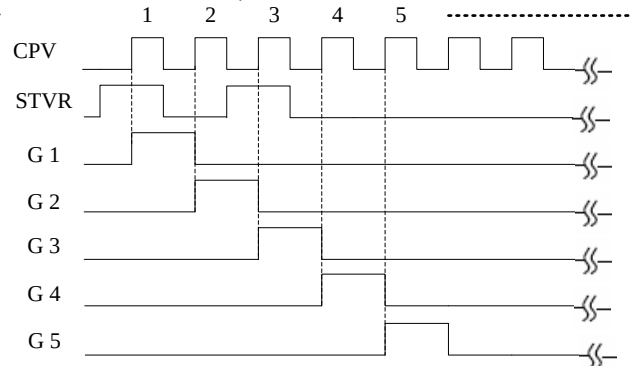
During any H state of OE, the corresponding output channels are forced to VEE level regardless of CPV. The channel output returns to normal status as soon as OE go back to L. The mechanism is as shown below!

5.2 Device operation

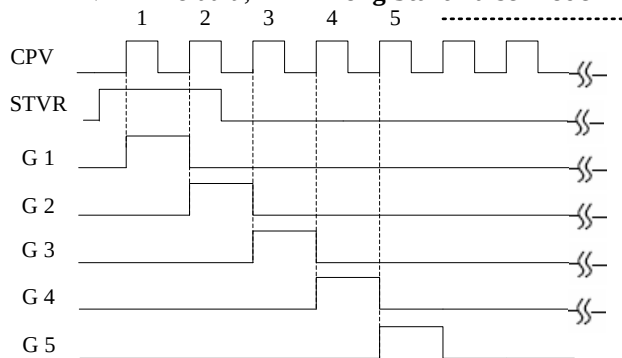
MODE=Default, SEG=Default,
EVEN=Default, RL=H **Single Start Pulse Mode**



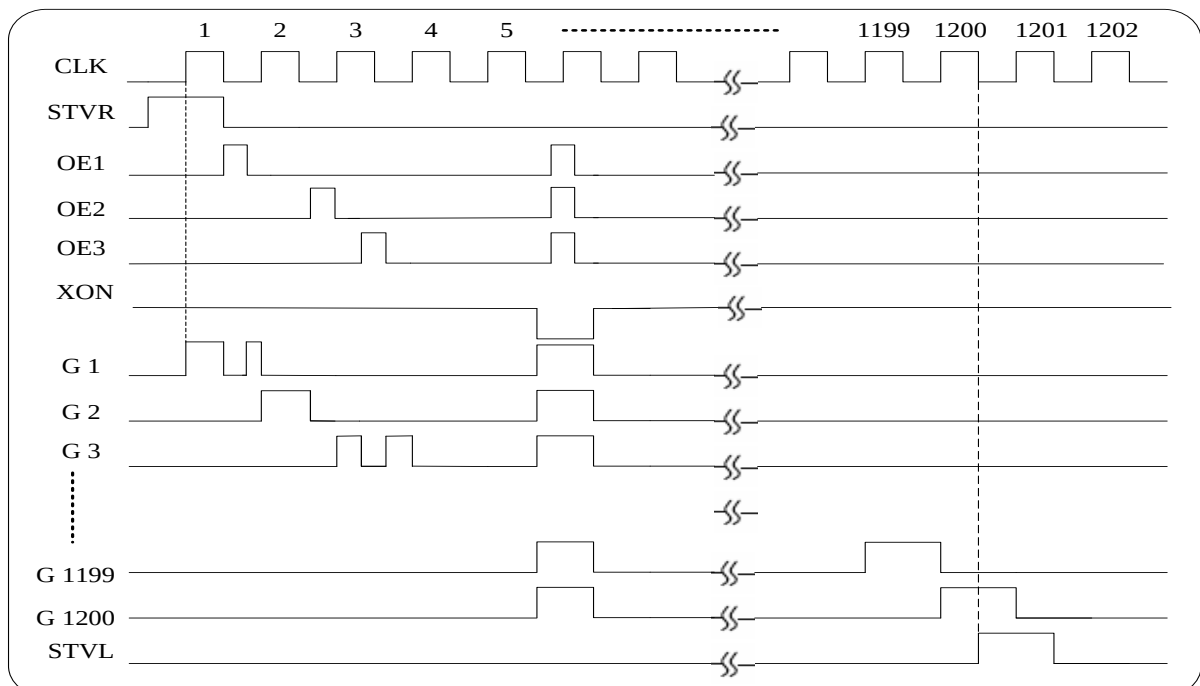
MODE=Default, SEG=Default,
EVEN=Default, RL=H **Dual Start Pulse Mode**



MODE=Default, SEG=Default,
EVEN=Default, RL=H **Long Start Pulse Mode**



MODE=Default, SEG=Default, EVEN=Default, RL=H with OE1 and XON



Output Sequence&Frame Control

1. Output Sequence Control

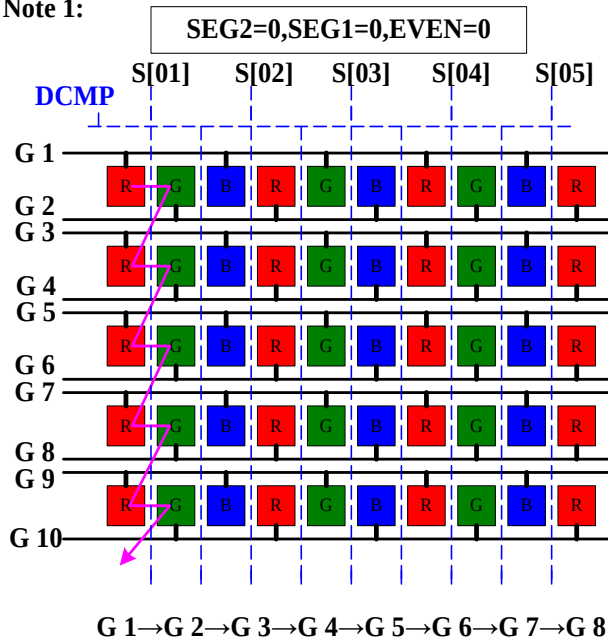
RL=H

SEG2	SEG1	EVEN	Scan type	Output Sequence
X	L	0	Z	G 1→G 2→G 3→G 4→G 5→G 6→G 7→G 8→.....Note1
		1	Inverse Z	G 2→G 1→G 4→G 3→G 6→G 5→G 8→G 7→.....Note2
L	H	0	弓	G 1→G 2→G 4→G 3→G 5→G 6→G 8→G 7→.....Note3
		1	Inverse 弓	G 2→G 1→G 3→G 4→G 6→G 5→G 7→G 8→.....
H	H	0	Z+弓	G 1→G 2→G 3→G 4→G 6→G 5→G 8→G 7→.....Note4
		1	Inverse(Z+弓)	G 2→G 1→G 4→G 3→G 5→G 6→G 7→G 8→.....

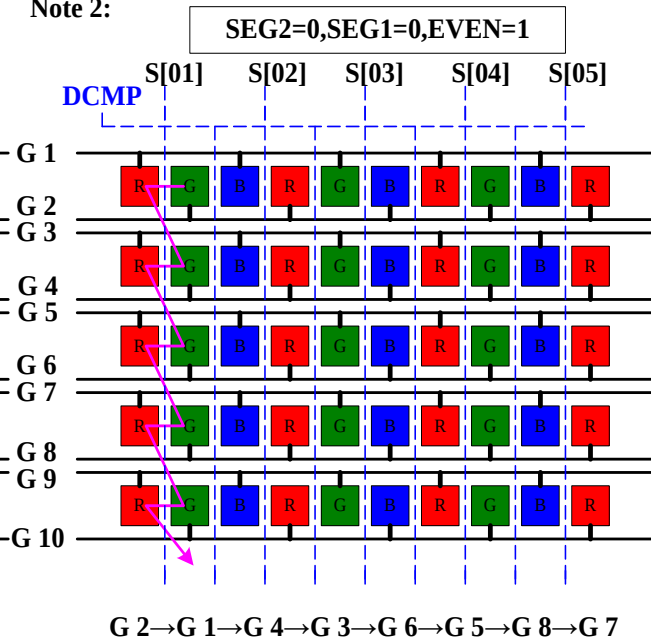
RL=L

SEG2	SEG1	EVEN	Scan type	Output Sequence
X	L	0	Z	G 8→G 7→G 6→G 5→G 4→G 3→G 2→G 1
		1	Inverse Z	G 7→G 8→G 5→G 6→G 3→G 4→G 1→G 2
L	H	0	弓	G 8→G 7→G 5→G 6→G 4→G 3→G 1→G 2
		1	Inverse 弓	G 7→G 8→G 6→G 5→G 3→G 4→G 2→G 1
H	H	0	Z+弓	G 8→G 7→G 6→G 5→G 3→G 4→G 1→G 2
		1	Inverse(Z+弓)	G 7→G 8→G 5→G 6→G 4→G 3→G 2→G 1

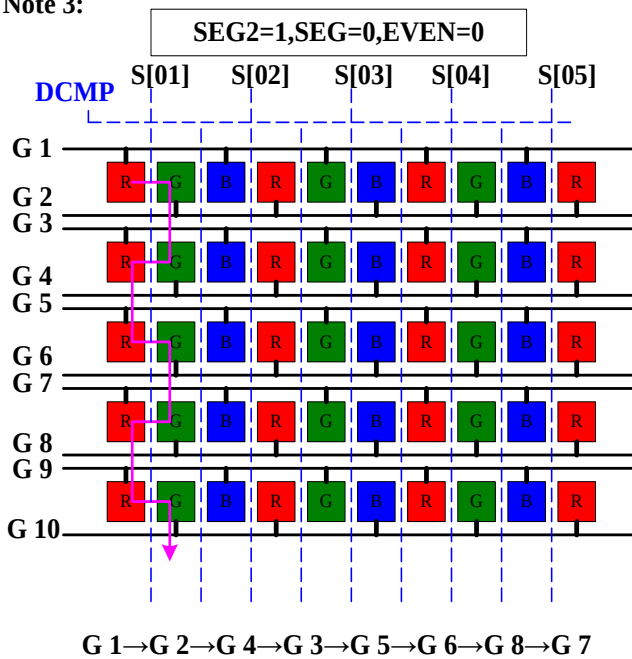
Note 1:



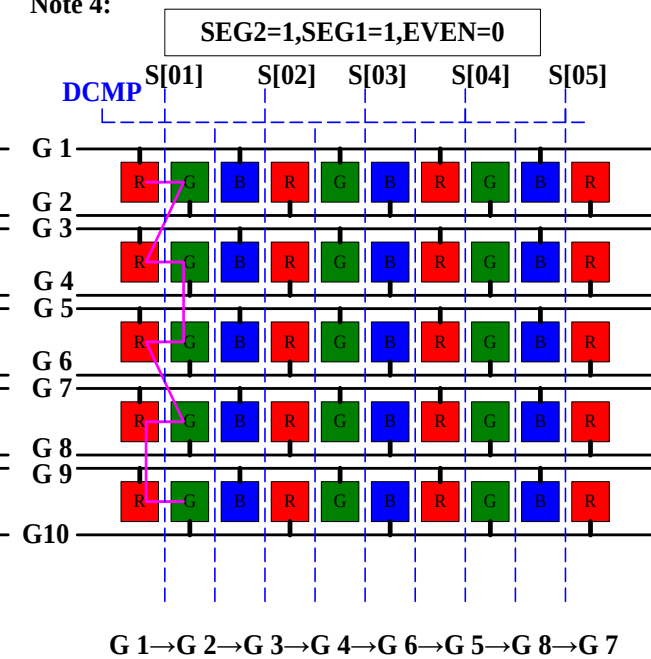
Note 2:



Note 3:

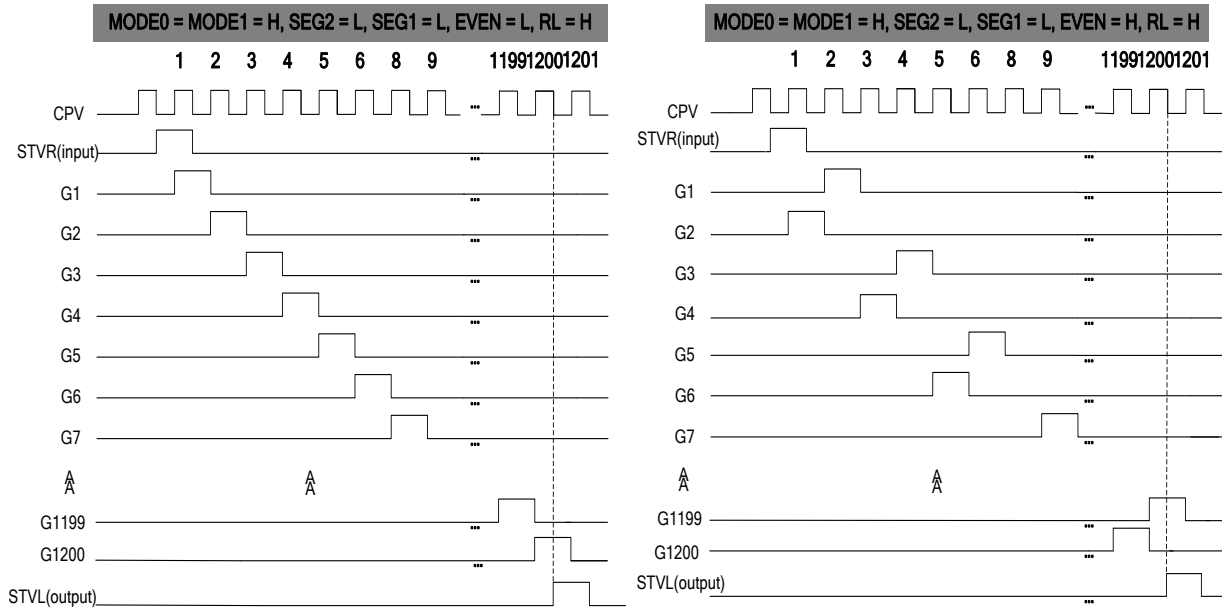


Note 4:

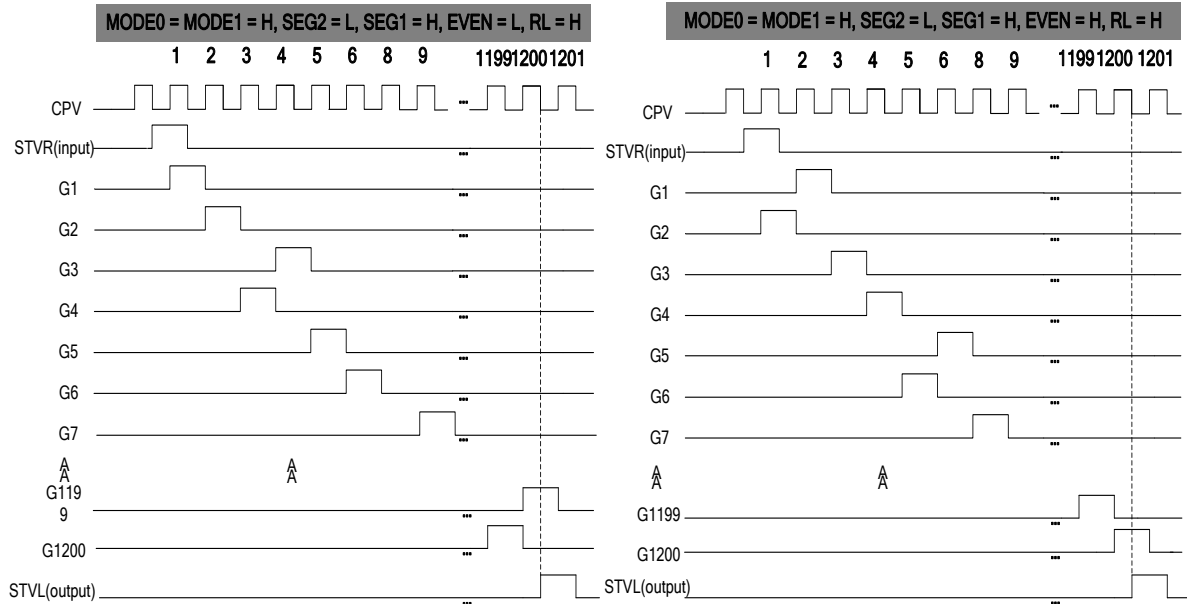


2. Output Sequence Timing

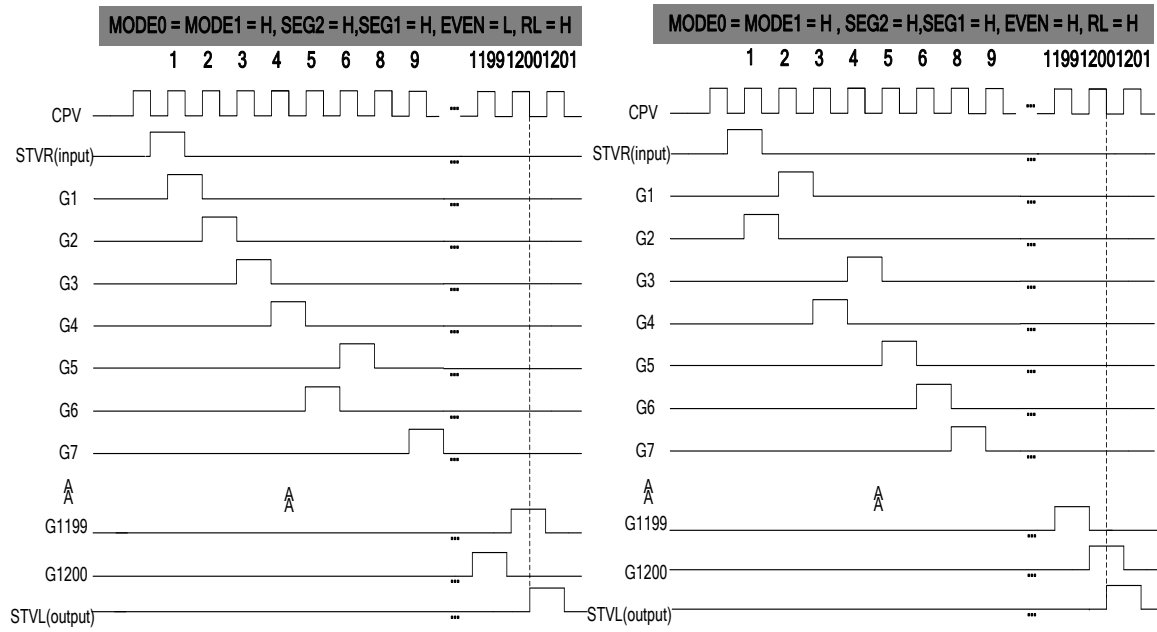
Case1



Case2



Case3



5.3 Relationship between RL, STVR and STVL

MODE1=H MODE0=H →1200CH

RL	Start pulse		Data transfer direction
	Input	Output	
H	STVR	STVL	G1 → G2 → ... G481 → G482 → ... G1199 → G1200
L	STVL	STVR	G1200 → G1199 ... → G720 → G719 → ... → G2 → G1

MODE1=H MODE0=L →1152CH

RL	Start pulse		Data transfer direction
	Input	Output	
H	STVR	STVL	G1 → G2 → ... G576 → G625 → ... G1199 → G1200
L	STVL	STVR	G1200 → G1199 ... → G625 → G576 → ... → G2 → G1

MODE1=L MODE0=H →1080CH

RL	Start pulse		Data transfer direction
	Input	Output	
H	STVR	STVL	G1 → G2 → ... G540 → G661 → ... G1199 → G1200
L	STVL	STVR	G1200 → G1199 ... → G661 → G540 → ... → G2 → G1

MODE1=L MODE0=L →960CH

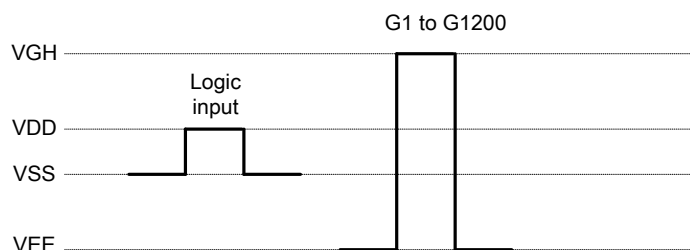
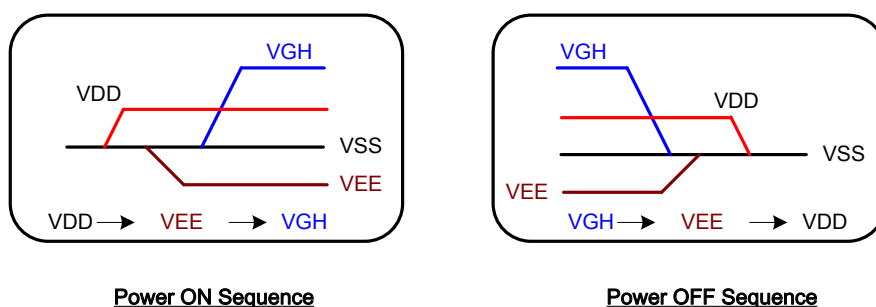
RL	Start pulse		Data transfer direction
	Input	Output	
H	STVR	STVL	G1 → G2 → ... G480 → G721 → ... G1199 → G1200
L	STVL	STVR	G1200 → G1199 ... → G721 → G480 → ... → G2 → G1

5.4 Device power supply

The input signal level of CPV, RL, OE1, OE2, OE3, MODE0, MODE1, SEG1, SEG2, EVEN, STVR and STVL have to swing between VDD and VSS. The signal output level of start pulse (STVR or STVL) to the next stage cascaded device is VDD for H and VSS for L. The following conditions should be followed.

$V_{GH} - V_{EE} = 40V$ (max)

$V_{GH} - V_{SS} = 7 \sim 35V$



Note:

- (1). Input signals of CPV, RL, OE1, OE2, OE3, MODE0, MODE1, SEG1, SEG2, EVEN, STVR and STVL.
- (2). The "High" level=VDD and "Low" level=VSS.

6. DC Characteristic

6.1 Absolute Maximum Rating

Parameter	Symbol	Rating			Unit
		Min	Typ	Max	
Power supply voltage (1)	VGH	-0.3	-	+42	V
Power supply voltage (2)	VDD	-0.3	-	+7	V
Power supply voltage (3)	VEE	VGH-42	-	+0.3	V
Input Voltage	Vxo	-0.3	-	40	V
Operating temperature	TOTG	-20	-	+85	° C
Storage temperature	TSTG	-55	-	+125	° C

Note:

(1)The maximum applicable voltage on any pin with respect to 0V

(2)Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above.

(3)Condition VDD = 3.3V

6.2 Recommended operating conditions

(VSS=0V , TA= -20 ~ +85 ° C)

Parameter	Symbol	Rating			Unit
		Min	Typ	Max	
Power supply voltage (1)	VGH	7	-	VEE+40	V
Power supply voltage (2)	VDD	2.3	3.3	3.6	V
Power supply voltage (3)	VEE	-20	-	-5	V
Power supply voltage (4)	VGH-VEE	12	-	40	V
Operation frequency	Fcpv	-	-	200	KHz
Operation temperature	Ta	-20	-	+85	° C

6.3 Electrical Characteristics

(VGH=25V, VEE=-15V, VDD=2.3 to 3.3V, VSS=0V, TA=-20 ~ +85 ° C)

Parameter	Symbol	Condition	Rating			Unit	Application pin
			Min	Typ	Max		
Input H voltage	VIH	VCC=3.3V	0.7VDD	-	VDD	V	All input
Input L voltage	VIL	VCC=3.3V	VSS	-	0.3VDD	V	All input
Output H voltage	VOH	IOH=40uA	VDD-0.4	-	VDD	mA	All output
Output L voltage	VOL	IOL=40uA	VSS	-	VSS+0.4-	mA	All output
Output H resistance	ROH	VOUT=VGH-0.5V	-	-	1000	Ω	All output
Output L resistance	ROL	VOUT=VEE+0.5V	-	-	1000	Ω	All output
Input leakage current	IIL	Note (1)	-	-	±1	μA	Note (b)
Pull high/low resistance	RIN	VDD=3.3V Note(2)	70	200	400	kΩ	Mode0,Mode1 , SEG1,SEG2, EVEN,RL pin,when VDD=3.3V and TA=25°C
Pull high resistance	RIN	VIN=VSS	70	200	400	kΩ	XON
VDD operating current	IVDD	Note (3)	-	-	100	μA	-
VGH operating current	IVGH	Note (3)	-	-	200	μA	-

(1) All input except XAO

(2) MODE0, MODE1, SEG1, SEG2, EVEN, RL

(3) Power consumption in the following condition:

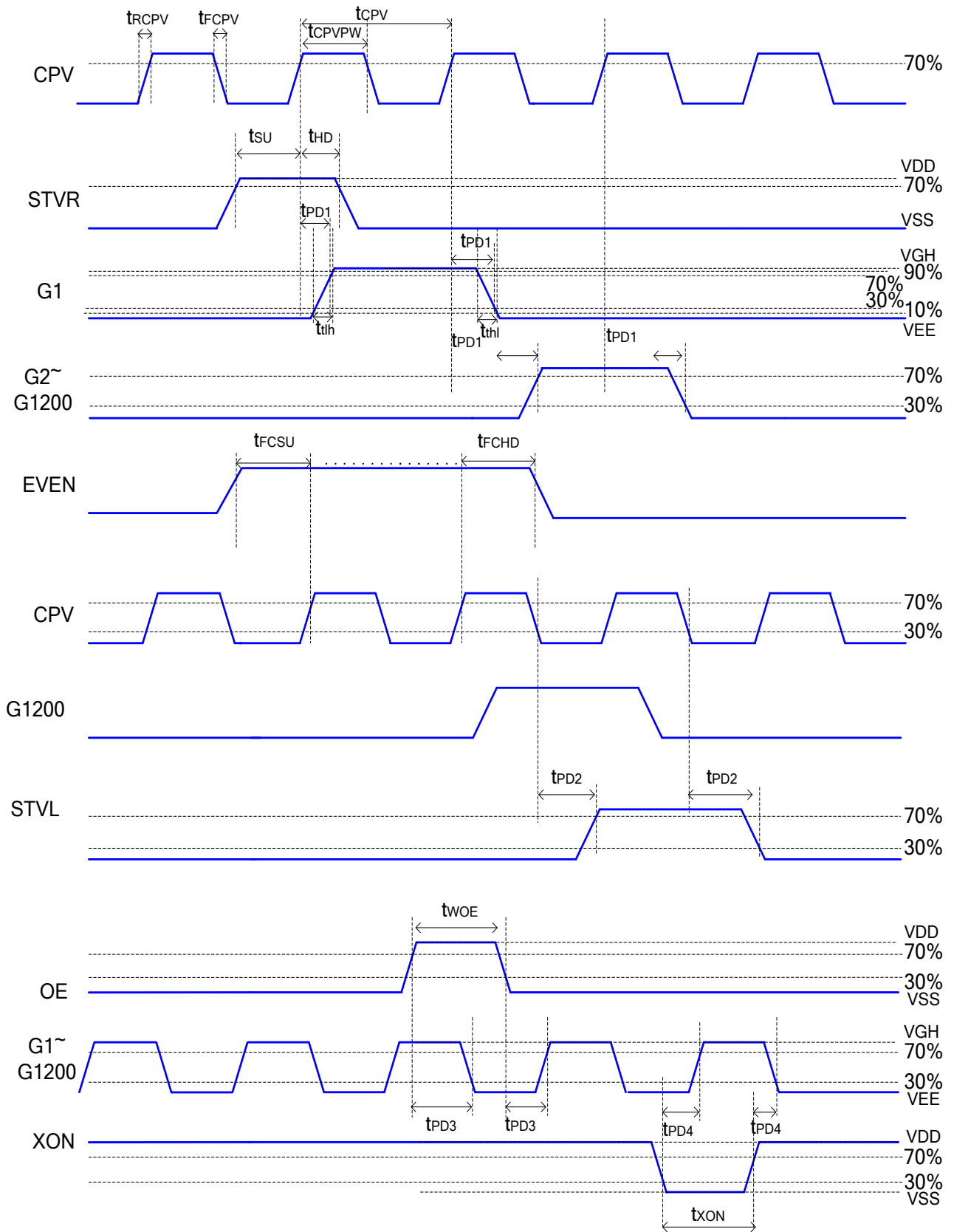
Output no load, VGH=20V, VEE=-8V, VDD=3.0V, VIH=VDD, VIL=VSS, FCPV=50khZ, OE=VIL, XAO=VIH

7. AC Characteristic

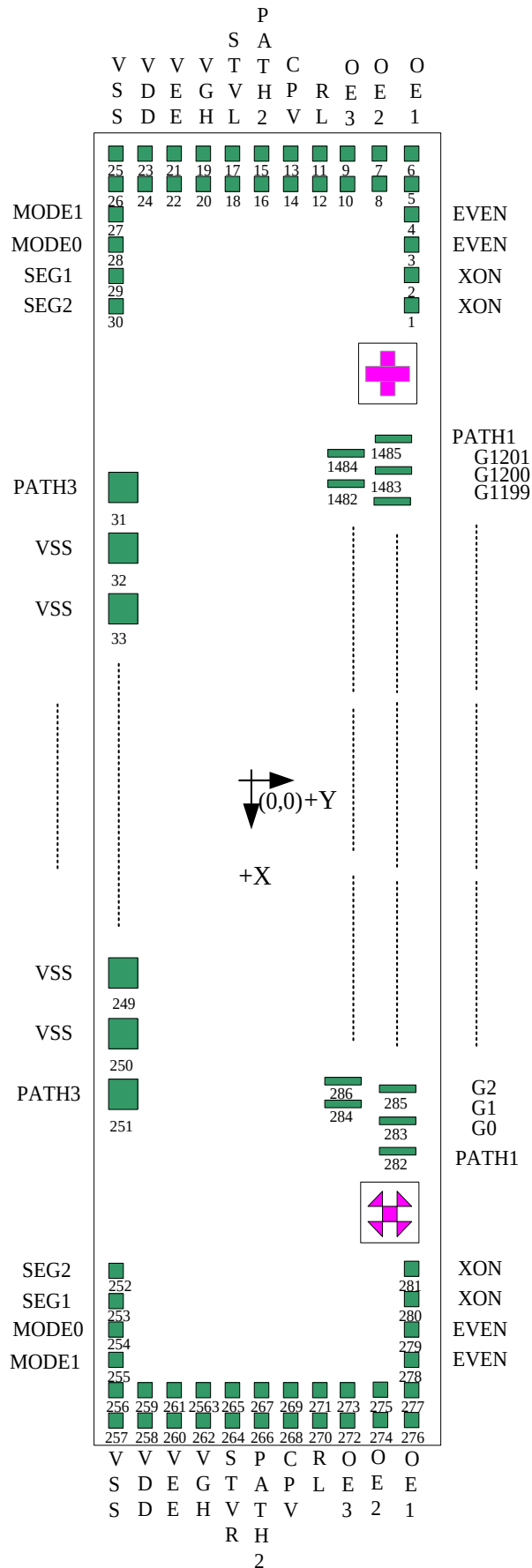
(VGH=25V, VEE=-15V, VDD=2.3 to 3.6V, VSS=0V, TA=-20 ~ +85 ° C)

Parameter	Symbol	Condition	Spec			Unit
			Min	Typ	Max	
CPV period	TCPV	In cascade connection	5	-	-	μs
CPV pulse width	TCVPW	70% duty cycle	2.5	-	-	μs
CPV Rising Time	TRCPV	From 10% to 90% CPV, CL=20pF			0.1	μs
CPV Falling Time	TFCPV	From 90% to 10% CPV, CL=20pF			0.1	μs
OE pulse width	TWOE	-	1	-	-	μs
XON pulse width	Txon	-	10	-	-	μs
STVR/STVL setup time	Tsu	VDD=3.3V	0.2	-	-	μs
STVR/STVL hold time	THD	VDD=3.3V	0.3	-	-	μs
CPV to output delay time	TPD1	VGH=25V, VEE=-15V VDD=3.3V, CL=200pF	-	-	0.9	μs
Start pulse output delay time	TPD2	VDD=3.3V, CL=20pF	-	-	0.5	μs
OE _x to output delay time	TPD3	VGH=25V, VEE=-15V VDD=3.3V, CL=200pF	-	-	0.9	μs
XON to output delay time	TPD4	VGH=25V, VEE=-15V VDD=3.3V, CL=200pF	-	-	50	μs
Power-On Reset Slew Time	Tpor	From 10% to 90% VDD	-	-	20	ms
Output Falling Time	Tthl	VGH=25V, VEE=-15V VDD=3.3V, CL=200pF From 90% to 10% Output	-	0.4	0.8	μs
Output Rising Time	Tthh	VGH=25V, VEE=-15V VDD=3.3V, CL=200pF From 10% to 90% Output	-	0.5	1	μs
EVEN setup time	TFCSU	From 70% EVEN to 70% CPV	0.2	-	-	μs
EVEN hold time	TFCHD	From 70% CPV to 70% EVEN	0.2	-	-	μs

8. Timing Chart



9. Pin Assignment (IC Face View)



10. Pad Location

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
1	XON	-11283	262	70x32	61	VSS	-8000	-243	80x70
2	XON	-11373	262	70x32	62	VSS	-7900	-243	80x70
3	EVEN	-11463	262	70x32	63	VSS	-7800	-243	80x70
4	EVEN	-11553	262	70x32	64	VSS	-7700	-243	80x70
5	OE1	-11643	262	70x32	65	VSS	-7600	-243	80x70
6	OE1	-11733	262	70x32	66	VSS	-7500	-243	80x70
7	OE2	-11733	208	70x32	67	VSS	-7400	-243	80x70
8	OE2	-11643	208	70x32	68	VSS	-7300	-243	80x70
9	OE3	-11733	156	70x32	69	VSS	-7200	-243	80x70
10	OE3	-11643	156	70x32	70	VSS	-7100	-243	80x70
11	RL	-11733	104	70x32	71	VSS	-7000	-243	80x70
12	RL	-11643	104	70x32	72	VSS	-6900	-243	80x70
13	CPV	-11733	52	70x32	73	VSS	-6800	-243	80x70
14	CPV	-11643	52	70x32	74	VSS	-6700	-243	80x70
15	PATH2	-11733	0	70x32	75	VSS	-6600	-243	80x70
16	PATH2	-11643	0	70x32	76	VSS	-6500	-243	80x70
17	STVL	-11733	-52	70x32	77	VSS	-6400	-243	80x70
18	STVL	-11643	-52	70x32	78	VSS	-6300	-243	80x70
19	VGH	-11733	-104	70x32	79	VSS	-6200	-243	80x70
20	VGH	-11643	-104	70x32	80	VSS	-6100	-243	80x70
21	VEE	-11733	-156	70x32	81	VSS	-6000	-243	80x70
22	VEE	-11643	-156	70x32	82	VSS	-5900	-243	80x70
23	VDD	-11733	-208	70x32	83	VSS	-5800	-243	80x70
24	VDD	-11643	-208	70x32	84	VSS	-5700	-243	80x70
25	VSS	-11733	-262	70x32	85	VSS	-5600	-243	80x70
26	VSS	-11643	-262	70x32	86	VSS	-5500	-243	80x70
27	MODE1	-11553	-262	70x32	87	VSS	-5400	-243	80x70
28	MODE0	-11463	-262	70x32	88	VSS	-5300	-243	80x70
29	SEG1	-11373	-262	70x32	89	VSS	-5200	-243	80x70
30	SEG2	-11283	-262	70x32	90	VSS	-5100	-243	80x70
31	PATH3	-11000	-243	80x70	91	VSS	-5000	-243	80x70
32	VSS	-10900	-243	80x70	92	VSS	-4900	-243	80x70
33	VSS	-10800	-243	80x70	93	VSS	-4800	-243	80x70
34	VSS	-10700	-243	80x70	94	VSS	-4700	-243	80x70
35	VSS	-10600	-243	80x70	95	VSS	-4600	-243	80x70
36	VSS	-10500	-243	80x70	96	VSS	-4500	-243	80x70
37	VSS	-10400	-243	80x70	97	VSS	-4400	-243	80x70
38	VSS	-10300	-243	80x70	98	VSS	-4300	-243	80x70
39	VSS	-10200	-243	80x70	99	VSS	-4200	-243	80x70
40	VSS	-10100	-243	80x70	100	VSS	-4100	-243	80x70
41	VSS	-10000	-243	80x70	101	VSS	-4000	-243	80x70
42	VSS	-9900	-243	80x70	102	VSS	-3900	-243	80x70
43	VSS	-9800	-243	80x70	103	VSS	-3800	-243	80x70
44	VSS	-9700	-243	80x70	104	VSS	-3700	-243	80x70
45	VSS	-9600	-243	80x70	105	VSS	-3600	-243	80x70
46	VSS	-9500	-243	80x70	106	VSS	-3500	-243	80x70
47	VSS	-9400	-243	80x70	107	VSS	-3400	-243	80x70
48	VSS	-9300	-243	80x70	108	VSS	-3300	-243	80x70
49	VSS	-9200	-243	80x70	109	VSS	-3200	-243	80x70
50	VSS	-9100	-243	80x70	110	VSS	-3100	-243	80x70
51	VSS	-9000	-243	80x70	111	VSS	-3000	-243	80x70
52	VSS	-8900	-243	80x70	112	VSS	-2900	-243	80x70
53	VSS	-8800	-243	80x70	113	VSS	-2800	-243	80x70
54	VSS	-8700	-243	80x70	114	VSS	-2700	-243	80x70
55	VSS	-8600	-243	80x70	115	VSS	-2600	-243	80x70
56	VSS	-8500	-243	80x70	116	VSS	-2500	-243	80x70
57	VSS	-8400	-243	80x70	117	VSS	-2400	-243	80x70
58	VSS	-8300	-243	80x70	118	VSS	-2300	-243	80x70
59	VSS	-8200	-243	80x70	119	VSS	-2200	-243	80x70
60	VSS	-8100	-243	80x70	120	VSS	-2100	-243	80x70

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
121	VSS	-2000	-243	80x70	181	VSS	4000	-243	80x70
122	VSS	-1900	-243	80x70	182	VSS	4100	-243	80x70
123	VSS	-1800	-243	80x70	183	VSS	4200	-243	80x70
124	VSS	-1700	-243	80x70	184	VSS	4300	-243	80x70
125	VSS	-1600	-243	80x70	185	VSS	4400	-243	80x70
126	VSS	-1500	-243	80x70	186	VSS	4500	-243	80x70
127	VSS	-1400	-243	80x70	187	VSS	4600	-243	80x70
128	VSS	-1300	-243	80x70	188	VSS	4700	-243	80x70
129	VSS	-1200	-243	80x70	189	VSS	4800	-243	80x70
130	VSS	-1100	-243	80x70	190	VSS	4900	-243	80x70
131	VSS	-1000	-243	80x70	191	VSS	5000	-243	80x70
132	VSS	-900	-243	80x70	192	VSS	5100	-243	80x70
133	VSS	-800	-243	80x70	193	VSS	5200	-243	80x70
134	VSS	-700	-243	80x70	194	VSS	5300	-243	80x70
135	VSS	-600	-243	80x70	195	VSS	5400	-243	80x70
136	VSS	-500	-243	80x70	196	VSS	5500	-243	80x70
137	VSS	-400	-243	80x70	197	VSS	5600	-243	80x70
138	VSS	-300	-243	80x70	198	VSS	5700	-243	80x70
139	VSS	-200	-243	80x70	199	VSS	5800	-243	80x70
140	VSS	-100	-243	80x70	200	VSS	5900	-243	80x70
141	VSS	0	-243	80x70	201	VSS	6000	-243	80x70
142	VSS	100	-243	80x70	202	VSS	6100	-243	80x70
143	VSS	200	-243	80x70	203	VSS	6200	-243	80x70
144	VSS	300	-243	80x70	204	VSS	6300	-243	80x70
145	VSS	400	-243	80x70	205	VSS	6400	-243	80x70
146	VSS	500	-243	80x70	206	VSS	6500	-243	80x70
147	VSS	600	-243	80x70	207	VSS	6600	-243	80x70
148	VSS	700	-243	80x70	208	VSS	6700	-243	80x70
149	VSS	800	-243	80x70	209	VSS	6800	-243	80x70
150	VSS	900	-243	80x70	210	VSS	6900	-243	80x70
151	VSS	1000	-243	80x70	211	VSS	7000	-243	80x70
152	VSS	1100	-243	80x70	212	VSS	7100	-243	80x70
153	VSS	1200	-243	80x70	213	VSS	7200	-243	80x70
154	VSS	1300	-243	80x70	214	VSS	7300	-243	80x70
155	VSS	1400	-243	80x70	215	VSS	7400	-243	80x70
156	VSS	1500	-243	80x70	216	VSS	7500	-243	80x70
157	VSS	1600	-243	80x70	217	VSS	7600	-243	80x70
158	VSS	1700	-243	80x70	218	VSS	7700	-243	80x70
159	VSS	1800	-243	80x70	219	VSS	7800	-243	80x70
160	VSS	1900	-243	80x70	220	VSS	7900	-243	80x70
161	VSS	2000	-243	80x70	221	VSS	8000	-243	80x70
162	VSS	2100	-243	80x70	222	VSS	8100	-243	80x70
163	VSS	2200	-243	80x70	223	VSS	8200	-243	80x70
164	VSS	2300	-243	80x70	224	VSS	8300	-243	80x70
165	VSS	2400	-243	80x70	225	VSS	8400	-243	80x70
166	VSS	2500	-243	80x70	226	VSS	8500	-243	80x70
167	VSS	2600	-243	80x70	227	VSS	8600	-243	80x70
168	VSS	2700	-243	80x70	228	VSS	8700	-243	80x70
169	VSS	2800	-243	80x70	229	VSS	8800	-243	80x70
170	VSS	2900	-243	80x70	230	VSS	8900	-243	80x70
171	VSS	3000	-243	80x70	231	VSS	9000	-243	80x70
172	VSS	3100	-243	80x70	232	VSS	9100	-243	80x70
173	VSS	3200	-243	80x70	233	VSS	9200	-243	80x70
174	VSS	3300	-243	80x70	234	VSS	9300	-243	80x70
175	VSS	3400	-243	80x70	235	VSS	9400	-243	80x70
176	VSS	3500	-243	80x70	236	VSS	9500	-243	80x70
177	VSS	3600	-243	80x70	237	VSS	9600	-243	80x70
178	VSS	3700	-243	80x70	238	VSS	9700	-243	80x70
179	VSS	3800	-243	80x70	239	VSS	9800	-243	80x70
180	VSS	3900	-243	80x70	240	VSS	9900	-243	80x70

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
241	VSS	10000	-243	80x70	301	G18	10476	235.5	18x85
242	VSS	10100	-243	80x70	302	G19	10458	125.5	18x85
243	VSS	10200	-243	80x70	303	G20	10440	235.5	18x85
244	VSS	10300	-243	80x70	304	G21	10422	125.5	18x85
245	VSS	10400	-243	80x70	305	G22	10404	235.5	18x85
246	VSS	10500	-243	80x70	306	G23	10386	125.5	18x85
247	VSS	10600	-243	80x70	307	G24	10368	235.5	18x85
248	VSS	10700	-243	80x70	308	G25	10350	125.5	18x85
249	VSS	10800	-243	80x70	309	G26	10332	235.5	18x85
250	VSS	10900	-243	80x70	310	G27	10314	125.5	18x85
251	PATH3	11000	-243	80x70	311	G28	10296	235.5	18x85
252	SEG2	11283	-262	70x32	312	G29	10278	125.5	18x85
253	SEG1	11373	-262	70x32	313	G30	10260	235.5	18x85
254	MODE0	11463	-262	70x32	314	G31	10242	125.5	18x85
255	MODE1	11553	-262	70x32	315	G32	10224	235.5	18x85
256	VSS	11643	-262	70x32	316	G33	10206	125.5	18x85
257	VSS	11733	-262	70x32	317	G34	10188	235.5	18x85
258	VDD	11733	-208	70x32	318	G35	10170	125.5	18x85
259	VDD	11643	-208	70x32	319	G36	10152	235.5	18x85
260	VEE	11733	-156	70x32	320	G37	10134	125.5	18x85
261	VEE	11643	-156	70x32	321	G38	10116	235.5	18x85
262	VGH	11733	-104	70x32	322	G39	10098	125.5	18x85
263	VGH	11643	-104	70x32	323	G40	10080	235.5	18x85
264	STVR	11733	-52	70x32	324	G41	10062	125.5	18x85
265	STVR	11643	-52	70x32	325	G42	10044	235.5	18x85
266	PATH2	11733	0	70x32	326	G43	10026	125.5	18x85
267	PATH2	11643	0	70x32	327	G44	10008	235.5	18x85
268	CPV	11733	52	70x32	328	G45	9990	125.5	18x85
269	CPV	11643	52	70x32	329	G46	9972	235.5	18x85
270	RL	11733	104	70x32	330	G47	9954	125.5	18x85
271	RL	11643	104	70x32	331	G48	9936	235.5	18x85
272	OE3	11733	156	70x32	332	G49	9918	125.5	18x85
273	OE3	11643	156	70x32	333	G50	9900	235.5	18x85
274	OE2	11733	208	70x32	334	G51	9882	125.5	18x85
275	OE2	11643	208	70x32	335	G52	9864	235.5	18x85
276	OE1	11733	262	70x32	336	G53	9846	125.5	18x85
277	OE1	11643	262	70x32	337	G54	9828	235.5	18x85
278	EVEN	11553	262	70x32	338	G55	9810	125.5	18x85
279	EVEN	11463	262	70x32	339	G56	9792	235.5	18x85
280	XON	11373	262	70x32	340	G57	9774	125.5	18x85
281	XON	11283	262	70x32	341	G58	9756	235.5	18x85
282	PATH1	10836	235.5	18x85	342	G59	9738	125.5	18x85
283	G0	10800	235.5	18x85	343	G60	9720	235.5	18x85
284	G1	10782	125.5	18x85	344	G61	9702	125.5	18x85
285	G2	10764	235.5	18x85	345	G62	9684	235.5	18x85
286	G3	10746	125.5	18x85	346	G63	9666	125.5	18x85
287	G4	10728	235.5	18x85	347	G64	9648	235.5	18x85
288	G5	10710	125.5	18x85	348	G65	9630	125.5	18x85
289	G6	10692	235.5	18x85	349	G66	9612	235.5	18x85
290	G7	10674	125.5	18x85	350	G67	9594	125.5	18x85
291	G8	10656	235.5	18x85	351	G68	9576	235.5	18x85
292	G9	10638	125.5	18x85	352	G69	9558	125.5	18x85
293	G10	10620	235.5	18x85	353	G70	9540	235.5	18x85
294	G11	10602	125.5	18x85	354	G71	9522	125.5	18x85
295	G12	10584	235.5	18x85	355	G72	9504	235.5	18x85
296	G13	10566	125.5	18x85	356	G73	9486	125.5	18x85
297	G14	10548	235.5	18x85	357	G74	9468	235.5	18x85
298	G15	10530	125.5	18x85	358	G75	9450	125.5	18x85
299	G16	10512	235.5	18x85	359	G76	9432	235.5	18x85
300	G17	10494	125.5	18x85	360	G77	9414	125.5	18x85

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
361	G78	9396	235.5	18x85	421	G138	8316	235.5	18x85
362	G79	9378	125.5	18x85	422	G139	8298	125.5	18x85
363	G80	9360	235.5	18x85	423	G140	8280	235.5	18x85
364	G81	9342	125.5	18x85	424	G141	8262	125.5	18x85
365	G82	9324	235.5	18x85	425	G142	8244	235.5	18x85
366	G83	9306	125.5	18x85	426	G143	8226	125.5	18x85
367	G84	9288	235.5	18x85	427	G144	8208	235.5	18x85
368	G85	9270	125.5	18x85	428	G145	8190	125.5	18x85
369	G86	9252	235.5	18x85	429	G146	8172	235.5	18x85
370	G87	9234	125.5	18x85	430	G147	8154	125.5	18x85
371	G88	9216	235.5	18x85	431	G148	8136	235.5	18x85
372	G89	9198	125.5	18x85	432	G149	8118	125.5	18x85
373	G90	9180	235.5	18x85	433	G150	8100	235.5	18x85
374	G91	9162	125.5	18x85	434	G151	8082	125.5	18x85
375	G92	9144	235.5	18x85	435	G152	8064	235.5	18x85
376	G93	9126	125.5	18x85	436	G153	8046	125.5	18x85
377	G94	9108	235.5	18x85	437	G154	8028	235.5	18x85
378	G95	9090	125.5	18x85	438	G155	8010	125.5	18x85
379	G96	9072	235.5	18x85	439	G156	7992	235.5	18x85
380	G97	9054	125.5	18x85	440	G157	7974	125.5	18x85
381	G98	9036	235.5	18x85	441	G158	7956	235.5	18x85
382	G99	9018	125.5	18x85	442	G159	7938	125.5	18x85
383	G100	9000	235.5	18x85	443	G160	7920	235.5	18x85
384	G101	8982	125.5	18x85	444	G161	7902	125.5	18x85
385	G102	8964	235.5	18x85	445	G162	7884	235.5	18x85
386	G103	8946	125.5	18x85	446	G163	7866	125.5	18x85
387	G104	8928	235.5	18x85	447	G164	7848	235.5	18x85
388	G105	8910	125.5	18x85	448	G165	7830	125.5	18x85
389	G106	8892	235.5	18x85	449	G166	7812	235.5	18x85
390	G107	8874	125.5	18x85	450	G167	7794	125.5	18x85
391	G108	8856	235.5	18x85	451	G168	7776	235.5	18x85
392	G109	8838	125.5	18x85	452	G169	7758	125.5	18x85
393	G110	8820	235.5	18x85	453	G170	7740	235.5	18x85
394	G111	8802	125.5	18x85	454	G171	7722	125.5	18x85
395	G112	8784	235.5	18x85	455	G172	7704	235.5	18x85
396	G113	8766	125.5	18x85	456	G173	7686	125.5	18x85
397	G114	8748	235.5	18x85	457	G174	7668	235.5	18x85
398	G115	8730	125.5	18x85	458	G175	7650	125.5	18x85
399	G116	8712	235.5	18x85	459	G176	7632	235.5	18x85
400	G117	8694	125.5	18x85	460	G177	7614	125.5	18x85
401	G118	8676	235.5	18x85	461	G178	7596	235.5	18x85
402	G119	8658	125.5	18x85	462	G179	7578	125.5	18x85
403	G120	8640	235.5	18x85	463	G180	7560	235.5	18x85
404	G121	8622	125.5	18x85	464	G181	7542	125.5	18x85
405	G122	8604	235.5	18x85	465	G182	7524	235.5	18x85
406	G123	8586	125.5	18x85	466	G183	7506	125.5	18x85
407	G124	8568	235.5	18x85	467	G184	7488	235.5	18x85
408	G125	8550	125.5	18x85	468	G185	7470	125.5	18x85
409	G126	8532	235.5	18x85	469	G186	7452	235.5	18x85
410	G127	8514	125.5	18x85	470	G187	7434	125.5	18x85
411	G128	8496	235.5	18x85	471	G188	7416	235.5	18x85
412	G129	8478	125.5	18x85	472	G189	7398	125.5	18x85
413	G130	8460	235.5	18x85	473	G190	7380	235.5	18x85
414	G131	8442	125.5	18x85	474	G191	7362	125.5	18x85
415	G132	8424	235.5	18x85	475	G192	7344	235.5	18x85
416	G133	8406	125.5	18x85	476	G193	7326	125.5	18x85
417	G134	8388	235.5	18x85	477	G194	7308	235.5	18x85
418	G135	8370	125.5	18x85	478	G195	7290	125.5	18x85
419	G136	8352	235.5	18x85	479	G196	7272	235.5	18x85
420	G137	8334	125.5	18x85	480	G197	7254	125.5	18x85

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
481	G198	7236	235.5	18x85	541	G258	6156	235.5	18x85
482	G199	7218	125.5	18x85	542	G259	6138	125.5	18x85
483	G200	7200	235.5	18x85	543	G260	6120	235.5	18x85
484	G201	7182	125.5	18x85	544	G261	6102	125.5	18x85
485	G202	7164	235.5	18x85	545	G262	6084	235.5	18x85
486	G203	7146	125.5	18x85	546	G263	6066	125.5	18x85
487	G204	7128	235.5	18x85	547	G264	6048	235.5	18x85
488	G205	7110	125.5	18x85	548	G265	6030	125.5	18x85
489	G206	7092	235.5	18x85	549	G266	6012	235.5	18x85
490	G207	7074	125.5	18x85	550	G267	5994	125.5	18x85
491	G208	7056	235.5	18x85	551	G268	5976	235.5	18x85
492	G209	7038	125.5	18x85	552	G269	5958	125.5	18x85
493	G210	7020	235.5	18x85	553	G270	5940	235.5	18x85
494	G211	7002	125.5	18x85	554	G271	5922	125.5	18x85
495	G212	6984	235.5	18x85	555	G272	5904	235.5	18x85
496	G213	6966	125.5	18x85	556	G273	5886	125.5	18x85
497	G214	6948	235.5	18x85	557	G274	5868	235.5	18x85
498	G215	6930	125.5	18x85	558	G275	5850	125.5	18x85
499	G216	6912	235.5	18x85	559	G276	5832	235.5	18x85
500	G217	6894	125.5	18x85	560	G277	5814	125.5	18x85
501	G218	6876	235.5	18x85	561	G278	5796	235.5	18x85
502	G219	6858	125.5	18x85	562	G279	5778	125.5	18x85
503	G220	6840	235.5	18x85	563	G280	5760	235.5	18x85
504	G221	6822	125.5	18x85	564	G281	5742	125.5	18x85
505	G222	6804	235.5	18x85	565	G282	5724	235.5	18x85
506	G223	6786	125.5	18x85	566	G283	5706	125.5	18x85
507	G224	6768	235.5	18x85	567	G284	5688	235.5	18x85
508	G225	6750	125.5	18x85	568	G285	5670	125.5	18x85
509	G226	6732	235.5	18x85	569	G286	5652	235.5	18x85
510	G227	6714	125.5	18x85	570	G287	5634	125.5	18x85
511	G228	6696	235.5	18x85	571	G288	5616	235.5	18x85
512	G229	6678	125.5	18x85	572	G289	5598	125.5	18x85
513	G230	6660	235.5	18x85	573	G290	5580	235.5	18x85
514	G231	6642	125.5	18x85	574	G291	5562	125.5	18x85
515	G232	6624	235.5	18x85	575	G292	5544	235.5	18x85
516	G233	6606	125.5	18x85	576	G293	5526	125.5	18x85
517	G234	6588	235.5	18x85	577	G294	5508	235.5	18x85
518	G235	6570	125.5	18x85	578	G295	5490	125.5	18x85
519	G236	6552	235.5	18x85	579	G296	5472	235.5	18x85
520	G237	6534	125.5	18x85	580	G297	5454	125.5	18x85
521	G238	6516	235.5	18x85	581	G298	5436	235.5	18x85
522	G239	6498	125.5	18x85	582	G299	5418	125.5	18x85
523	G240	6480	235.5	18x85	583	G300	5400	235.5	18x85
524	G241	6462	125.5	18x85	584	G301	5382	125.5	18x85
525	G242	6444	235.5	18x85	585	G302	5364	235.5	18x85
526	G243	6426	125.5	18x85	586	G303	5346	125.5	18x85
527	G244	6408	235.5	18x85	587	G304	5328	235.5	18x85
528	G245	6390	125.5	18x85	588	G305	5310	125.5	18x85
529	G246	6372	235.5	18x85	589	G306	5292	235.5	18x85
530	G247	6354	125.5	18x85	590	G307	5274	125.5	18x85
531	G248	6336	235.5	18x85	591	G308	5256	235.5	18x85
532	G249	6318	125.5	18x85	592	G309	5238	125.5	18x85
533	G250	6300	235.5	18x85	593	G310	5220	235.5	18x85
534	G251	6282	125.5	18x85	594	G311	5202	125.5	18x85
535	G252	6264	235.5	18x85	595	G312	5184	235.5	18x85
536	G253	6246	125.5	18x85	596	G313	5166	125.5	18x85
537	G254	6228	235.5	18x85	597	G314	5148	235.5	18x85
538	G255	6210	125.5	18x85	598	G315	5130	125.5	18x85
539	G256	6192	235.5	18x85	599	G316	5112	235.5	18x85
540	G257	6174	125.5	18x85	600	G317	5094	125.5	18x85

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
601	G318	5076	235.5	18x85	661	G378	3996	235.5	18x85
602	G319	5058	125.5	18x85	662	G379	3978	125.5	18x85
603	G320	5040	235.5	18x85	663	G380	3960	235.5	18x85
604	G321	5022	125.5	18x85	664	G381	3942	125.5	18x85
605	G322	5004	235.5	18x85	665	G382	3924	235.5	18x85
606	G323	4986	125.5	18x85	666	G383	3906	125.5	18x85
607	G324	4968	235.5	18x85	667	G384	3888	235.5	18x85
608	G325	4950	125.5	18x85	668	G385	3870	125.5	18x85
609	G326	4932	235.5	18x85	669	G386	3852	235.5	18x85
610	G327	4914	125.5	18x85	670	G387	3834	125.5	18x85
611	G328	4896	235.5	18x85	671	G388	3816	235.5	18x85
612	G329	4878	125.5	18x85	672	G389	3798	125.5	18x85
613	G330	4860	235.5	18x85	673	G390	3780	235.5	18x85
614	G331	4842	125.5	18x85	674	G391	3762	125.5	18x85
615	G332	4824	235.5	18x85	675	G392	3744	235.5	18x85
616	G333	4806	125.5	18x85	676	G393	3726	125.5	18x85
617	G334	4788	235.5	18x85	677	G394	3708	235.5	18x85
618	G335	4770	125.5	18x85	678	G395	3690	125.5	18x85
619	G336	4752	235.5	18x85	679	G396	3672	235.5	18x85
620	G337	4734	125.5	18x85	680	G397	3654	125.5	18x85
621	G338	4716	235.5	18x85	681	G398	3636	235.5	18x85
622	G339	4698	125.5	18x85	682	G399	3618	125.5	18x85
623	G340	4680	235.5	18x85	683	G400	3600	235.5	18x85
624	G341	4662	125.5	18x85	684	G401	3582	125.5	18x85
625	G342	4644	235.5	18x85	685	G402	3564	235.5	18x85
626	G343	4626	125.5	18x85	686	G403	3546	125.5	18x85
627	G344	4608	235.5	18x85	687	G404	3528	235.5	18x85
628	G345	4590	125.5	18x85	688	G405	3510	125.5	18x85
629	G346	4572	235.5	18x85	689	G406	3492	235.5	18x85
630	G347	4554	125.5	18x85	690	G407	3474	125.5	18x85
631	G348	4536	235.5	18x85	691	G408	3456	235.5	18x85
632	G349	4518	125.5	18x85	692	G409	3438	125.5	18x85
633	G350	4500	235.5	18x85	693	G410	3420	235.5	18x85
634	G351	4482	125.5	18x85	694	G411	3402	125.5	18x85
635	G352	4464	235.5	18x85	695	G412	3384	235.5	18x85
636	G353	4446	125.5	18x85	696	G413	3366	125.5	18x85
637	G354	4428	235.5	18x85	697	G414	3348	235.5	18x85
638	G355	4410	125.5	18x85	698	G415	3330	125.5	18x85
639	G356	4392	235.5	18x85	699	G416	3312	235.5	18x85
640	G357	4374	125.5	18x85	700	G417	3294	125.5	18x85
641	G358	4356	235.5	18x85	701	G418	3276	235.5	18x85
642	G359	4338	125.5	18x85	702	G419	3258	125.5	18x85
643	G360	4320	235.5	18x85	703	G420	3240	235.5	18x85
644	G361	4302	125.5	18x85	704	G421	3222	125.5	18x85
645	G362	4284	235.5	18x85	705	G422	3204	235.5	18x85
646	G363	4266	125.5	18x85	706	G423	3186	125.5	18x85
647	G364	4248	235.5	18x85	707	G424	3168	235.5	18x85
648	G365	4230	125.5	18x85	708	G425	3150	125.5	18x85
649	G366	4212	235.5	18x85	709	G426	3132	235.5	18x85
650	G367	4194	125.5	18x85	710	G427	3114	125.5	18x85
651	G368	4176	235.5	18x85	711	G428	3096	235.5	18x85
652	G369	4158	125.5	18x85	712	G429	3078	125.5	18x85
653	G370	4140	235.5	18x85	713	G430	3060	235.5	18x85
654	G371	4122	125.5	18x85	714	G431	3042	125.5	18x85
655	G372	4104	235.5	18x85	715	G432	3024	235.5	18x85
656	G373	4086	125.5	18x85	716	G433	3006	125.5	18x85
657	G374	4068	235.5	18x85	717	G434	2988	235.5	18x85
658	G375	4050	125.5	18x85	718	G435	2970	125.5	18x85
659	G376	4032	235.5	18x85	719	G436	2952	235.5	18x85
660	G377	4014	125.5	18x85	720	G437	2934	125.5	18x85

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
721	G438	2916	235.5	18x85	781	G498	1836	235.5	18x85
722	G439	2898	125.5	18x85	782	G499	1818	125.5	18x85
723	G440	2880	235.5	18x85	783	G500	1800	235.5	18x85
724	G441	2862	125.5	18x85	784	G501	1782	125.5	18x85
725	G442	2844	235.5	18x85	785	G502	1764	235.5	18x85
726	G443	2826	125.5	18x85	786	G503	1746	125.5	18x85
727	G444	2808	235.5	18x85	787	G504	1728	235.5	18x85
728	G445	2790	125.5	18x85	788	G505	1710	125.5	18x85
729	G446	2772	235.5	18x85	789	G506	1692	235.5	18x85
730	G447	2754	125.5	18x85	790	G507	1674	125.5	18x85
731	G448	2736	235.5	18x85	791	G508	1656	235.5	18x85
732	G449	2718	125.5	18x85	792	G509	1638	125.5	18x85
733	G450	2700	235.5	18x85	793	G510	1620	235.5	18x85
734	G451	2682	125.5	18x85	794	G511	1602	125.5	18x85
735	G452	2664	235.5	18x85	795	G512	1584	235.5	18x85
736	G453	2646	125.5	18x85	796	G513	1566	125.5	18x85
737	G454	2628	235.5	18x85	797	G514	1548	235.5	18x85
738	G455	2610	125.5	18x85	798	G515	1530	125.5	18x85
739	G456	2592	235.5	18x85	799	G516	1512	235.5	18x85
740	G457	2574	125.5	18x85	800	G517	1494	125.5	18x85
741	G458	2556	235.5	18x85	801	G518	1476	235.5	18x85
742	G459	2538	125.5	18x85	802	G519	1458	125.5	18x85
743	G460	2520	235.5	18x85	803	G520	1440	235.5	18x85
744	G461	2502	125.5	18x85	804	G521	1422	125.5	18x85
745	G462	2484	235.5	18x85	805	G522	1404	235.5	18x85
746	G463	2466	125.5	18x85	806	G523	1386	125.5	18x85
747	G464	2448	235.5	18x85	807	G524	1368	235.5	18x85
748	G465	2430	125.5	18x85	808	G525	1350	125.5	18x85
749	G466	2412	235.5	18x85	809	G526	1332	235.5	18x85
750	G467	2394	125.5	18x85	810	G527	1314	125.5	18x85
751	G468	2376	235.5	18x85	811	G528	1296	235.5	18x85
752	G469	2358	125.5	18x85	812	G529	1278	125.5	18x85
753	G470	2340	235.5	18x85	813	G530	1260	235.5	18x85
754	G471	2322	125.5	18x85	814	G531	1242	125.5	18x85
755	G472	2304	235.5	18x85	815	G532	1224	235.5	18x85
756	G473	2286	125.5	18x85	816	G533	1206	125.5	18x85
757	G474	2268	235.5	18x85	817	G534	1188	235.5	18x85
758	G475	2250	125.5	18x85	818	G535	1170	125.5	18x85
759	G476	2232	235.5	18x85	819	G536	1152	235.5	18x85
760	G477	2214	125.5	18x85	820	G537	1134	125.5	18x85
761	G478	2196	235.5	18x85	821	G538	1116	235.5	18x85
762	G479	2178	125.5	18x85	822	G539	1098	125.5	18x85
763	G480	2160	235.5	18x85	823	G540	1080	235.5	18x85
764	G481	2142	125.5	18x85	824	G541	1062	125.5	18x85
765	G482	2124	235.5	18x85	825	G542	1044	235.5	18x85
766	G483	2106	125.5	18x85	826	G543	1026	125.5	18x85
767	G484	2088	235.5	18x85	827	G544	1008	235.5	18x85
768	G485	2070	125.5	18x85	828	G545	990	125.5	18x85
769	G486	2052	235.5	18x85	829	G546	972	235.5	18x85
770	G487	2034	125.5	18x85	830	G547	954	125.5	18x85
771	G488	2016	235.5	18x85	831	G548	936	235.5	18x85
772	G489	1998	125.5	18x85	832	G549	918	125.5	18x85
773	G490	1980	235.5	18x85	833	G550	900	235.5	18x85
774	G491	1962	125.5	18x85	834	G551	882	125.5	18x85
775	G492	1944	235.5	18x85	835	G552	864	235.5	18x85
776	G493	1926	125.5	18x85	836	G553	846	125.5	18x85
777	G494	1908	235.5	18x85	837	G554	828	235.5	18x85
778	G495	1890	125.5	18x85	838	G555	810	125.5	18x85
779	G496	1872	235.5	18x85	839	G556	792	235.5	18x85
780	G497	1854	125.5	18x85	840	G557	774	125.5	18x85

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
841	G558	756	235.5	18x85	901	G618	-324	235.5	18x85
842	G559	738	125.5	18x85	902	G619	-342	125.5	18x85
843	G560	720	235.5	18x85	903	G620	-360	235.5	18x85
844	G561	702	125.5	18x85	904	G621	-378	125.5	18x85
845	G562	684	235.5	18x85	905	G622	-396	235.5	18x85
846	G563	666	125.5	18x85	906	G623	-414	125.5	18x85
847	G564	648	235.5	18x85	907	G624	-432	235.5	18x85
848	G565	630	125.5	18x85	908	G625	-450	125.5	18x85
849	G566	612	235.5	18x85	909	G626	-468	235.5	18x85
850	G567	594	125.5	18x85	910	G627	-486	125.5	18x85
851	G568	576	235.5	18x85	911	G628	-504	235.5	18x85
852	G569	558	125.5	18x85	912	G629	-522	125.5	18x85
853	G570	540	235.5	18x85	913	G630	-540	235.5	18x85
854	G571	522	125.5	18x85	914	G631	-558	125.5	18x85
855	G572	504	235.5	18x85	915	G632	-576	235.5	18x85
856	G573	486	125.5	18x85	916	G633	-594	125.5	18x85
857	G574	468	235.5	18x85	917	G634	-612	235.5	18x85
858	G575	450	125.5	18x85	918	G635	-630	125.5	18x85
859	G576	432	235.5	18x85	919	G636	-648	235.5	18x85
860	G577	414	125.5	18x85	920	G637	-666	125.5	18x85
861	G578	396	235.5	18x85	921	G638	-684	235.5	18x85
862	G579	378	125.5	18x85	922	G639	-702	125.5	18x85
863	G580	360	235.5	18x85	923	G640	-720	235.5	18x85
864	G581	342	125.5	18x85	924	G641	-738	125.5	18x85
865	G582	324	235.5	18x85	925	G642	-756	235.5	18x85
866	G583	306	125.5	18x85	926	G643	-774	125.5	18x85
867	G584	288	235.5	18x85	927	G644	-792	235.5	18x85
868	G585	270	125.5	18x85	928	G645	-810	125.5	18x85
869	G586	252	235.5	18x85	929	G646	-828	235.5	18x85
870	G587	234	125.5	18x85	930	G647	-846	125.5	18x85
871	G588	216	235.5	18x85	931	G648	-864	235.5	18x85
872	G589	198	125.5	18x85	932	G649	-882	125.5	18x85
873	G590	180	235.5	18x85	933	G650	-900	235.5	18x85
874	G591	162	125.5	18x85	934	G651	-918	125.5	18x85
875	G592	144	235.5	18x85	935	G652	-936	235.5	18x85
876	G593	126	125.5	18x85	936	G653	-954	125.5	18x85
877	G594	108	235.5	18x85	937	G654	-972	235.5	18x85
878	G595	90	125.5	18x85	938	G655	-990	125.5	18x85
879	G596	72	235.5	18x85	939	G656	-1008	235.5	18x85
880	G597	54	125.5	18x85	940	G657	-1026	125.5	18x85
881	G598	36	235.5	18x85	941	G658	-1044	235.5	18x85
882	G599	18	125.5	18x85	942	G659	-1062	125.5	18x85
883	G600	0	235.5	18x85	943	G660	-1080	235.5	18x85
884	G601	-18	125.5	18x85	944	G661	-1098	125.5	18x85
885	G602	-36	235.5	18x85	945	G662	-1116	235.5	18x85
886	G603	-54	125.5	18x85	946	G663	-1134	125.5	18x85
887	G604	-72	235.5	18x85	947	G664	-1152	235.5	18x85
888	G605	-90	125.5	18x85	948	G665	-1170	125.5	18x85
889	G606	-108	235.5	18x85	949	G666	-1188	235.5	18x85
890	G607	-126	125.5	18x85	950	G667	-1206	125.5	18x85
891	G608	-144	235.5	18x85	951	G668	-1224	235.5	18x85
892	G609	-162	125.5	18x85	952	G669	-1242	125.5	18x85
893	G610	-180	235.5	18x85	953	G670	-1260	235.5	18x85
894	G611	-198	125.5	18x85	954	G671	-1278	125.5	18x85
895	G612	-216	235.5	18x85	955	G672	-1296	235.5	18x85
896	G613	-234	125.5	18x85	956	G673	-1314	125.5	18x85
897	G614	-252	235.5	18x85	957	G674	-1332	235.5	18x85
898	G615	-270	125.5	18x85	958	G675	-1350	125.5	18x85
899	G616	-288	235.5	18x85	959	G676	-1368	235.5	18x85
900	G617	-306	125.5	18x85	960	G677	-1386	125.5	18x85

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
961	G678	-1404	235.5	18x85	1021	G738	-2484	235.5	18x85
962	G679	-1422	125.5	18x85	1022	G739	-2502	125.5	18x85
963	G680	-1440	235.5	18x85	1023	G740	-2520	235.5	18x85
964	G681	-1458	125.5	18x85	1024	G741	-2538	125.5	18x85
965	G682	-1476	235.5	18x85	1025	G742	-2556	235.5	18x85
966	G683	-1494	125.5	18x85	1026	G743	-2574	125.5	18x85
967	G684	-1512	235.5	18x85	1027	G744	-2592	235.5	18x85
968	G685	-1530	125.5	18x85	1028	G745	-2610	125.5	18x85
969	G686	-1548	235.5	18x85	1029	G746	-2628	235.5	18x85
970	G687	-1566	125.5	18x85	1030	G747	-2646	125.5	18x85
971	G688	-1584	235.5	18x85	1031	G748	-2664	235.5	18x85
972	G689	-1602	125.5	18x85	1032	G749	-2682	125.5	18x85
973	G690	-1620	235.5	18x85	1033	G750	-2700	235.5	18x85
974	G691	-1638	125.5	18x85	1034	G751	-2718	125.5	18x85
975	G692	-1656	235.5	18x85	1035	G752	-2736	235.5	18x85
976	G693	-1674	125.5	18x85	1036	G753	-2754	125.5	18x85
977	G694	-1692	235.5	18x85	1037	G754	-2772	235.5	18x85
978	G695	-1710	125.5	18x85	1038	G755	-2790	125.5	18x85
979	G696	-1728	235.5	18x85	1039	G756	-2808	235.5	18x85
980	G697	-1746	125.5	18x85	1040	G757	-2826	125.5	18x85
981	G698	-1764	235.5	18x85	1041	G758	-2844	235.5	18x85
982	G699	-1782	125.5	18x85	1042	G759	-2862	125.5	18x85
983	G700	-1800	235.5	18x85	1043	G760	-2880	235.5	18x85
984	G701	-1818	125.5	18x85	1044	G761	-2898	125.5	18x85
985	G702	-1836	235.5	18x85	1045	G762	-2916	235.5	18x85
986	G703	-1854	125.5	18x85	1046	G763	-2934	125.5	18x85
987	G704	-1872	235.5	18x85	1047	G764	-2952	235.5	18x85
988	G705	-1890	125.5	18x85	1048	G765	-2970	125.5	18x85
989	G706	-1908	235.5	18x85	1049	G766	-2988	235.5	18x85
990	G707	-1926	125.5	18x85	1050	G767	-3006	125.5	18x85
991	G708	-1944	235.5	18x85	1051	G768	-3024	235.5	18x85
992	G709	-1962	125.5	18x85	1052	G769	-3042	125.5	18x85
993	G710	-1980	235.5	18x85	1053	G770	-3060	235.5	18x85
994	G711	-1998	125.5	18x85	1054	G771	-3078	125.5	18x85
995	G712	-2016	235.5	18x85	1055	G772	-3096	235.5	18x85
996	G713	-2034	125.5	18x85	1056	G773	-3114	125.5	18x85
997	G714	-2052	235.5	18x85	1057	G774	-3132	235.5	18x85
998	G715	-2070	125.5	18x85	1058	G775	-3150	125.5	18x85
999	G716	-2088	235.5	18x85	1059	G776	-3168	235.5	18x85
1000	G717	-2106	125.5	18x85	1060	G777	-3186	125.5	18x85
1001	G718	-2124	235.5	18x85	1061	G778	-3204	235.5	18x85
1002	G719	-2142	125.5	18x85	1062	G779	-3222	125.5	18x85
1003	G720	-2160	235.5	18x85	1063	G780	-3240	235.5	18x85
1004	G721	-2178	125.5	18x85	1064	G781	-3258	125.5	18x85
1005	G722	-2196	235.5	18x85	1065	G782	-3276	235.5	18x85
1006	G723	-2214	125.5	18x85	1066	G783	-3294	125.5	18x85
1007	G724	-2232	235.5	18x85	1067	G784	-3312	235.5	18x85
1008	G725	-2250	125.5	18x85	1068	G785	-3330	125.5	18x85
1009	G726	-2268	235.5	18x85	1069	G786	-3348	235.5	18x85
1010	G727	-2286	125.5	18x85	1070	G787	-3366	125.5	18x85
1011	G728	-2304	235.5	18x85	1071	G788	-3384	235.5	18x85
1012	G729	-2322	125.5	18x85	1072	G789	-3402	125.5	18x85
1013	G730	-2340	235.5	18x85	1073	G790	-3420	235.5	18x85
1014	G731	-2358	125.5	18x85	1074	G791	-3438	125.5	18x85
1015	G732	-2376	235.5	18x85	1075	G792	-3456	235.5	18x85
1016	G733	-2394	125.5	18x85	1076	G793	-3474	125.5	18x85
1017	G734	-2412	235.5	18x85	1077	G794	-3492	235.5	18x85
1018	G735	-2430	125.5	18x85	1078	G795	-3510	125.5	18x85
1019	G736	-2448	235.5	18x85	1079	G796	-3528	235.5	18x85
1020	G737	-2466	125.5	18x85	1080	G797	-3546	125.5	18x85

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
1081	G798	-3564	235.5	18x85	1141	G858	-4644	235.5	18x85
1082	G799	-3582	125.5	18x85	1142	G859	-4662	125.5	18x85
1083	G800	-3600	235.5	18x85	1143	G860	-4680	235.5	18x85
1084	G801	-3618	125.5	18x85	1144	G861	-4698	125.5	18x85
1085	G802	-3636	235.5	18x85	1145	G862	-4716	235.5	18x85
1086	G803	-3654	125.5	18x85	1146	G863	-4734	125.5	18x85
1087	G804	-3672	235.5	18x85	1147	G864	-4752	235.5	18x85
1088	G805	-3690	125.5	18x85	1148	G865	-4770	125.5	18x85
1089	G806	-3708	235.5	18x85	1149	G866	-4788	235.5	18x85
1090	G807	-3726	125.5	18x85	1150	G867	-4806	125.5	18x85
1091	G808	-3744	235.5	18x85	1151	G868	-4824	235.5	18x85
1092	G809	-3762	125.5	18x85	1152	G869	-4842	125.5	18x85
1093	G810	-3780	235.5	18x85	1153	G870	-4860	235.5	18x85
1094	G811	-3798	125.5	18x85	1154	G871	-4878	125.5	18x85
1095	G812	-3816	235.5	18x85	1155	G872	-4896	235.5	18x85
1096	G813	-3834	125.5	18x85	1156	G873	-4914	125.5	18x85
1097	G814	-3852	235.5	18x85	1157	G874	-4932	235.5	18x85
1098	G815	-3870	125.5	18x85	1158	G875	-4950	125.5	18x85
1099	G816	-3888	235.5	18x85	1159	G876	-4968	235.5	18x85
1100	G817	-3906	125.5	18x85	1160	G877	-4986	125.5	18x85
1101	G818	-3924	235.5	18x85	1161	G878	-5004	235.5	18x85
1102	G819	-3942	125.5	18x85	1162	G879	-5022	125.5	18x85
1103	G820	-3960	235.5	18x85	1163	G880	-5040	235.5	18x85
1104	G821	-3978	125.5	18x85	1164	G881	-5058	125.5	18x85
1105	G822	-3996	235.5	18x85	1165	G882	-5076	235.5	18x85
1106	G823	-4014	125.5	18x85	1166	G883	-5094	125.5	18x85
1107	G824	-4032	235.5	18x85	1167	G884	-5112	235.5	18x85
1108	G825	-4050	125.5	18x85	1168	G885	-5130	125.5	18x85
1109	G826	-4068	235.5	18x85	1169	G886	-5148	235.5	18x85
1110	G827	-4086	125.5	18x85	1170	G887	-5166	125.5	18x85
1111	G828	-4104	235.5	18x85	1171	G888	-5184	235.5	18x85
1112	G829	-4122	125.5	18x85	1172	G889	-5202	125.5	18x85
1113	G830	-4140	235.5	18x85	1173	G890	-5220	235.5	18x85
1114	G831	-4158	125.5	18x85	1174	G891	-5238	125.5	18x85
1115	G832	-4176	235.5	18x85	1175	G892	-5256	235.5	18x85
1116	G833	-4194	125.5	18x85	1176	G893	-5274	125.5	18x85
1117	G834	-4212	235.5	18x85	1177	G894	-5292	235.5	18x85
1118	G835	-4230	125.5	18x85	1178	G895	-5310	125.5	18x85
1119	G836	-4248	235.5	18x85	1179	G896	-5328	235.5	18x85
1120	G837	-4266	125.5	18x85	1180	G897	-5346	125.5	18x85
1121	G838	-4284	235.5	18x85	1181	G898	-5364	235.5	18x85
1122	G839	-4302	125.5	18x85	1182	G899	-5382	125.5	18x85
1123	G840	-4320	235.5	18x85	1183	G900	-5400	235.5	18x85
1124	G841	-4338	125.5	18x85	1184	G901	-5418	125.5	18x85
1125	G842	-4356	235.5	18x85	1185	G902	-5436	235.5	18x85
1126	G843	-4374	125.5	18x85	1186	G903	-5454	125.5	18x85
1127	G844	-4392	235.5	18x85	1187	G904	-5472	235.5	18x85
1128	G845	-4410	125.5	18x85	1188	G905	-5490	125.5	18x85
1129	G846	-4428	235.5	18x85	1189	G906	-5508	235.5	18x85
1130	G847	-4446	125.5	18x85	1190	G907	-5526	125.5	18x85
1131	G848	-4464	235.5	18x85	1191	G908	-5544	235.5	18x85
1132	G849	-4482	125.5	18x85	1192	G909	-5562	125.5	18x85
1133	G850	-4500	235.5	18x85	1193	G910	-5580	235.5	18x85
1134	G851	-4518	125.5	18x85	1194	G911	-5598	125.5	18x85
1135	G852	-4536	235.5	18x85	1195	G912	-5616	235.5	18x85
1136	G853	-4554	125.5	18x85	1196	G913	-5634	125.5	18x85
1137	G854	-4572	235.5	18x85	1197	G914	-5652	235.5	18x85
1138	G855	-4590	125.5	18x85	1198	G915	-5670	125.5	18x85
1139	G856	-4608	235.5	18x85	1199	G916	-5688	235.5	18x85
1140	G857	-4626	125.5	18x85	1200	G917	-5706	125.5	18x85

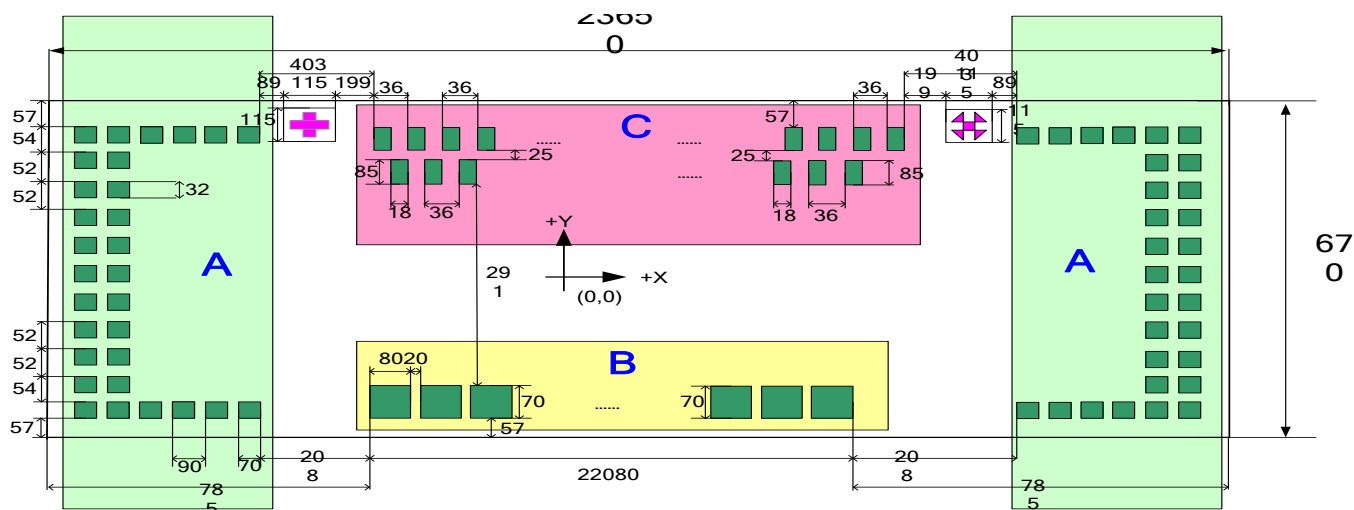
Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
1201	G918	-5724	235.5	18x85	1261	G978	-6804	235.5	18x85
1202	G919	-5742	125.5	18x85	1262	G979	-6822	125.5	18x85
1203	G920	-5760	235.5	18x85	1263	G980	-6840	235.5	18x85
1204	G921	-5778	125.5	18x85	1264	G981	-6858	125.5	18x85
1205	G922	-5796	235.5	18x85	1265	G982	-6876	235.5	18x85
1206	G923	-5814	125.5	18x85	1266	G983	-6894	125.5	18x85
1207	G924	-5832	235.5	18x85	1267	G984	-6912	235.5	18x85
1208	G925	-5850	125.5	18x85	1268	G985	-6930	125.5	18x85
1209	G926	-5868	235.5	18x85	1269	G986	-6948	235.5	18x85
1210	G927	-5886	125.5	18x85	1270	G987	-6966	125.5	18x85
1211	G928	-5904	235.5	18x85	1271	G988	-6984	235.5	18x85
1212	G929	-5922	125.5	18x85	1272	G989	-7002	125.5	18x85
1213	G930	-5940	235.5	18x85	1273	G990	-7020	235.5	18x85
1214	G931	-5958	125.5	18x85	1274	G991	-7038	125.5	18x85
1215	G932	-5976	235.5	18x85	1275	G992	-7056	235.5	18x85
1216	G933	-5994	125.5	18x85	1276	G993	-7074	125.5	18x85
1217	G934	-6012	235.5	18x85	1277	G994	-7092	235.5	18x85
1218	G935	-6030	125.5	18x85	1278	G995	-7110	125.5	18x85
1219	G936	-6048	235.5	18x85	1279	G996	-7128	235.5	18x85
1220	G937	-6066	125.5	18x85	1280	G997	-7146	125.5	18x85
1221	G938	-6084	235.5	18x85	1281	G998	-7164	235.5	18x85
1222	G939	-6102	125.5	18x85	1282	G999	-7182	125.5	18x85
1223	G940	-6120	235.5	18x85	1283	G1000	-7200	235.5	18x85
1224	G941	-6138	125.5	18x85	1284	G1001	-7218	125.5	18x85
1225	G942	-6156	235.5	18x85	1285	G1002	-7236	235.5	18x85
1226	G943	-6174	125.5	18x85	1286	G1003	-7254	125.5	18x85
1227	G944	-6192	235.5	18x85	1287	G1004	-7272	235.5	18x85
1228	G945	-6210	125.5	18x85	1288	G1005	-7290	125.5	18x85
1229	G946	-6228	235.5	18x85	1289	G1006	-7308	235.5	18x85
1230	G947	-6246	125.5	18x85	1290	G1007	-7326	125.5	18x85
1231	G948	-6264	235.5	18x85	1291	G1008	-7344	235.5	18x85
1232	G949	-6282	125.5	18x85	1292	G1009	-7362	125.5	18x85
1233	G950	-6300	235.5	18x85	1293	G1010	-7380	235.5	18x85
1234	G951	-6318	125.5	18x85	1294	G1011	-7398	125.5	18x85
1235	G952	-6336	235.5	18x85	1295	G1012	-7416	235.5	18x85
1236	G953	-6354	125.5	18x85	1296	G1013	-7434	125.5	18x85
1237	G954	-6372	235.5	18x85	1297	G1014	-7452	235.5	18x85
1238	G955	-6390	125.5	18x85	1298	G1015	-7470	125.5	18x85
1239	G956	-6408	235.5	18x85	1299	G1016	-7488	235.5	18x85
1240	G957	-6426	125.5	18x85	1300	G1017	-7506	125.5	18x85
1241	G958	-6444	235.5	18x85	1301	G1018	-7524	235.5	18x85
1242	G959	-6462	125.5	18x85	1302	G1019	-7542	125.5	18x85
1243	G960	-6480	235.5	18x85	1303	G1020	-7560	235.5	18x85
1244	G961	-6498	125.5	18x85	1304	G1021	-7578	125.5	18x85
1245	G962	-6516	235.5	18x85	1305	G1022	-7596	235.5	18x85
1246	G963	-6534	125.5	18x85	1306	G1023	-7614	125.5	18x85
1247	G964	-6552	235.5	18x85	1307	G1024	-7632	235.5	18x85
1248	G965	-6570	125.5	18x85	1308	G1025	-7650	125.5	18x85
1249	G966	-6588	235.5	18x85	1309	G1026	-7668	235.5	18x85
1250	G967	-6606	125.5	18x85	1310	G1027	-7686	125.5	18x85
1251	G968	-6624	235.5	18x85	1311	G1028	-7704	235.5	18x85
1252	G969	-6642	125.5	18x85	1312	G1029	-7722	125.5	18x85
1253	G970	-6660	235.5	18x85	1313	G1030	-7740	235.5	18x85
1254	G971	-6678	125.5	18x85	1314	G1031	-7758	125.5	18x85
1255	G972	-6696	235.5	18x85	1315	G1032	-7776	235.5	18x85
1256	G973	-6714	125.5	18x85	1316	G1033	-7794	125.5	18x85
1257	G974	-6732	235.5	18x85	1317	G1034	-7812	235.5	18x85
1258	G975	-6750	125.5	18x85	1318	G1035	-7830	125.5	18x85
1259	G976	-6768	235.5	18x85	1319	G1036	-7848	235.5	18x85
1260	G977	-6786	125.5	18x85	1320	G1037	-7866	125.5	18x85

Pad No.	Name	X	Y	Bump si	Pad No.	Name	X	Y	Bump si
1321	G1038	-7884	235.5	18x85	1381	G1098	-8964	235.5	18x85
1322	G1039	-7902	125.5	18x85	1382	G1099	-8982	125.5	18x85
1323	G1040	-7920	235.5	18x85	1383	G1100	-9000	235.5	18x85
1324	G1041	-7938	125.5	18x85	1384	G1101	-9018	125.5	18x85
1325	G1042	-7956	235.5	18x85	1385	G1102	-9036	235.5	18x85
1326	G1043	-7974	125.5	18x85	1386	G1103	-9054	125.5	18x85
1327	G1044	-7992	235.5	18x85	1387	G1104	-9072	235.5	18x85
1328	G1045	-8010	125.5	18x85	1388	G1105	-9090	125.5	18x85
1329	G1046	-8028	235.5	18x85	1389	G1106	-9108	235.5	18x85
1330	G1047	-8046	125.5	18x85	1390	G1107	-9126	125.5	18x85
1331	G1048	-8064	235.5	18x85	1391	G1108	-9144	235.5	18x85
1332	G1049	-8082	125.5	18x85	1392	G1109	-9162	125.5	18x85
1333	G1050	-8100	235.5	18x85	1393	G1110	-9180	235.5	18x85
1334	G1051	-8118	125.5	18x85	1394	G1111	-9198	125.5	18x85
1335	G1052	-8136	235.5	18x85	1395	G1112	-9216	235.5	18x85
1336	G1053	-8154	125.5	18x85	1396	G1113	-9234	125.5	18x85
1337	G1054	-8172	235.5	18x85	1397	G1114	-9252	235.5	18x85
1338	G1055	-8190	125.5	18x85	1398	G1115	-9270	125.5	18x85
1339	G1056	-8208	235.5	18x85	1399	G1116	-9288	235.5	18x85
1340	G1057	-8226	125.5	18x85	1400	G1117	-9306	125.5	18x85
1341	G1058	-8244	235.5	18x85	1401	G1118	-9324	235.5	18x85
1342	G1059	-8262	125.5	18x85	1402	G1119	-9342	125.5	18x85
1343	G1060	-8280	235.5	18x85	1403	G1120	-9360	235.5	18x85
1344	G1061	-8298	125.5	18x85	1404	G1121	-9378	125.5	18x85
1345	G1062	-8316	235.5	18x85	1405	G1122	-9396	235.5	18x85
1346	G1063	-8334	125.5	18x85	1406	G1123	-9414	125.5	18x85
1347	G1064	-8352	235.5	18x85	1407	G1124	-9432	235.5	18x85
1348	G1065	-8370	125.5	18x85	1408	G1125	-9450	125.5	18x85
1349	G1066	-8388	235.5	18x85	1409	G1126	-9468	235.5	18x85
1350	G1067	-8406	125.5	18x85	1410	G1127	-9486	125.5	18x85
1351	G1068	-8424	235.5	18x85	1411	G1128	-9504	235.5	18x85
1352	G1069	-8442	125.5	18x85	1412	G1129	-9522	125.5	18x85
1353	G1070	-8460	235.5	18x85	1413	G1130	-9540	235.5	18x85
1354	G1071	-8478	125.5	18x85	1414	G1131	-9558	125.5	18x85
1355	G1072	-8496	235.5	18x85	1415	G1132	-9576	235.5	18x85
1356	G1073	-8514	125.5	18x85	1416	G1133	-9594	125.5	18x85
1357	G1074	-8532	235.5	18x85	1417	G1134	-9612	235.5	18x85
1358	G1075	-8550	125.5	18x85	1418	G1135	-9630	125.5	18x85
1359	G1076	-8568	235.5	18x85	1419	G1136	-9648	235.5	18x85
1360	G1077	-8586	125.5	18x85	1420	G1137	-9666	125.5	18x85
1361	G1078	-8604	235.5	18x85	1421	G1138	-9684	235.5	18x85
1362	G1079	-8622	125.5	18x85	1422	G1139	-9702	125.5	18x85
1363	G1080	-8640	235.5	18x85	1423	G1140	-9720	235.5	18x85
1364	G1081	-8658	125.5	18x85	1424	G1141	-9738	125.5	18x85
1365	G1082	-8676	235.5	18x85	1425	G1142	-9756	235.5	18x85
1366	G1083	-8694	125.5	18x85	1426	G1143	-9774	125.5	18x85
1367	G1084	-8712	235.5	18x85	1427	G1144	-9792	235.5	18x85
1368	G1085	-8730	125.5	18x85	1428	G1145	-9810	125.5	18x85
1369	G1086	-8748	235.5	18x85	1429	G1146	-9828	235.5	18x85
1370	G1087	-8766	125.5	18x85	1430	G1147	-9846	125.5	18x85
1371	G1088	-8784	235.5	18x85	1431	G1148	-9864	235.5	18x85
1372	G1089	-8802	125.5	18x85	1432	G1149	-9882	125.5	18x85
1373	G1090	-8820	235.5	18x85	1433	G1150	-9900	235.5	18x85
1374	G1091	-8838	125.5	18x85	1434	G1151	-9918	125.5	18x85
1375	G1092	-8856	235.5	18x85	1435	G1152	-9936	235.5	18x85
1376	G1093	-8874	125.5	18x85	1436	G1153	-9954	125.5	18x85
1377	G1094	-8892	235.5	18x85	1437	G1154	-9972	235.5	18x85
1378	G1095	-8910	125.5	18x85	1438	G1155	-9990	125.5	18x85
1379	G1096	-8928	235.5	18x85	1439	G1156	-10008	235.5	18x85
1380	G1097	-8946	125.5	18x85	1440	G1157	-10026	125.5	18x85

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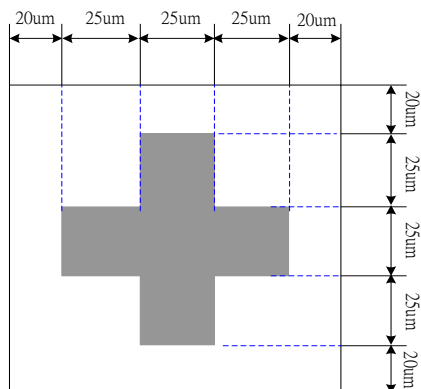
11. Bump Mask Information

- Chip size: 23650um × 670um(include scribe line : 80um)
- IC thickness : 300um ± 10um
- Bump height : 9um ± 3um
- Bump hardness: 75hv ± 15hv

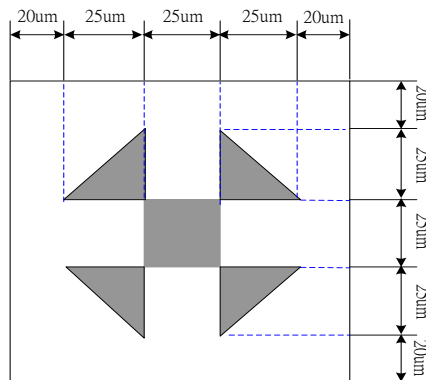


Pads Area	Pads Width x Height	Pin Description	Pads No	Total Pads
A.	70X32 (um x um)	Gate function,Left & Right side	1~30,252~281	60
B.	80X70 (um x um)	VSS and PATH3	31~251	221
C.	18X85 (um x um)	Gate Output	282~1485	1204

Alignment Mark type and coordinate



Alignment Mark: Left



Alignment Mark: Right

12. Revision History

Version No.	Date	Page	Description
0.01	2011/12/22	All	New set up
0.02	2012/1/12	15~16	AC Timing
0.03	2012/9/19	4 10~11 12 32	Pin Descriptions Output Sequence Timing Relationship between RL, STVR and STVL Bump Mask Information
0.04	2012/12/3	32	Bump Mask Informaion (add chip height)
0.05	2015/08/17	13	Chage red character to black.