DATA SHEET

NV3858GBC

1200 Channel TFT LCD Source Driver IC

NewVision Confidential

Version 0.3
Mar. 12, 2014

Contents

1. Features 3
2. General Descriptions 4
3. Block Diagram 5
3.1. Function Block Diagram 5
3.2. Application Block Diagram 6
4. Pin Function 10
4.1. Pin Descriptions 10
5. Operation Description 13
5.1. Relationship Between Input Data And Output Channels 13
5.2. The BIST Pattern For Aging Mode Test 14
6. Gamma Adjustment Function 15
6.1. Relationship Between Gamma Correction And Output Voltage 15
6.2. Gamma Correction Characteristic Curve 16
7. 3-wire Serial Peripheral Interface(SPI) 20
8. Power On/Off Sequence 21
8.1. Power On/Off Control 21
8.2. Enter And Exit Standby Mode Sequence 21
9. DC Characteristics 22
9.1. Absolute Maximum Rating(VSS=0V) 22
9.2. DC Electrical Characteristics (VSS=0V, TA=25℃) 22
10. AC Characteristics 23
10.1. AC Electrical Characteristics 23
10.2. Data Input Format 24
11. Wave Form 26
11.1. Timing Waveform Table 26
11.2. Timing Diagram 26
12. Pin Assignment(IC Face View) 28
12.1. Package Outline 29
12.2. Pad Information 30
Revision History 40

NewVision Confidential

1. Features

- Special design for small-sized color TFT LCD source drivers with timing controller.
- Integrated 1200 channel source driver.
- Support display resolutions: 800(RGB)*480,800(RGB)*600.
- Support 16M colors with 2-bits dithering.
- Support TTL 24-bit parallel (RGB) input timing.
- Support data inverted function for normally black LCD.
- Support dual-gate operation mode.
- Support delta or stripe color filter configuration.
- Support stand-by mode for low power consumption.
- Output dynamic range:0.1~VDDA-0.1V.
- Power for source driver voltage VDDA:6.5V~13.5V.
- Power for digital interface circuit VDD:2.7~3.6V.
- Operating frequency:50MHz (Max.).
- COG package.

NewVision Confidential

2. General Descriptions

NV3858GBC is a highly integrated 1200 channel outputs source driver with TTL interface Timing Controller for color TFT-LCD panels. NV3858GBC integrated source driver, timing controller and pin control interface.

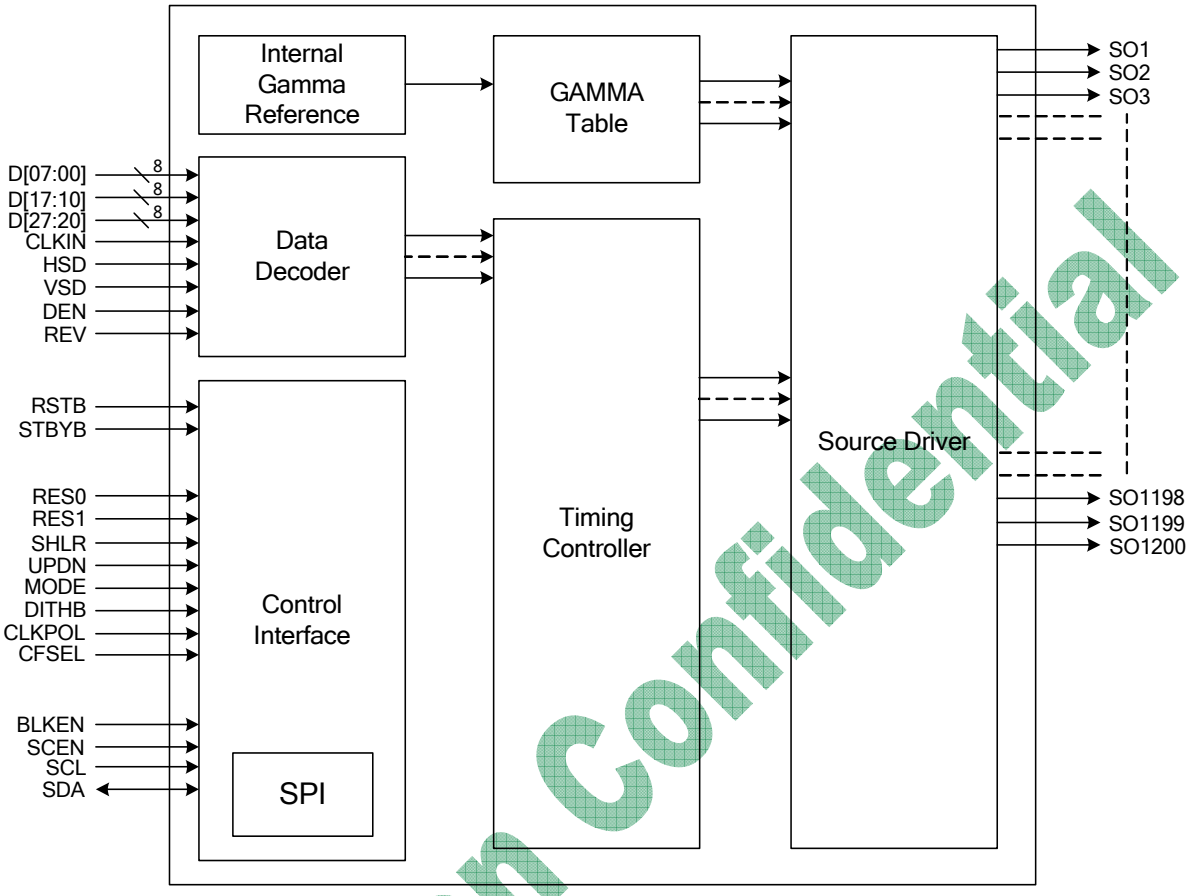
Input timing supports TTL digital 24-bit parallel RGB data format, and source output supports 16M colors with dithering features. Operating parameters can be set via pin control for all control features. Special circuit architecture is designed for low power dissipation.

NV3858GBC supports double gate operation mode.

NewVision Confidential

3. Block Diagram

3.1. Function Block Diagram



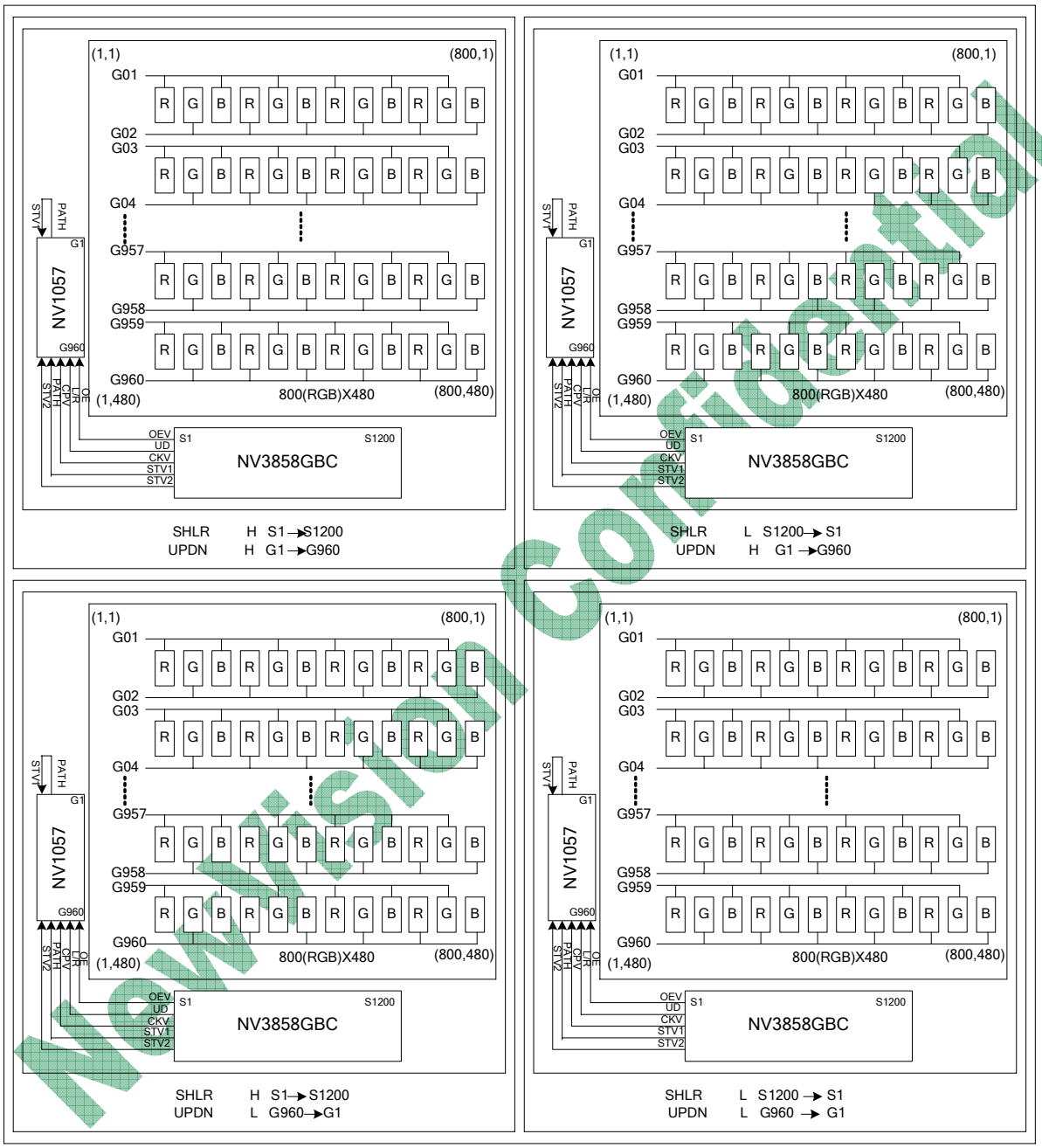
NewVision Confidential

3.2. Application Block Diagram

3.2.1. Dual Gate Application

800 (RGB) × 480 (Gate driver on left side)

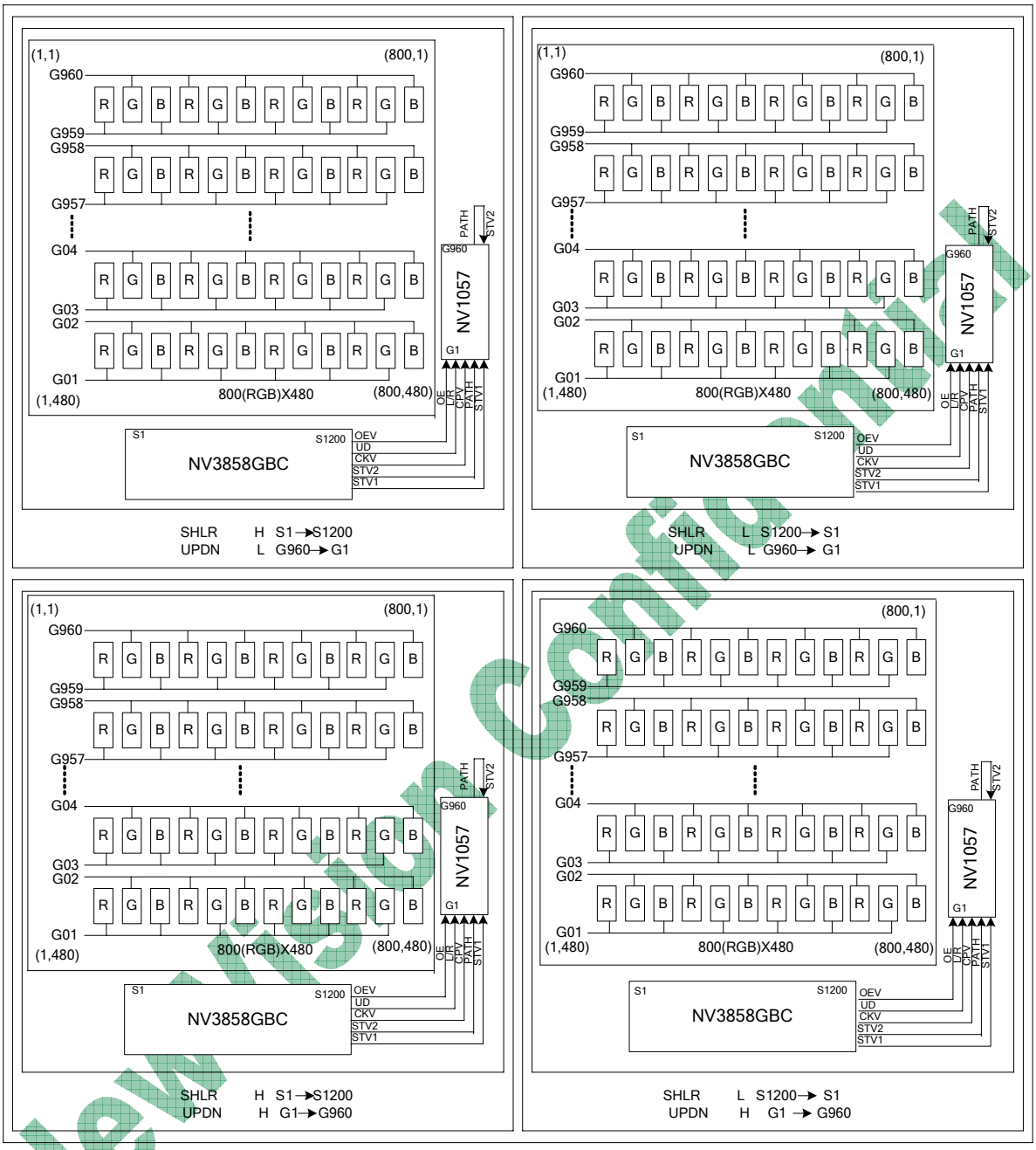
RES[1:0] = 00



New Vision Confidential

800 (RGB) × 480 (Gate driver on right side)

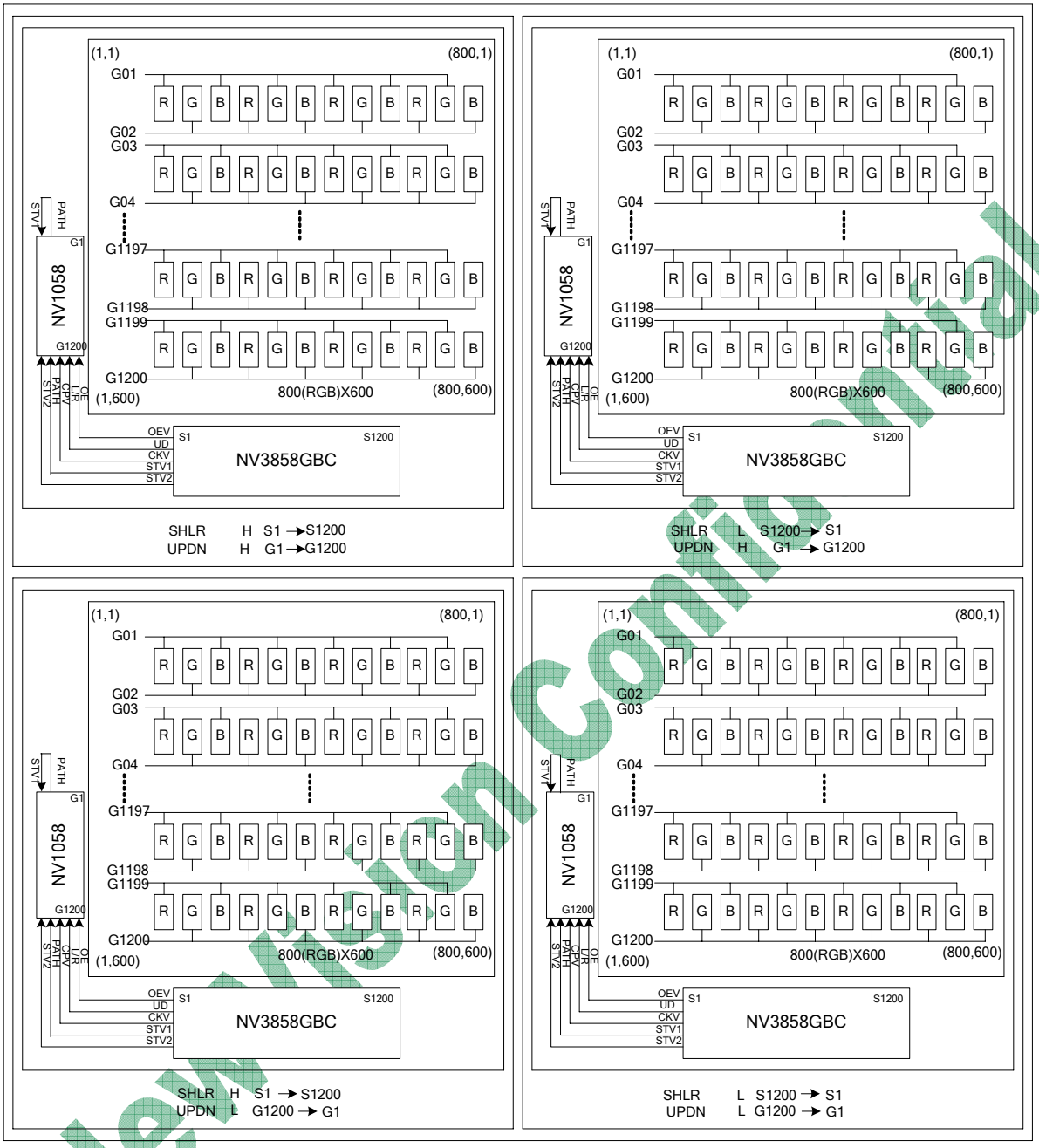
RES[1:0] = 00



New Vision Confidential

800（RGB）× 600 (Gate driver on left side)

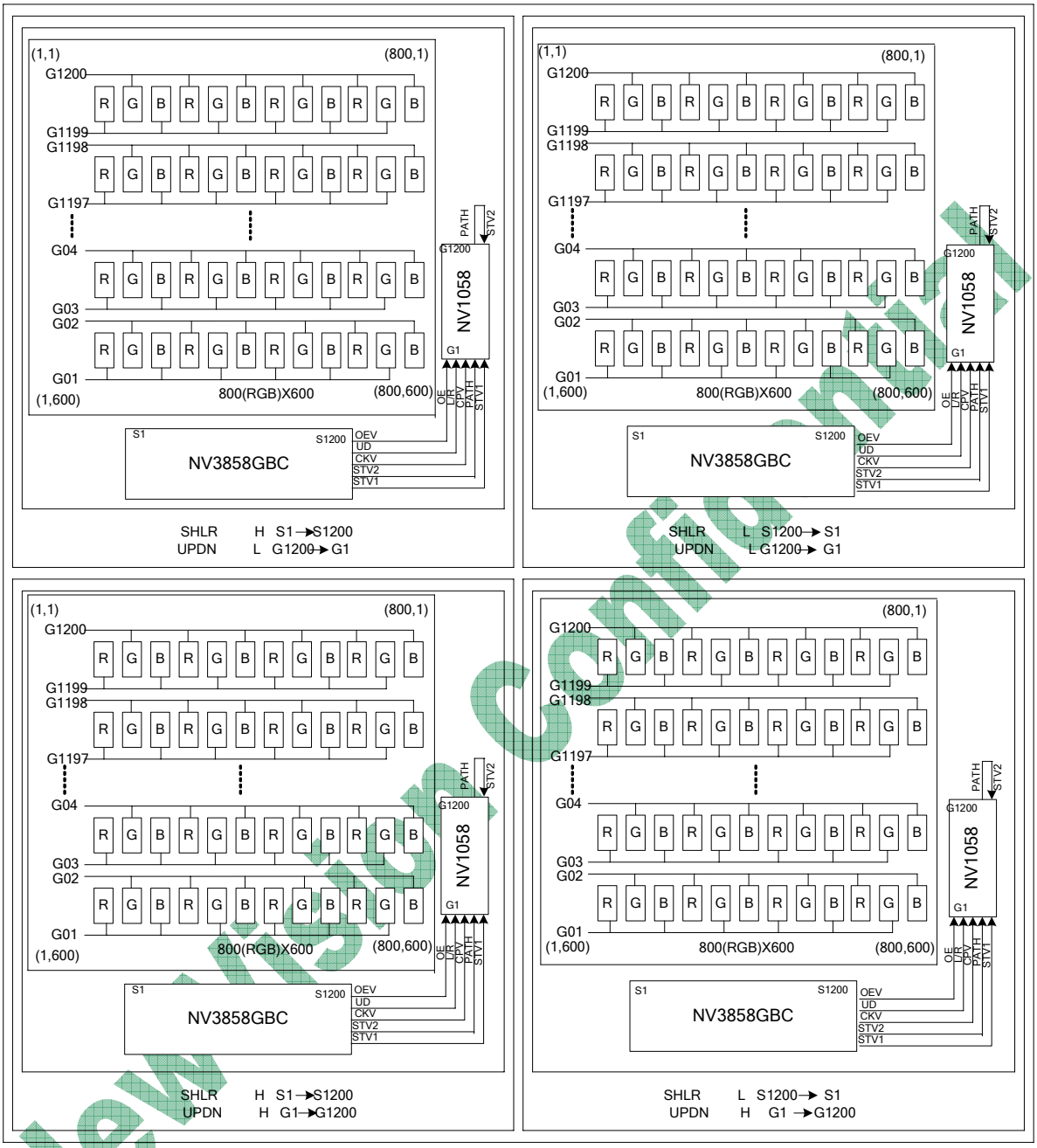
RES[1:0] = 01



New Vision Confidential

800（RGB）× 600 (Gate driver on right side)

RES[1:0] = 01



New Vision Confidential

4. Pin Function

4.1. Pin Descriptions

Signal	I/O	Descriptions
D07~D00 D17~D10 D27~D20	I	Parallel data input. For TTL 24-bit parallel RGB image data input. D[07:00]=R[7:0] data; D[17:10]=G[7:0] data; D[27:20]=B[7:0] data. For 18-bit RGB interface, connect two LSB bits of all the R/G/B databuses to VSS.
CLKIN	I	Clock for input data. Data latched at rising/falling edge of this signal. Default falling edge. Normally pull low.
HSD	I	Horizontal sync input. Negative polarity. Normally pull high.
VSD	I	Vertical sync input. Negative polarity. Normally pull high.
DEN	I	Data input enable. Active high to enable the data input bus under “DE Mode”. Normally pull low.
MODE	I	DE/SYNC mode select. Normally pull high. MODE=“1”: DE mode.(Default). MODE=“0”: HSD/VSD mode.
REV	I	Data inverted control. Normally pull low. REV=“1”: Data inverted for normally black LCD. REV=“0”: Data not inverted for normally white LCD. (Default)
RES[1:0]	I	Display resolution selection. Normally pull low. RES [1:0] = “00”: For 800(RGB)*480 display resolution. (Default) RES [1:0] = “01”: For 800(RGB)*600 display resolution.
SCEN	I	Serial Interface chip enable signal. Normally pull high. SCEN=“0”: The chip is selected (accessible). SCEN=“1”: The chip is not selected (inaccessible).(Default) Note: Fix to the VDD level if no used.
SCL	I	SPI clock pin. Normally pull high. Note: Fix to the VDD level if no used.
SDA	I/O	SPI data pin. Normally pull high. Note: Fix to the VDD level if no used.
DITHB	I	Dithering function enable control. Normally pull high. DITHB=“1”: Disable internal dithering function. (Default) DITHB=“0”: Enable internal dithering function.
CLKPOL	I	Input clock edge selection. Normally pull low. CLKPOL=“1”: Latch data at CLKIN rising edge. CLKPOL=“0”: Latch data at CLKIN falling edge.(Default)
CFSEL	I	Color filter type selection. Normally pull low. CFSEL=“0”: Stripe mode. (Default) CFSEL=“1”: Delta mode.
BLKEN	O	Backlight enable control signal for external controller. BLKEN=“1”: Logical control signal to turn on external backlight controller. BLKEN=“0”: Turn off external backlight controller. Note: Refer to the power on/off sequence for the detail information.

NewVision Confidential

RSTB	I	Global reset pin. Active low to enter Reset State. Suggest to connecting with an RC reset circuit for stability. Normally pull high.
STBYB	I	Standby mode. Normally pulled high. STBYB="1": Normally operation (Default) STBYB="0": Timing controller, source driver will turn off ,all output are High-Z.
SHLR	I	Source Right or Left sequence control. Normally pulled high. SHLR="0": Shift left: last data=S1 ← S2 ← S3..... ←S1200=first data. SHLR="1": Shift right: first data=S1→S2→S3.....→S1200=last data.
UPDN	I	Gate up or down scan control. Normally pulled low. UPDN="0": STV2 output vertical start pulse and UD pin output logical"0" to gate driver. (Default) UPDN="1": STV1 output vertical start pulse and UD pin output logical "1" to gate driver.
BIST	I	Normal operation/BIST pattern select. Normally pull low. BIST="1": BIST (DCLK input is not needed.). BIST="0": Normal operation. (Default)
DUMMY	-	Dummy pin.
VDDA	PI	Power supply for HV circuits.
VSSA	PI	Ground pins for HV circuits.
VDD	PI	Power supply for LV circuits.
VSS	PI	Ground pins for LV circuits.
SO1~SO1200	O	Source driver output signals. All outputs will be of unknown values under stand-by mode.
ALIGN	M	For assembly alignment.
COM1_B COM2_B	S	Internal link together between input side and output side.
COM1_T COM2_T	S	Internal link together between input side and output side.
SHIELDING	SH	IC shielding pads. Those pins are internally connected to the VSSA Do not connect to any WOA on the panel.
DASHD1~DASHD17	SG	Data bus shielding pad. Those pins are internally connected to the VSS. Recommend to add shielding lines on the FPC to reduce EMI.

Note:

I: Input, **O** : Output, **I/O** ; Input/Output, **PI**: Power input, **PO**: Power Output, **T**: Testing, **SH**: Shielding, **D**: Dummy, **S:** Shorted line.

New Vision Confidential

NV3858GBC passes description

Pass Line No.	Pin Name	
1	COM1_B	COM1_T
2	COM2_B	COM2_T

Value of wiring resistance to each pin

The recommended wiring resistance values are shown below. The wiring resistance values affect.

The current capacity of the power supply, so be sure to design using values that do not exceed those recommended.

Pin Name	Wiring resistance value
VDD	<25
VDDA	<5
VSS	<25
VSSA	<5
D00~D07	<200
D10~D17	<200
D20~D27	<200
DEN	<200
MODE	<1000
RES[1:0]	<1000
DITHB	<1000
CLKPOL	<1000
BLKEN	<1000
CFSEL	<1000
RSTB	<1000
SHLR	<1000
UPDN	<1000
BIST	<1000
SCEN	<200
SCL	<200
SDA	<200
CLKIN	<50
HSD	<200
VSD	<200

NewVision Confidential

5. Operation Description

5.1. Relationship Between Input Data And Output Channels

CFSEL="0", stripe mode

a) SHLR="1", right shift.

Output	Out1	Out2	Out3	…	…	…	Out1198	Out1199	Out1200
Order	First Data			→	→	→	Last Data		
Odd line/Gn	D07~D00	D27~D20	D17~D10	…	…	…	D07~D00	D27~D20	D17~D10
Odd line/Gn+1	D17~D10	D07~D00	D27~D20	…	…	…	D17~D10	D07~D00	D27~D20
Even line/Gn	D07~D00	D27~D20	D17~D10	…	…	…	D07~D00	D27~D20	D17~D10
Even line/Gn+1	D17~D10	D07~D00	D27~D20	…	…	…	D17~D10	D07~D00	D27~D20

b) SHLR="0", left shift.

Output	Out1	Out2	Out3	…	…	…	Out1198	Out1199	Out1200
Order	Last Data			←	←	←	First Data		
Odd line/Gn	D07~D00	D27~D20	D17~D10	…	…	…	D07~D00	D27~D20	D17~D10
Odd line/Gn+1	D17~D10	D07~D00	D27~D20	…	…	…	D17~D10	D07~D00	D27~D20
Even line/Gn	D07~D00	D27~D20	D17~D10	…	…	…	D07~D00	D27~D20	D17~D10
Even line/Gn+1	D17~D10	D07~D00	D27~D20	…	…	…	D17~D10	D07~D00	D27~D20

CFSEL="1", delta mode

c) SHLR="1", right shift.

Output	Out1	Out2	Out3	…	…	…	Out1198	Out1199	Out1200
Order	First Data			→	→	→	Last Data		
Odd line/Gn	D07~D00	D27~D20	D17~D10	…	…	…	D07~D00	D27~D20	D17~D10
Odd line/Gn+1	D17~D10	D07~D00	D27~D20	…	…	…	D17~D10	D07~D00	D27~D20
Even line/Gn	D17~D10	D07~D00	D27~D20	…	…	…	D17~D10	D07~D20	D27~D20
Even line/Gn+1	D27~D20	D17~D10	D07~D20	…	…	…	D27~D20	D17~D10	D07~D00

d) SHLR="0", left shift.

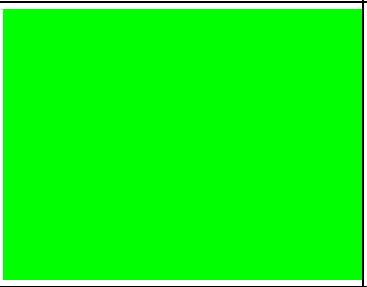
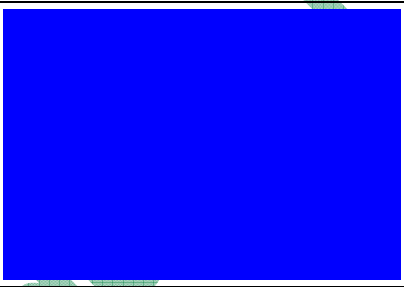
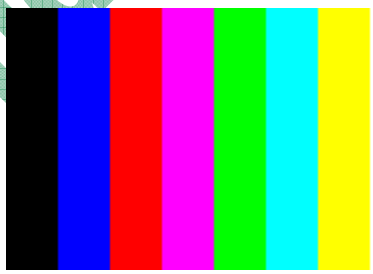
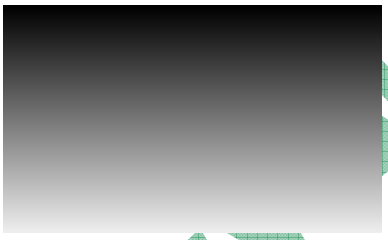
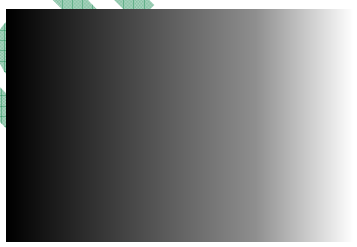
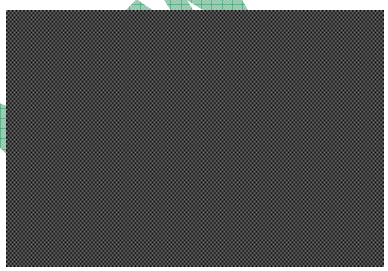
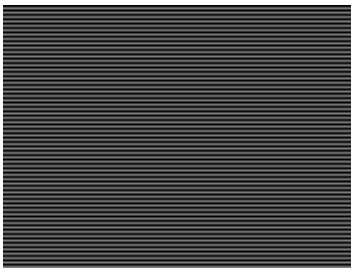
Output	Out1	Out2	Out3	…	…	…	Out1198	Out1199	Out1200
Order	Last Data			←	←	←	First Data		
Odd line/Gn	D07~D00	D27~D20	D17~D10	…	…	…	D07~D00	D27~D20	D17~D10
Odd line/Gn+1	D17~D10	D07~D00	D27~D20	…	…	…	D17~D10	D07~D00	D27~D20
Even line/Gn	D17~D10	D07~D00	D27~D20	…	…	…	D17~D10	D07~D00	D27~D20
Even line/Gn+1	D27~D20	D17~D10	D07~D00	…	…	…	D27~D20	D17~D10	D07~D00

NewVision Confidential

5.2. The BIST Pattern For Aging Mode Test

NV3858GBC supports BIST pattern for aging mode test automatically. When external BIST pin set to “H” level, then NV3858GBC will leave normal operation mode and starts to generate the BIST pattern to LCD panel without external clock signal.

The BIST pattern is illustrated as below:

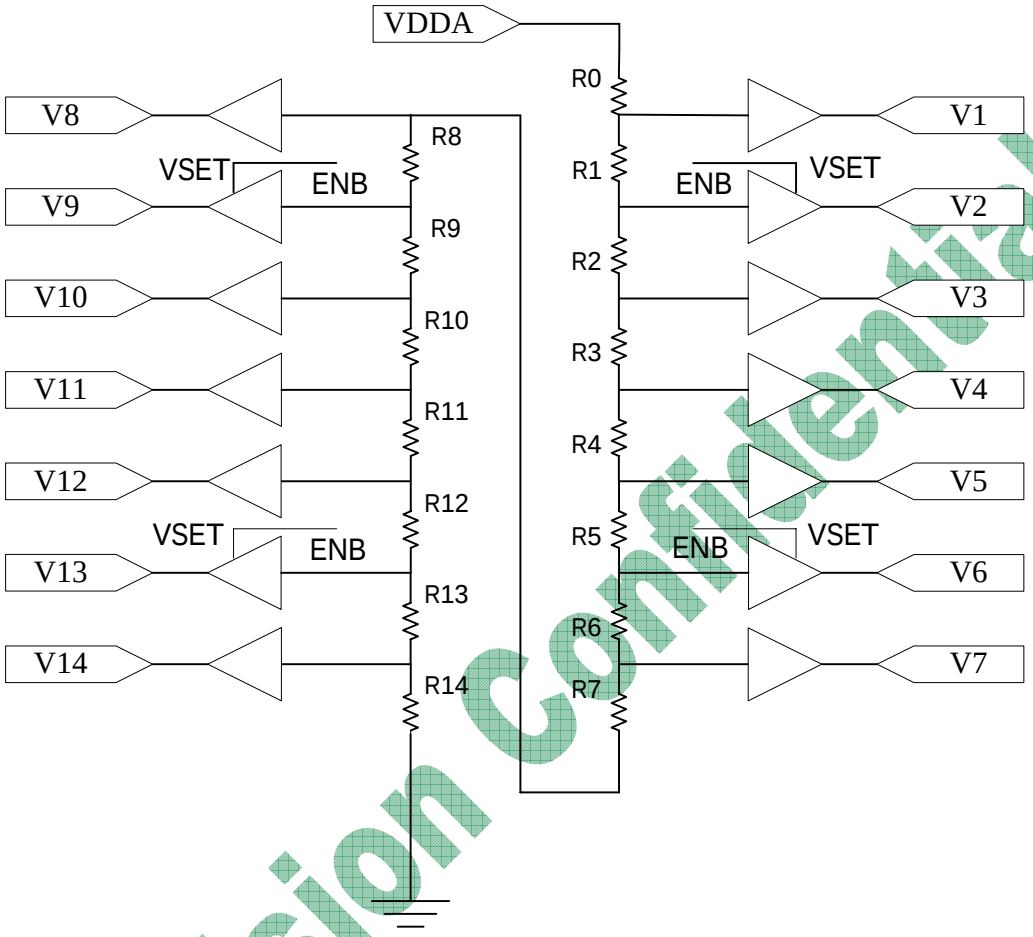
Red	Green	Blue
		
Black	**White**	**Color Bar**
		
Vertical 64 gray scale	**Horizontal 64 gray scale**	**Gray with black block**
		
Gray with black dot	**Gray with black line**	**Black with while frame**
		

New Vision Confidential

6. Gamma Adjustment Function

6.1. Relationship Between Gamma Correction And Output Voltage

NV3858GBC supports gamma voltage generator circuit for V1~V14 gamma correction reference voltage.



New Vision Confidential

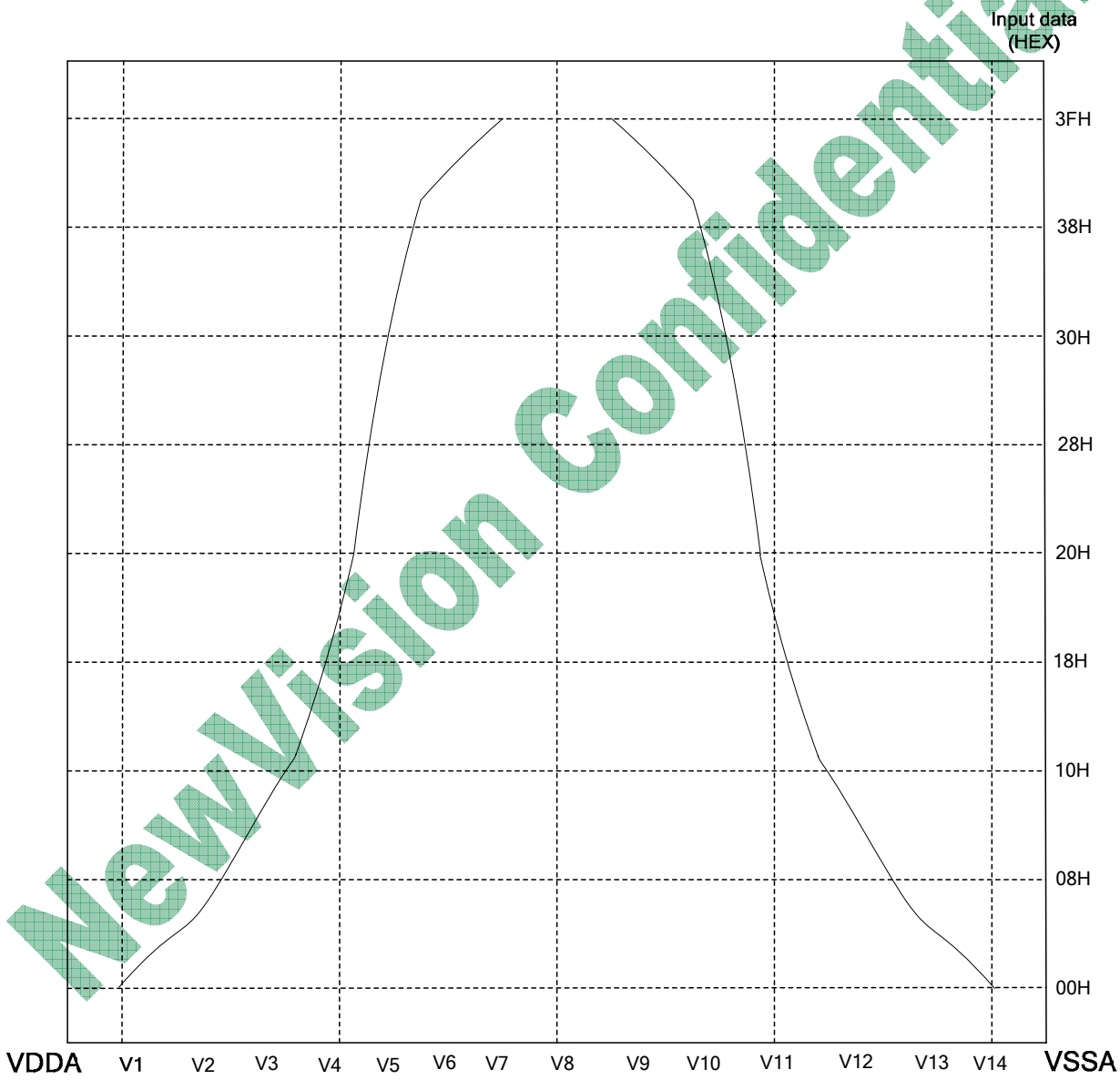
Gamma voltage correction resistor ratio:

Name	Resistor	Symbol	Voltage (V)
R0	1830	V0	10.3
R1	206	V1	8.395
R2	1105	V2	8.181
R3	647	V3	7.03
R4	317	V4	6.357
R5	521	V5	6.027
R6	853	V6	5.485
R7	521	V7	4.597
R8	822	V8	4.054
R9	506	V9	3.199
R10	394	V10	2.672
R11	458	V11	2.262
R12	1264	V12	1.785
R13	222	V13	0.469
R14	229	V14	0.238

NV3858GBC supports normally white or normally black LCD depend on REV function pin. The output voltage is determined by the 6-bit DAC input data, and the V1 ~ V14 gamma correction reference voltage.

Input code	Normally white LCD REV = L	Normally black LCD REV = H
00H	00H	35H
0AH	0AH	35H
35H	35H	0AH
3FH	3FH	00H

6.2. Gamma Correction Characteristic Curve



Gamma correction characteristic curve

NewVision Confidential

14 gamma voltage select

Gamma correction resistor ratio:

Name	Resistor P	Resistor N	Name	Resistor P	Resistor N
R0	9.6	9.6	R32	1.4	0.8
R1	8.4	8.4	R33	1.2	0.8
R2	7.6	7.6	R34	1	0.8
R3	6.4	6.4	R35	0.9	0.8
R4	5.2	5.2	R36	0.8	0.8
R5	4.4	4.4	R37	0.8	0.8
R6	3.6	3.6	R38	0.8	0.8
R7	2.8	2.8	R39	0.8	0.8
R8	2.4	2.4	R40	0.8	0.8
R9	2.4	2.4	R41	0.8	0.8
R10	2	2	R42	0.8	0.8
R11	2	1.8	R43	0.8	0.8
R12	2	1.6	R44	0.8	0.8
R13	2	1.6	R45	0.8	0.8
R14	2	1.6	R46	0.8	0.8
R15	2.2	1.6	R47	0.8	0.8
R16	1.2	1.2	R48	0.8	0.9
R17	1.2	1.2	R49	0.8	0.8
R18	1.2	1.2	R50	0.8	0.8
R19	1.2	1.2	R51	0.8	0.8
R20	1.2	1.2	R52	0.9	0.9
R21	1.1	1.1	R53	1	1
R22	1	1	R54	1.2	1.2
R23	0.9	0.9	R55	1.2	1.2
R24	0.8	0.8	R56	1.4	1.4
R25	0.8	0.8	R57	1.6	1.6
R26	0.8	0.8	R58	1.6	1.6
R27	0.8	0.8	R59	2	2
R28	0.8	0.8	R60	2.4	2.4
R29	0.8	0.8	R61	4	4
R30	0.8	0.8	R62	32.8	32.8
R31	0.8	0.8			

V1,V14 → R0
V2,V13 → R1
V3,V12 → R15
V4,V11 → R31
← V4,V11 R32
← V5,V10 R47
← V6,V9 R61
← V7,V8 R62

New Vision Confidential

Output Voltages vs. Source Input Data
14 gamma voltage select:

Data	Positive polarity Output Voltage	Negative polarity Output Voltage
00H	V1	V14
01H	V2	V13
02H	V3 + (V2 －V3)X 47 / 55.4	V13 + (V12 －V13)X 8.4 / 53.4
03H	V3 + (V2 －V3)X 39.4 / 55.4	V13 + (V12 －V13)X 16 / 53.4
04H	V3 + (V2 －V3)X 33 / 55.4	V13 + (V12 －V13)X 22.4 / 53.4
05H	V3 + (V2 －V3)X 27.8 / 55.4	V13 + (V12 －V13)X 27.6 / 53.4
06H	V3 + (V2 －V3)X 23.4 / 55.4	V13 + (V12 －V13)X 32 / 53.4
07H	V3 + (V2 －V3)X 19.8 / 55.4	V13 + (V12 －V13)X 35.6 / 53.4
08H	V3 + (V2 －V3)X 17 / 55.4	V13 + (V12 －V13)X 38.4 / 53.4
09H	V3 + (V2 －V3)X 14.6 / 55.4	V13 + (V12 －V13)X 40.8 / 53.4
0AH	V3 + (V2 －V3)X 12.2 / 55.4	V13 + (V12 －V13)X 43.2 / 53.4
0BH	V3 + (V2 －V3)X 10.2 / 55.4	V13 + (V12 －V13)X 45.2 / 53.4
0CH	V3 + (V2 －V3)X 8.2 / 55.4	V13 + (V12 －V13)X 47 / 53.4
0DH	V3 + (V2 －V3)X 6.2 / 55.4	V13 + (V12 －V13)X 48.6 / 53.4
0EH	V3 + (V2 －V3)X 4.2 / 55.4	V13 + (V12 －V13)X 50.2 / 53.4
0FH	V3 + (V2 －V3)X 2.2 / 55.4	V13 + (V12 －V13)X 51.8 / 53.4
10H	V3	V12
11H	V4 + (V3 －V4) X 14.2 / 15.4	V12 + (V11 －V12)X 1.2 / 15.4
12H	V4 + (V3 －V4) X 13 / 15.4	V12 + (V11 －V12)X 2.4 / 15.4
13H	V4 + (V3 －V4) X 11.8 / 15.4	V12 + (V11 －V12)X 3.6 / 15.4
14H	V4 + (V3 －V4) X 10.6 / 15.4	V12 + (V11 －V12)X 4.8 / 15.4
15H	V4 + (V3 －V4) X 9.4 / 15.4	V12 + (V11 －V12)X 6 / 15.4
16H	V4 + (V3 －V4) X 8.3 / 15.4	V12 + (V11 －V12)X 7.1 / 15.4
17H	V4 + (V3 －V4) X 7.3 / 15.4	V12 + (V11 －V12)X 8.1 / 15.4
18H	V4 + (V3 －V4) X 6.4 / 15.4	V12 + (V11 －V12)X 9 / 15.4
19H	V4 + (V3 －V4) X 5.6 / 15.4	V12 + (V11 －V12)X 9.8 / 15.4
1AH	V4 + (V3 －V4) X 4.8 / 15.4	V12 + (V11 －V12)X 10.6 / 15.4
1BH	V4 + (V3 －V4) X 4 / 15.4	V12 + (V11 －V12)X 11.4 / 15.4
1CH	V4 + (V3 －V4) X 3.2 / 15.4	V12 + (V11 －V12)X 12.2 / 15.4
1DH	V4 + (V3 －V4) X 2.4 / 15.4	V12 + (V11 －V12)X 13 / 15.4
1EH	V4 + (V3 －V4) X 1.6 / 15.4	V12 + (V11 －V12)X 13.8 / 15.4
1FH	V4 + (V3 －V4) X 0.8 / 15.4	V12 + (V11 －V12)X 14.6 / 15.4

NewVision Confidential

Output Voltages vs. Source Input Data (continued)
14 gamma voltage select:

Data	Positive polarity Output Voltage	Negative polarity Output Voltage
20H	V4	V11
21H	V5 + (V4 －V5) X 12.7 / 14.1	V11 + (V10 －V11) X 0.8 / 12.8
22H	V5 + (V4 －V5) X 11.5 / 14.1	V11 + (V10 －V11) X 1.6 / 12.8
23H	V5 + (V4 －V5) X 10.5 / 14.1	V11 + (V10 －V11) X 2.4 / 12.8
24H	V5 + (V4 －V5) X 9.6 / 14.1	V11 + (V10 －V11) X 3.2 / 12.8
25H	V5 + (V4 －V5) X 8.8 / 14.1	V11 + (V10 －V11) X 4 / 12.8
26H	V5 + (V4 －V5) X 8 / 14.1	V11 + (V10 －V11) X 4.8 / 12.8
27H	V5 + (V4 －V5) X 7.2 / 14.1	V11 + (V10 －V11) X 5.6 / 12.8
28H	V5 + (V4 －V5) X 6.4 / 14.1	V11 + (V10 －V11) X 6.4 / 12.8
29H	V5 + (V4 －V5) X 5.6 / 14.1	V11 + (V10 －V11) X 7.2 / 12.8
2AH	V5 + (V4 －V5) X 4.8 / 14.1	V11 + (V10 －V11) X 8 / 12.8
2BH	V5 + (V4 －V5) X 4 / 14.1	V11 + (V10 －V11) X 8.8 / 12.8
2CH	V5 + (V4 －V5) X 3.2 / 14.1	V11 + (V10 －V11)X 9.6 / 12.8
2DH	V5 + (V4 －V5) X 2.4 / 14.1	V11 + (V10 －V11)X 10.4 / 12.8
2EH	V5 + (V4 －V5) X 1.6 / 14.1	V11 + (V10 －V11) X 11.2 / 12.8
2FH	V5 + (V4 －V5) X 0.8 / 14.1	V11 + (V10 －V11) X 12 / 12.8
30H	V5	V10
31H	V6 + (V5 －V6) X 19.7 / 20.5	V10 + (V9 －V10) X 0.9 / 20.6
32H	V6 + (V5 －V6) X 18.9 / 20.5	V10 + (V9 －V10) X 1.7 / 20.6
33H	V6 + (V5 －V6) X 18.1 / 20.5	V10 + (V9 －V10) X 2.5 / 20.6
34H	V6 + (V5 －V6) X 17.3 / 20.5	V10 + (V9 －V10) X 3.3 / 20.6
35H	V6 + (V5 －V6) X 16.4 / 20.5	V10 + (V9 －V10) X 4.2 / 20.6
36H	V6 + (V5 －V6) X 15.4 / 20.5	V10 + (V9 －V10) X 5.2 / 20.6
37H	V6 + (V5 －V6) X 14.2 / 20.5	V10 + (V9 －V10) X 6.4 / 20.6
38H	V6 + (V5 －V6) X 13 / 20.5	V10 + (V9 －V10) X 7.6 / 20.6
39H	V6 + (V5 －V6) X 11.6 / 20.5	V10 + (V9 －V10) X 9 / 20.6
3AH	V6 + (V5 －V6) X 10 / 20.5	V10 + (V9 －V10) X 10.6 / 20.6
3BH	V6 + (V5 －V6) X 8.4 / 20.5	V10 + (V9 －V10) X 12.2 / 20.6
3CH	V6 + (V5 －V6) X 6.4 / 20.5	V10 + (V9 －V10) X 14.2 / 20.6
3DH	V6 + (V5 －V6) X 4 / 20.5	V10 + (V9 －V10) X 16.6 / 20.6
3EH	V6	V9
3FH	V7	V8

New Vision Confidential

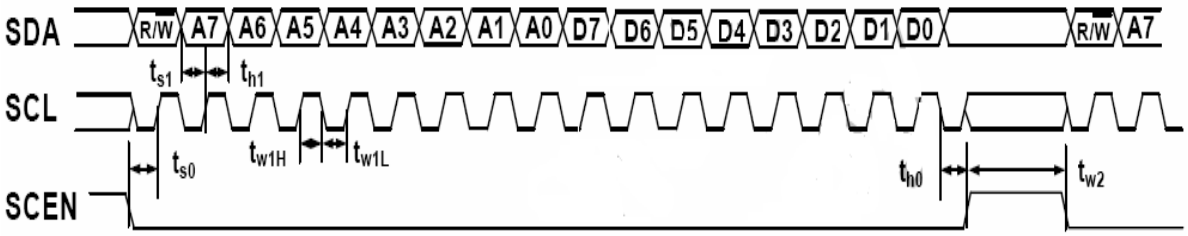
7. 3-wire Serial Peripheral Interface(SPI)

The NV3858GBC supports the 3-pin serial peripheral interface (SPI) to set internal register. The data is written to the register of assigned address when "End of transfer" is detected after the 17th SCL rising cycles.

Data is not accepted if there are less or more than 17 cycles for one transaction. Only when SCL is input 17 times and SCEN is in the "Low" period simultaneously, SDA is accepted. It needs DCLK input for SDA setting. SDA, SCL, SCEN can be floating.

The first bit means Read/Write command. "0" is WRITE. "1" is READ. And the next 8 bits (A7 ~ A0) specify the address of the register. And the last 8 bits are for Data setting (D7 ~D0). The address and data are transferred from the MSB to LSB sequentially. And next cycle is turn-round cycle.

Before counting 17 SCL and after counting 17 SCL, SCEN should keep 0V.



Serial interface timing parameter

Item	Symbol	Conditions	Spec.			Unit
			Min.	Typ.	Max.	
SDA Setup Time	t_{s0}	SCEN to SCL	60	-	-	ns
	t_{s1}	SDA to SCL	60	-	-	ns
SDA Hold Time	t_{h0}	SCEN to SCL	70	-	-	ns
	t_{h1}	SDA to SCL	60	-	-	ns
Pulse Width	t_{W1L}	SCL pulse width	75	-	-	ns
	t_{W1H}	SCL pulse width	75	-	-	ns
	t_{W2}	SCEN pulse width	1.0	-	-	us
Clock duty	-		40	50	60	%

Serial interface timing parameter

NewVision Confidential

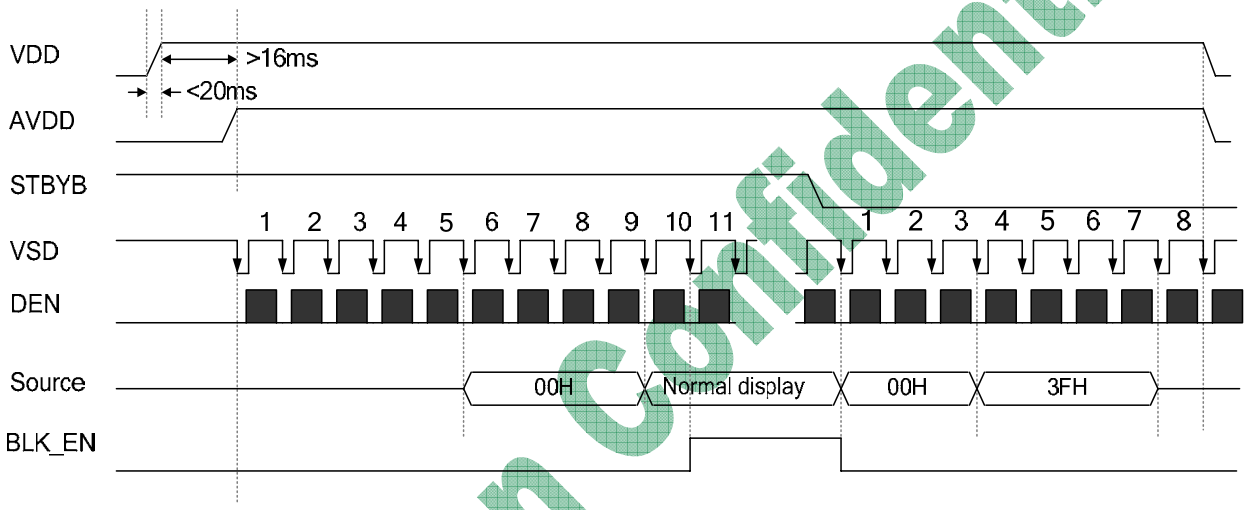
8. Power On/Off Sequence

To prevent the device damage from latch up, the power on/off sequence shown below must be followed.

Power ON: VDD,VSS →VDDA,VSSA
Power OFF: VDDA,VSSA→VDD,VSS

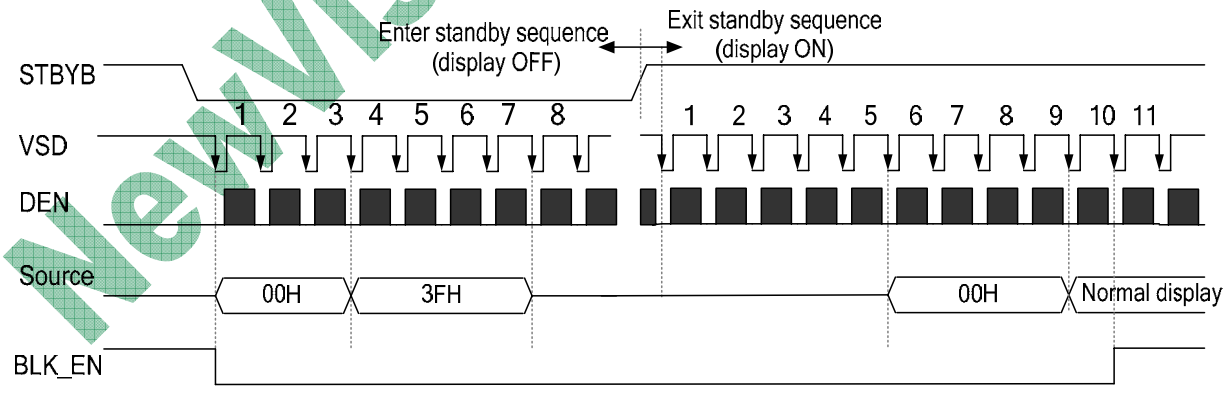
8.1. Power On/Off Control

NV3858GBC has a power on/off sequence control function. In order to prevent IC from power on reset fail, the rising time (T_{POR}) of the digital power supply VDD should be maintained within the given specifications. Please refer to “AC Characteristics” for more detail on timing.



Power on/off timing sequence

8.2. Enter And Exit Standby Mode Sequence



Enter and exit standby mode sequence

NewVision Confidential

9. DC Characteristics

9.1. Absolute Maximum Rating(VSS=0V)

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Power supply voltage 1	VDD	-0.5	-	+3.96	V
Power supply voltage 2	VDDA	-0.5	-	+14.85	V
Logic output voltage	V_{OUT}	-0.5	-	+5.0	V
Input voltage	V_{IN}	-0.5	-	VDDA+0.5	V
Operation temperature	T_{OPR}	-30	-	+85	℃
Storage temperature	T_{STG}	-55	-	+125	℃

Note:

(1) All of the voltages listed above are with respective to VSS=0V.

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

9.2. DC Electrical Characteristics (VSS=0V, TA=25℃)

Parameter	Symbol	Spec.			Unit	Condition
		Min.	Typ.	Max.		
Power supply voltage	VDD	2.7	3.3	3.6	V	-
Power supply voltage	VDDA	6.5	-	13.5	V	-
Low level input voltage	V_{IL}	0	-	0.3VDD	V	For digital circuit
High level input voltage	V_{IH}	0.7VDD	-	VDD	V	For digital circuit
Output low voltage	V_{OL}	-	-	VSS+0.4	V	I_{OL}=400uA
Output high voltage	V_{OH}	VDD-0.4	-	-	V	I_{OH}=-400uA
Pull low/high resistance	Ri	200	250	300	kΩ	For the digital input pin @VDD=3.3V
Input leakage current	li	-	-	±1	uA	For digital circuit
Digital operation current	Idd		6	14	mA	Dual gate mode, Fclk=50MHz,LD=48KHz,VDD=3.3V,No load
Digital stand-by current	Ist1	-	10	50	uA	Clock& all functions are stopped
Analog operating current	Idda	-	6	8	mA	No load, Fclk=50MHz, FLD=48KHz@VDDA=10V,V1=8V ,V14=0.4V
Analog Stand-by current	Ist2	-	10	50	uA	No load, clock& all functions are stopped
Input level of V1~V7	Vref1	0.4VDDA	-	VDDA-1	V	Gamma correction voltage input
Input level of V8~V14	Vref2	0.1	-	0.6VDDA	V	Gamma correction voltage input
Output Voltage deviation	Vod1	-	±20	±35	mV	Vo=VSSA+0.1V~VSSA+0.5V& Vo=VSSA-0.5V~VDDA-0.1V
Output Voltage deviation	Vod2	-	±15	±20	mV	Vo=VSSA+0.5V~VDDA-0.5V
Output voltage offset between Chips	Voc	-	-	±20	mV	Vo=VSSA+0.5V~VDDA-0.5V
Dynamic Range of Output	Vdr	0.1	-	VDDA-0.1	V	SO1~SO1200
Sinking Current of Outputs	IOLy	80	-	-	uA	SO1~SO1200;Vo=0.1V vs.1.0V, VDDA=13.5V
Driving Current of Outputs	IOHy	80	-	-	uA	SO1~SO1200;Vo=0.1V vs.12.5V, VDDA=13.5V
Resistance of Gamma Table	Rg	0.7Rn	1.0Rn	1.3*Rn	Ω	Rn: Internal gamma resistor

New Vision Confidential

10. AC Characteristics

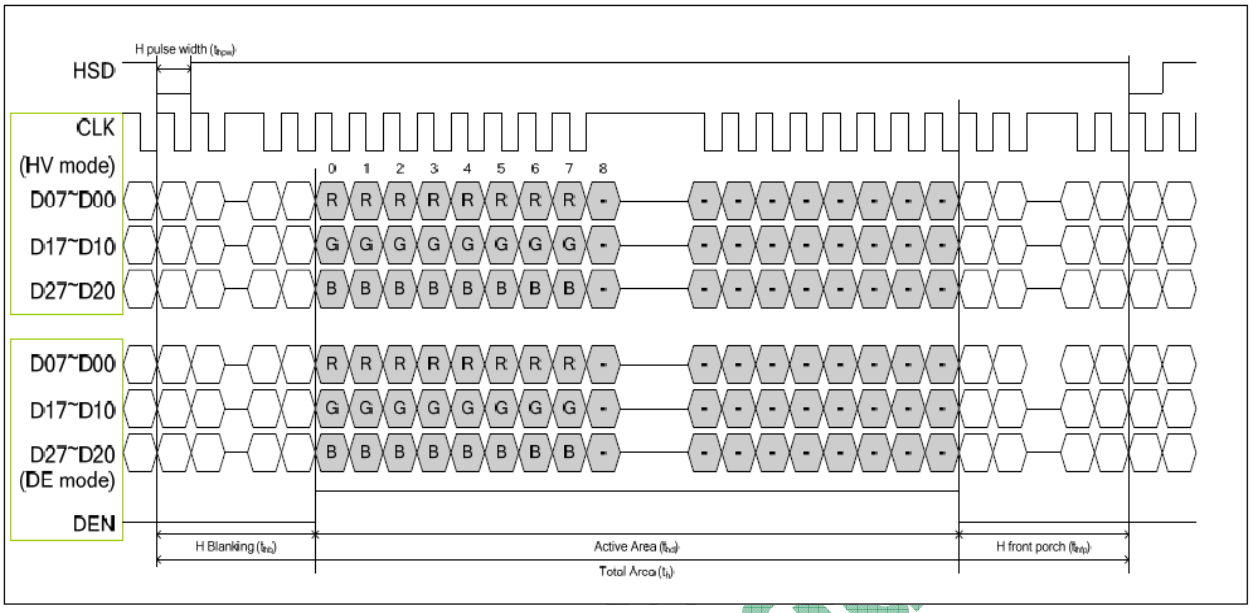
10.1. AC Electrical Characteristics

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
HS setup time	Thst	8	-	-	ns
HS hold time	Thhd	8	-	-	ns
VS setup time	Tvst	8	-	-	ns
VS hold time	Tvhd	8	-	-	ns
Data setup time	Tdsu	8	-	-	ns
Data hold time	Tdhd	8		-	ns
DE setup time	Tesu	8		-	ns
DE hold time	Tehd	8	-	-	ns
VDD Power On Slew rate	T_{POR}	-	-	20	ms
RSTB pulse width	T_{Rst}	10	-	-	μs
CLKIN cycle time	Tcph	20	-	-	ns
CLKIN pulse duty	Tcwh	40	50	60	%
Output stable time	Tsst	-	-	6	us

NewVision Confidential

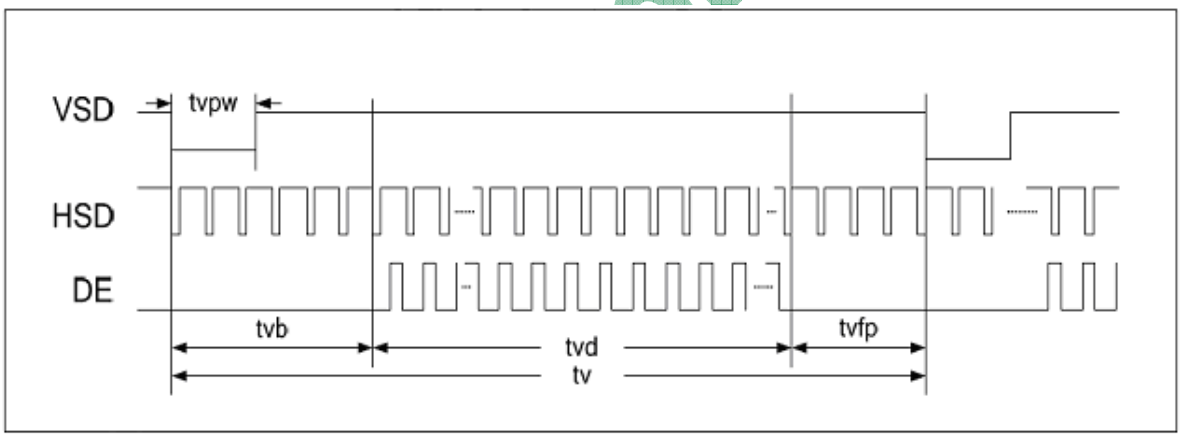
10.2. Data Input Format

Horizontal timing



Horizontal input timing diagram

Vertical timing



Vertical input timing diagram

Resolution:800(RGB)×480

Horizontal timing

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Horizontal Display Area	thd		800		DCLK
DCLK frequency	fclk	-	30	50	MHz
One Horizontal Line	th	889	928	1143	DCLK
HS pulse width	thpw	1	48	255	DCLK
HS Back Porch (Blanking)	thb		88		DCLK
HS Front Porch	thfp	1	40	255	DCLK
DE mode Blanking	th-thd	85	128	512	DCLK

Vertical timing

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Vertical Display Area	tvd		480		T_H
VS period time	tv	513	525	767	T_H
VS pulse width	tvpw	3	3	255	T_H
VS Back Porch (Blanking)	tvb		32		T_H
VS Front Porch	tvfp	1	13	255	T_H
DE mode Blanking	tv-tvd	4	45	255	T_H

Resolution:800(RGB)X600

Horizontal timing

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Horizontal Display Area	thd		800		DCLK
DCLK frequency	fclk	-	40	50	MHz
One Horizontal Line	th	889	1000	1143	DCLK
HS pulse width	thpw	1	48	255	DCLK
HS Back Porch (Blanking)	thb		88		DCLK
HS Front Porch	thfp	1	112	255	DCLK
DE mode Blanking	th-thd	85	200	512	DCLK

Vertical timing

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Vertical Display Area	tvd		600		T_H
VS period time	tv	640	T_H	943	T_H
VS pulse width	tvpw	3	T_H	255	T_H
VS Back Porch (Blanking)	tvb		39		T_H
VS Front Porch	tvfp	1	T_H	255	T_H
DE mode Blanking	tv-tvd	4	T_H	255	T_H

New Vision Confidential

11. Wave Form

11.1. Timing Waveform Table

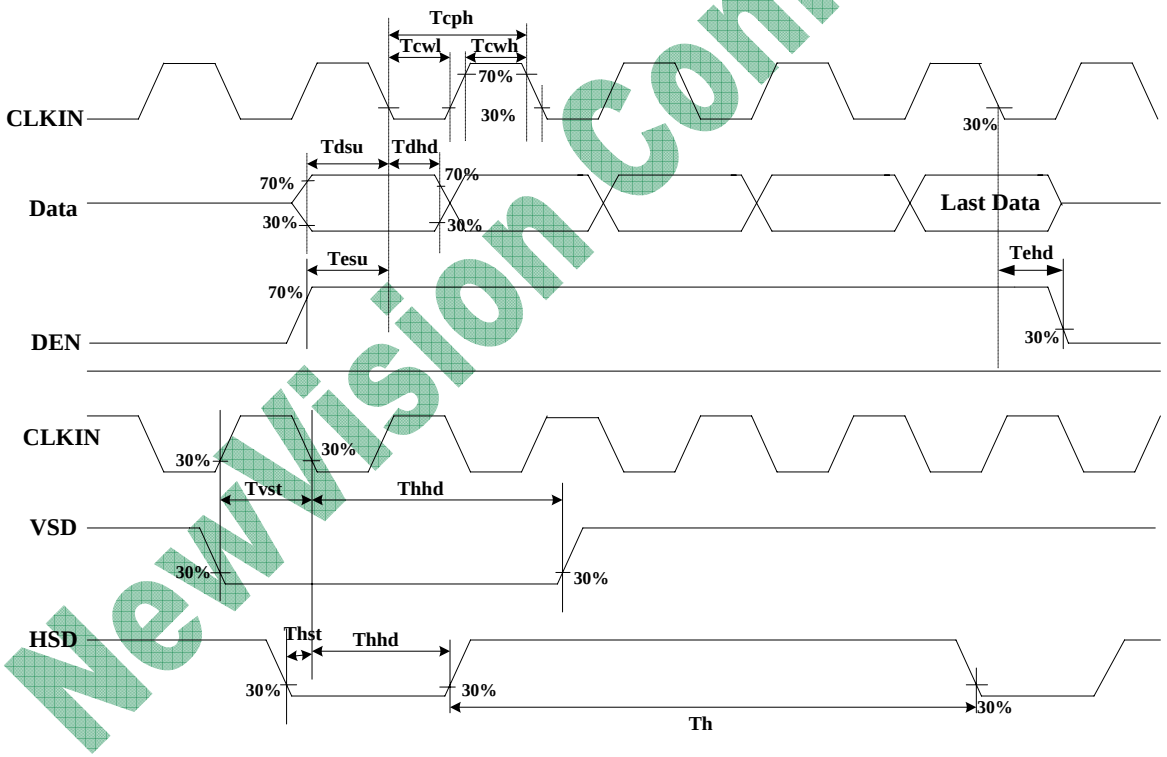
Parallel 24-bit RGB mode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
CLKIN Frequency	Fclk	-	40	50	MHz	VDD=3.0V~3.6V
CLKIN Cycle Time	Tclk	20	25	-	ns	-
CLKIN Pulse Duty	Tcwh	40	50	60	%	Tclk
Time from HSD to Source Output	Thso	64			CLKIN	-
Time from HSD to LD	Thld	64			CLKIN	-
Time from HSD to STV	Thstv	2			CLKIN	-
Time from HSD to CKV	Thckv	20			CLKIN	-
Time from HSD to OEV	Thoev	4			CLKIN	-
LD Pulse Width	Twld	10			CLKIN	-
CKV Pulse Width	Twckv	66			CLKIN	-
OEV Pulse Width	Twoev	74			CLKIN	-

Parallel 24-bit RGB mode

11.2. Timing Diagram

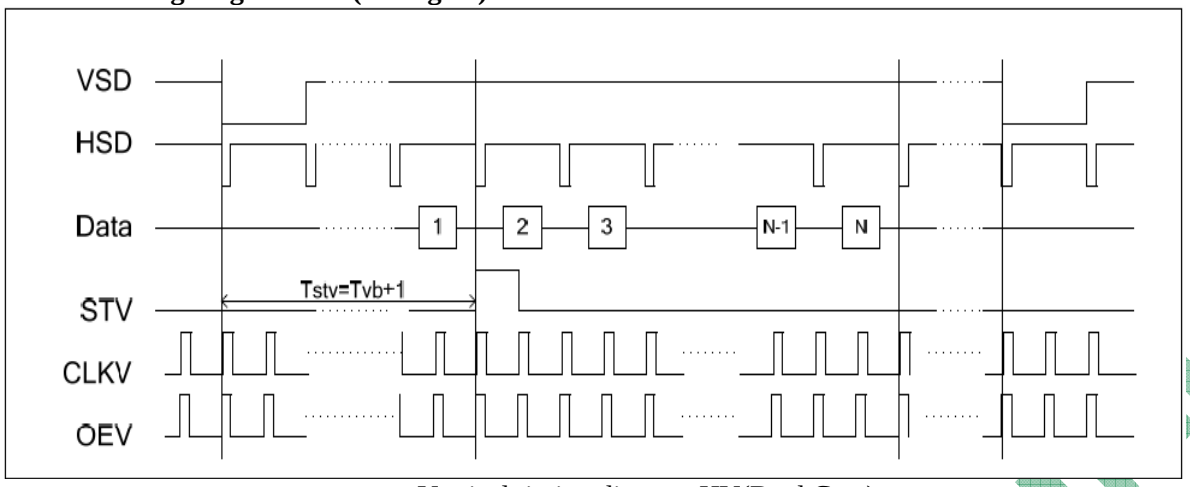
Input clock and data timing waveform



Input clock and data timing diagram

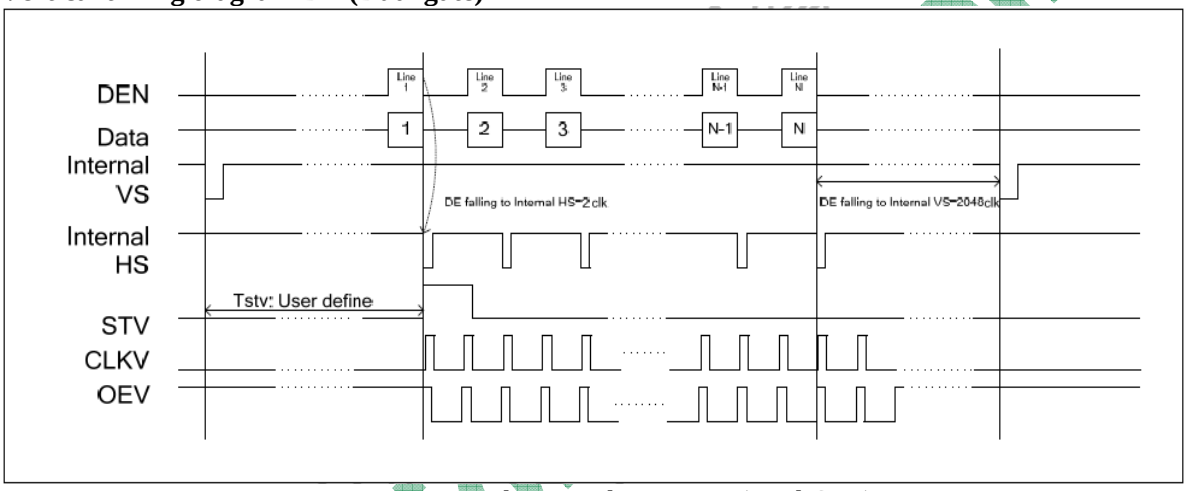
New Vision Confidential

Vertical timing diagram HV (Dual gate)



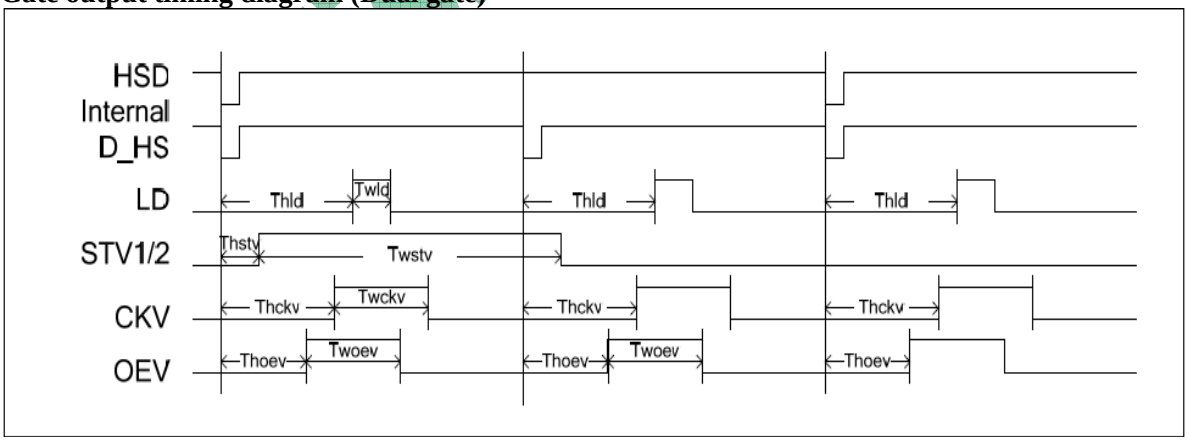
Vertical timing diagram HV(Dual Gate)

Vertical timing diagram DE (Dual gate)



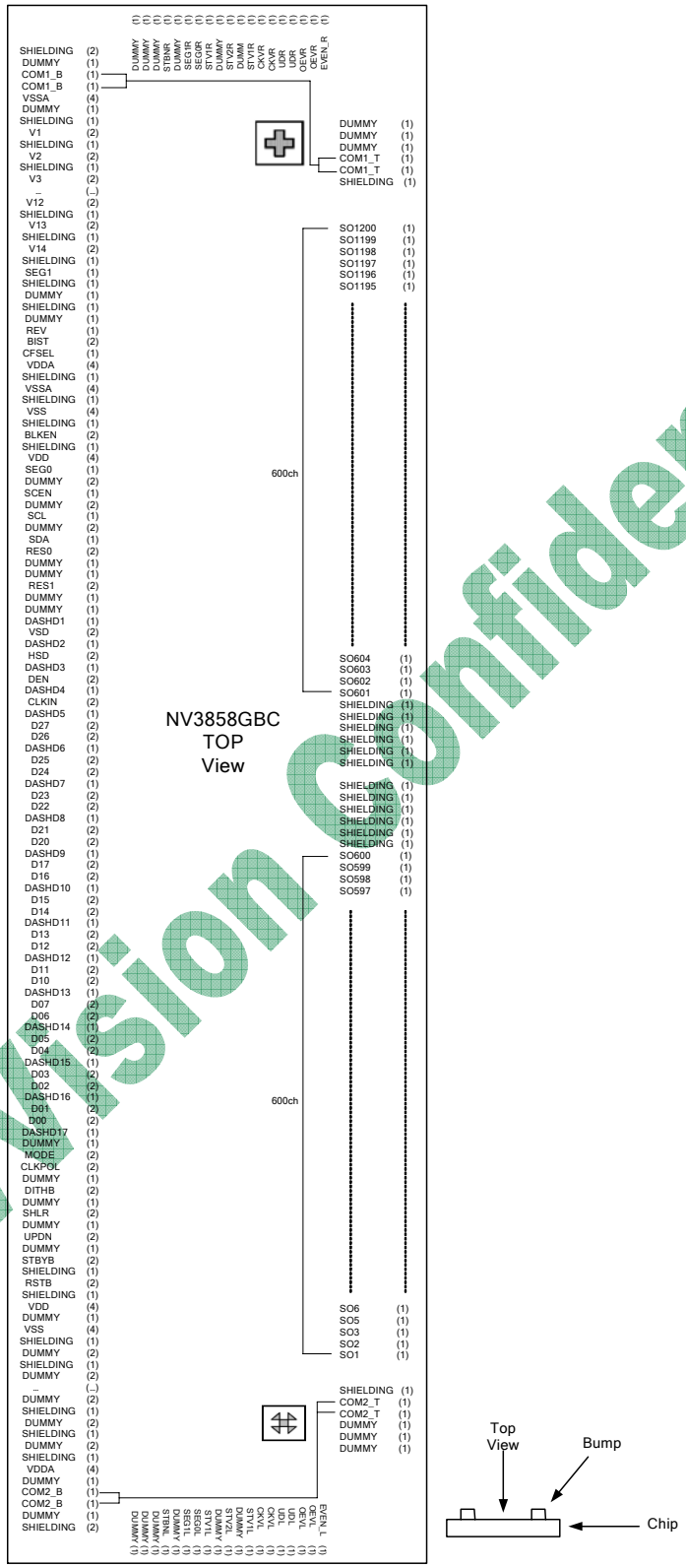
Vertical timing diagram DE(Dual Gate)

Gate output timing diagram (Dual gate)



Gate output timing diagram(Dual Gate)

12. Pin Assignment(IC Face View)



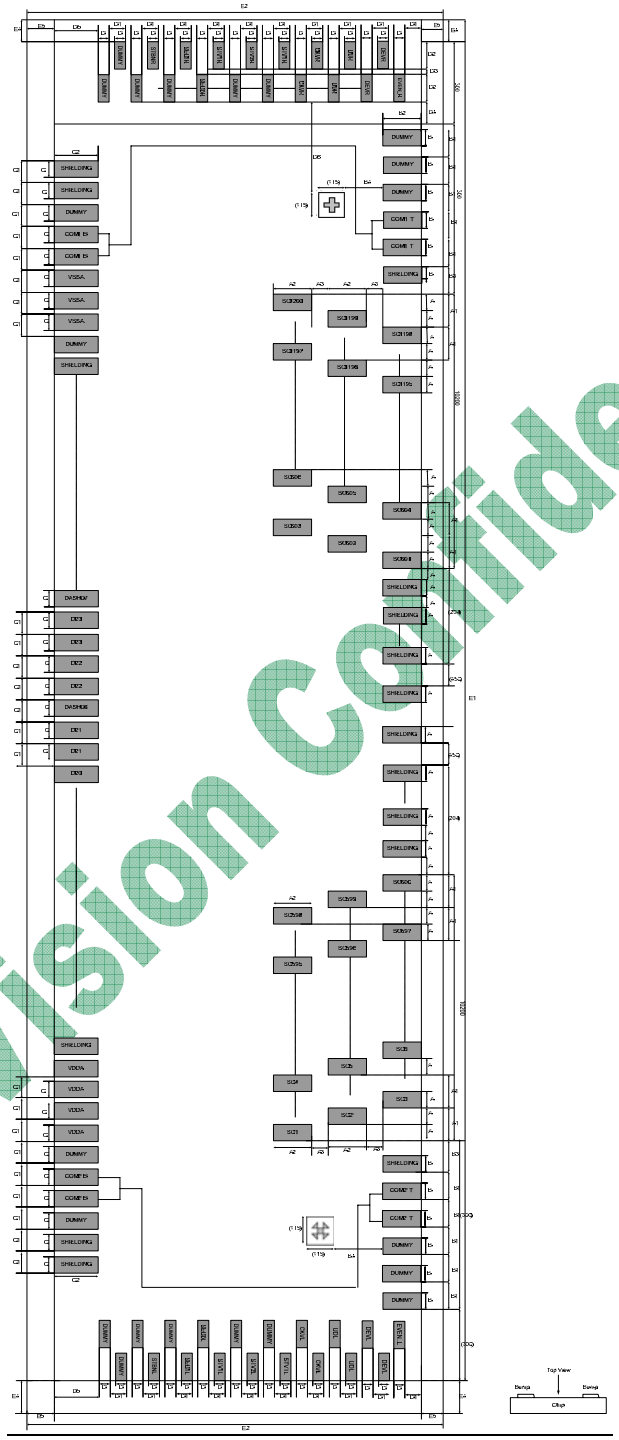
NewVision Confidential

12.1. Package Outline

Chip size:22608um× 923um(including seal ring and scribe line)

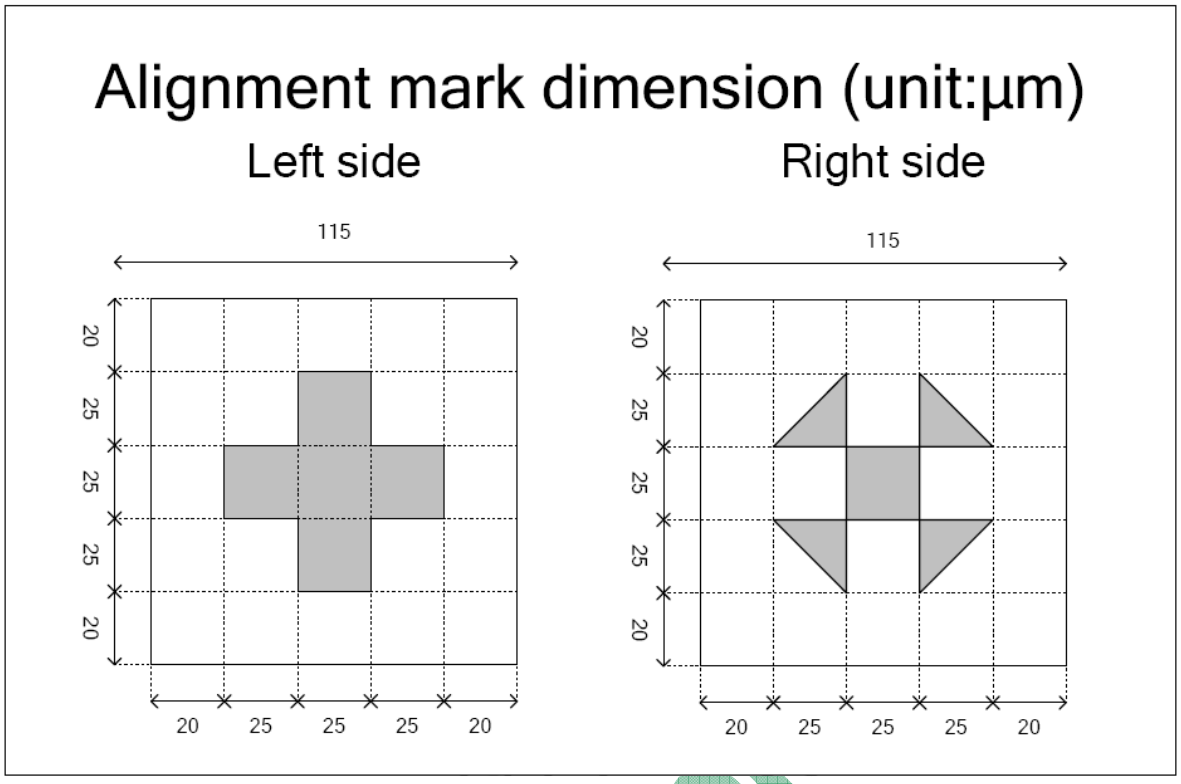
Bump height:12um±3um

Bump hardness:60Hv±15Hv



NewVision Confidential

Alignment mark



12.2. Pad Information

Symbol	Dimension(um)	Symbol	Dimension(um)
A	17	D	30
A1	34	D1	25
A2	110	D2	100
A3	30	D3	30
B	30	D4	70
B1	50	D5	34
B2	70	D6	168.5
B3	50	E1	22578
B4	191.5	E2	923
C	65	E3	324
C1	85	E4	60
C2	110	E5	60

Pad information

NewVision Co

PAD	Pad_name	X	Y
1	EVEN_R	-11049	357
2	OEVR	-11179	317
3	OEVR	-11049	277
4	UDR	-11179	237
5	UDR	-11049	197
6	CKVR	-11179	157
7	CKVR	-11049	117
8	STV1R	-11179	77
9	DUMMY	-11049	37
10	STV2R	-11179	-3
11	DUMMY	-11049	-43
12	STV1R	-11179	-83
13	SEG0R	-11049	-123
14	SEG1R	-11179	-163
15	DUMMY	-11049	-203
16	STBNR	-11179	-243
17	DUMMY	-11049	-283
18	DUMMY	-11179	-323
19	DUMMY	-11049	-363
20	SHIELDING	-10922.5	-367
21	SHIELDING	-10837.5	-367
22	DUMMY	-10752.5	-367
23	COM1_B	-10667.5	-367
24	COM1_B	-10582.5	-367
25	VSSA	-10497.5	-367
26	VSSA	-10412.5	-367
27	VSSA	-10327.5	-367
28	VSSA	-10242.5	-367
29	DUMMY	-10157.5	-367
30	SHIELDING	-10072.5	-367
31	V1	-9987.5	-367
32	V1	-9902.5	-367
33	SHIELDING	-9817.5	-367
34	V2	-9732.5	-367
35	V2	-9647.5	-367
36	SHIELDING	-9562.5	-367
37	V3	-9477.5	-367
38	V3	-9392.5	-367
39	SHIELDING	-9307.5	-367
40	V4	-9222.5	-367
41	V4	-9137.5	-367
42	SHIELDING	-9052.5	-367
43	V5	-8967.5	-367
44	V5	-8882.5	-367
45	SHIELDING	-8797.5	-367
46	V6	-8712.5	-367
47	V6	-8627.5	-367
48	SHIELDING	-8542.5	-367
49	V7	-8457.5	-367
50	V7	-8372.5	-367
51	SHIELDING	-8287.5	-367
52	V8	-8202.5	-367
53	V8	-8117.5	-367
54	SHIELDING	-8032.5	-367
55	V9	-7947.5	-367
56	V9	-7862.5	-367

PAD	Pad_name	X	Y
57	SHIELDING	-7777.5	-367
58	V10	-7692.5	-367
59	V10	-7607.5	-367
60	SHIELDING	-7522.5	-367
61	V11	-7437.5	-367
62	V11	-7352.5	-367
63	SHIELDING	-7267.5	-367
64	V12	-7182.5	-367
65	V12	-7097.5	-367
66	SHIELDING	-7012.5	-367
67	V13	-6927.5	-367
68	V13	-6842.5	-367
69	SHIELDING	-6757.5	-367
70	V14	-6672.5	-367
71	V14	-6587.5	-367
72	SHIELDING	-6502.5	-367
73	SEG1	-6417.5	-367
74	SHIELDING	-6332.5	-367
75	DUMMY	-6247.5	-367
76	SHIELDING	-6162.5	-367
77	DUMMY	-6077.5	-367
78	REV	-5992.5	-367
79	BIST	-5907.5	-367
80	BIST	-5822.5	-367
81	CFSEL	-5737.5	-367
82	VDDA	-5652.5	-367
83	VDDA	-5567.5	-367
84	VDDA	-5482.5	-367
85	VDDA	-5397.5	-367
86	SHIELDING	-5312.5	-367
87	VSSA	-5227.5	-367
88	VSSA	-5142.5	-367
89	VSSA	-5057.5	-367
90	VSSA	-4972.5	-367
91	SHIELDING	-4887.5	-367
92	VSS	-4802.5	-367
93	VSS	-4717.5	-367
94	VSS	-4632.5	-367
95	VSS	-4547.5	-367
96	SHIELDING	-4462.5	-367
97	BLKEN	-4377.5	-367
98	BLKEN	-4292.5	-367
99	SHIELDING	-4207.5	-367
100	VDD	-4122.5	-367
101	VDD	-4037.5	-367
102	VDD	-3952.5	-367
103	VDD	-3867.5	-367
104	SEG0	-3782.5	-367
105	DUMMY	-3697.5	-367
106	DUMMY	-3612.5	-367
107	SCEN	-3527.5	-367
108	DUMMY	-3442.5	-367
109	DUMMY	-3357.5	-367
110	SCL	-3272.5	-367
111	DUMMY	-3187.5	-367
112	DUMMY	-3102.5	-367

PAD	Pad_name	X	Y
113	SDA	-3017.5	-367
114	RES0	-2932.5	-367
115	RES0	-2847.5	-367
116	DUMMY	-2762.5	-367
117	DUMMY	-2677.5	-367
118	RES1	-2592.5	-367
119	RES1	-2507.5	-367
120	DUMMY	-2422.5	-367
121	DUMMY	-2337.5	-367
122	DASHD1	-2252.5	-367
123	VSD	-2167.5	-367
124	VSD	-2082.5	-367
125	DASHD2	-1997.5	-367
126	HSD	-1912.5	-367
127	HSD	-1827.5	-367
128	DASHD3	-1742.5	-367
129	DEN	-1657.5	-367
130	DEN	-1572.5	-367
131	DASHD4	-1487.5	-367
132	CLKIN	-1402.5	-367
133	CLKIN	-1317.5	-367
134	DASHD5	-1232.5	-367
135	D27	-1147.5	-367
136	D27	-1062.5	-367
137	D26	-977.5	-367
138	D26	-892.5	-367
139	DASHD6	-807.5	-367
140	D25	-722.5	-367
141	D25	-637.5	-367
142	D24	-552.5	-367
143	D24	-467.5	-367
144	DASHD7	-382.5	-367
145	D23	-297.5	-367
146	D23	-212.5	-367
147	D22	-127.5	-367
148	D22	-42.5	-367
149	DASHD8	42.5	-367
150	D21	127.5	-367
151	D21	212.5	-367
152	D20	297.5	-367
153	D20	382.5	-367
154	DASHD9	467.5	-367
155	D17	552.5	-367
156	D17	637.5	-367
157	D16	722.5	-367
158	D16	807.5	-367
159	DASHD10	892.5	-367
160	D15	977.5	-367
161	D15	1062.5	-367
162	D14	1147.5	-367
163	D14	1232.5	-367
164	DASHD11	1317.5	-367
165	D13	1402.5	-367
166	D13	1487.5	-367
167	D12	1572.5	-367
168	D12	1657.5	-367

New Vision Confidential

PAD	Pad_name	X	Y
169	DASHD12	1742.5	-367
170	D11	1827.5	-367
171	D11	1912.5	-367
172	D10	1997.5	-367
173	D10	2082.5	-367
174	DASHD13	2167.5	-367
175	D07	2252.5	-367
176	D07	2337.5	-367
177	D06	2422.5	-367
178	D06	2507.5	-367
179	DASHD14	2592.5	-367
180	D05	2677.5	-367
181	D05	2762.5	-367
182	D04	2847.5	-367
183	D04	2932.5	-367
184	DASHD15	3017.5	-367
185	D03	3102.5	-367
186	D03	3187.5	-367
187	D02	3272.5	-367
188	D02	3357.5	-367
189	DASHD16	3442.5	-367
190	D01	3527.5	-367
191	D01	3612.5	-367
192	D00	3697.5	-367
193	D00	3782.5	-367
194	DASHD17	3867.5	-367
195	DUMMY	3952.5	-367
196	MODE	4037.5	-367
197	MODE	4122.5	-367
198	CLKPOL	4207.5	-367
199	CLKPOL	4292.5	-367
200	DUMMY	4377.5	-367
201	DITHEB	4462.5	-367
202	DITHEB	4547.5	-367
203	DUMMY	4632.5	-367
204	SHLR	4717.5	-367
205	SHLR	4802.5	-367
206	DUMMY	4887.5	-367
207	UPDN	4972.5	-367
208	UPDN	5057.5	-367
209	DUMMY	5142.5	-367
210	STBYB	5227.5	-367
211	STBYB	5312.5	-367
212	SHIELDING	5397.5	-367
213	RSTB	5482.5	-367
214	RSTB	5567.5	-367
215	SHIELDING	5652.5	-367
216	VDD	5737.5	-367
217	VDD	5822.5	-367
218	VDD	5907.5	-367
219	VDD	5992.5	-367
220	DUMMY	6077.5	-367
221	VSS	6162.5	-367
222	VSS	6247.5	-367
223	VSS	6332.5	-367
224	VSS	6417.5	-367
225	SHIELDING	6502.5	-367

PAD	Pad_name	X	Y
226	DUMMY	6587.5	-367
227	DUMMY	6672.5	-367
228	SHIELDING	6757.5	-367
229	DUMMY	6842.5	-367
230	DUMMY	6927.5	-367
231	SHIELDING	7012.5	-367
232	DUMMY	7097.5	-367
233	DUMMY	7182.5	-367
234	SHIELDING	7267.5	-367
235	DUMMY	7352.5	-367
236	DUMMY	7437.5	-367
237	SHIELDING	7522.5	-367
238	DUMMY	7607.5	-367
239	DUMMY	7692.5	-367
240	SHIELDING	7777.5	-367
241	DUMMY	7862.5	-367
242	DUMMY	7947.5	-367
243	SHIELDING	8032.5	-367
244	DUMMY	8117.5	-367
245	DUMMY	8202.5	-367
246	SHIELDING	8287.5	-367
247	DUMMY	8372.5	-367
248	DUMMY	8457.5	-367
249	SHIELDING	8542.5	-367
250	DUMMY	8627.5	-367
251	DUMMY	8712.5	-367
252	SHIELDING	8797.5	-367
253	DUMMY	8882.5	-367
254	DUMMY	8967.5	-367
255	SHIELDING	9052.5	-367
256	DUMMY	9137.5	-367
257	DUMMY	9222.5	-367
258	SHIELDING	9307.5	-367
259	DUMMY	9392.5	-367
260	DUMMY	9477.5	-367
261	SHIELDING	9562.5	-367
262	DUMMY	9647.5	-367
263	DUMMY	9732.5	-367
264	SHIELDING	9817.5	-367
265	DUMMY	9902.5	-367
266	DUMMY	9987.5	-367
267	SHIELDING	10072.5	-367
268	VDDA	10157.5	-367
269	VDDA	10242.5	-367
270	VDDA	10327.5	-367
271	VDDA	10412.5	-367
272	DUMMY	10497.5	-367
273	COM2_B	10582.5	-367
274	COM2_B	10667.5	-367
275	DUMMY	10752.5	-367
276	SHIELDING	10837.5	-367
277	SHIELDING	10922.5	-367
278	DUMMY	11049	-363
279	DUMMY	11179	-323
280	DUMMY	11049	-283
281	STBNL	11179	-243
282	DUMMY	11049	-203

PAD	Pad_name	X	Y
283	SEG1L	11179	-163
284	SEG0L	11049	-123
285	STV1L	11179	-83
286	DUMMY	11049	-43
287	STV2L	11179	-3
288	DUMMY	11049	37
289	STV1L	11179	77
290	CKVL	11049	117
291	CKVL	11179	157
292	UDL	11049	197
293	UDL	11179	237
294	OEVL	11049	277
295	OEVL	11179	317
296	EVEN_L	11049	357
297	DUMMY	10914	364.5
298	DUMMY	10864	364.5
299	DUMMY	10814	364.5
300	COM2_T	10764	364.5
301	COM2_T	10714	364.5
302	SHIELDING	10664	364.5
303	SO1	10618.51	89.5
304	SO2	10601.51	217
305	SO3	10584.51	344.5
306	SO4	10567.52	89.5
307	SO5	10550.52	217
308	SO6	10533.52	344.5
309	SO7	10516.53	89.5
310	SO8	10499.53	217
311	SO9	10482.53	344.5
312	SO10	10465.54	89.5
313	SO11	10448.54	217
314	SO12	10431.54	344.5
315	SO13	10414.55	89.5
316	SO14	10397.55	217
317	SO15	10380.55	344.5
318	SO16	10363.56	89.5
319	SO17	10346.56	217
320	SO18	10329.56	344.5
321	SO19	10312.57	89.5
322	SO20	10295.57	217
323	SO21	10278.57	344.5
324	SO22	10261.58	89.5
325	SO23	10244.58	217
326	SO24	10227.58	344.5
327	SO25	10210.59	89.5
328	SO26	10193.59	217
329	SO27	10176.59	344.5
330	SO28	10159.6	89.5
331	SO29	10142.6	217
332	SO30	10125.6	344.5
333	SO31	10108.61	89.5
334	SO32	10091.61	217
335	SO33	10074.61	344.5
336	SO34	10057.62	89.5
337	SO35	10040.62	217
338	SO36	10023.62	344.5
339	SO37	10006.63	89.5

New Vision Confidential

PAD	Pad_name	X	Y
340	SO38	9989.63	217
341	SO39	9972.63	344.5
342	SO40	9955.64	89.5
343	SO41	9938.64	217
344	SO42	9921.64	344.5
345	SO43	9904.65	89.5
346	SO44	9887.65	217
347	SO45	9870.65	344.5
348	SO46	9853.66	89.5
349	SO47	9836.66	217
350	SO48	9819.66	344.5
351	SO49	9802.67	89.5
352	SO50	9785.67	217
353	SO51	9768.67	344.5
354	SO52	9751.68	89.5
355	SO53	9734.68	217
356	SO54	9717.68	344.5
357	SO55	9700.69	89.5
358	SO56	9683.69	217
359	SO57	9666.69	344.5
360	SO58	9649.7	89.5
361	SO59	9632.7	217
362	SO60	9615.7	344.5
363	SO61	9598.71	89.5
364	SO62	9581.71	217
365	SO63	9564.71	344.5
366	SO64	9547.72	89.5
367	SO65	9530.72	217
368	SO66	9513.72	344.5
369	SO67	9496.73	89.5
370	SO68	9479.73	217
371	SO69	9462.73	344.5
372	SO70	9445.74	89.5
373	SO71	9428.74	217
374	SO72	9411.74	344.5
375	SO73	9394.75	89.5
376	SO74	9377.75	217
377	SO75	9360.75	344.5
378	SO76	9343.76	89.5
379	SO77	9326.76	217
380	SO78	9309.76	344.5
381	SO79	9292.77	89.5
382	SO80	9275.77	217
383	SO81	9258.77	344.5
384	SO82	9241.78	89.5
385	SO83	9224.78	217
386	SO84	9207.78	344.5
387	SO85	9190.79	89.5
388	SO86	9173.79	217
389	SO87	9156.79	344.5
390	SO88	9139.8	89.5
391	SO89	9122.8	217
392	SO90	9105.8	344.5
393	SO91	9088.81	89.5
394	SO92	9071.81	217
395	SO93	9054.81	344.5
396	SO94	9037.82	89.5

PAD	Pad_name	X	Y
397	SO95	9020.82	217
398	SO96	9003.82	344.5
399	SO97	8986.83	89.5
400	SO98	8969.83	217
401	SO99	8952.83	344.5
402	SO100	8935.84	89.5
403	SO101	8918.84	217
404	SO102	8901.84	344.5
405	SO103	8884.85	89.5
406	SO104	8867.85	217
407	SO105	8850.85	344.5
408	SO106	8833.86	89.5
409	SO107	8816.86	217
410	SO108	8799.86	344.5
411	SO109	8782.87	89.5
412	SO110	8765.87	217
413	SO111	8748.87	344.5
414	SO112	8731.88	89.5
415	SO113	8714.88	217
416	SO114	8697.88	344.5
417	SO115	8680.89	89.5
418	SO116	8663.89	217
419	SO117	8646.89	344.5
420	SO118	8629.9	89.5
421	SO119	8612.9	217
422	SO120	8595.9	344.5
423	SO121	8578.91	89.5
424	SO122	8561.91	217
425	SO123	8544.91	344.5
426	SO124	8527.92	89.5
427	SO125	8510.92	217
428	SO126	8493.92	344.5
429	SO127	8476.93	89.5
430	SO128	8459.93	217
431	SO129	8442.93	344.5
432	SO130	8425.94	89.5
433	SO131	8408.94	217
434	SO132	8391.94	344.5
435	SO133	8374.95	89.5
436	SO134	8357.95	217
437	SO135	8340.95	344.5
438	SO136	8323.96	89.5
439	SO137	8306.96	217
440	SO138	8289.96	344.5
441	SO139	8272.97	89.5
442	SO140	8255.97	217
443	SO141	8238.97	344.5
444	SO142	8221.98	89.5
445	SO143	8204.98	217
446	SO144	8187.98	344.5
447	SO145	8170.99	89.5
448	SO146	8153.99	217
449	SO147	8136.99	344.5
450	SO148	8120	89.5
451	SO149	8103	217
452	SO150	8086	344.5
453	SO151	8069.01	89.5

PAD	Pad_name	X	Y
454	SO152	8052.01	217
455	SO153	8035.01	344.5
456	SO154	8018.02	89.5
457	SO155	8001.02	217
458	SO156	7984.02	344.5
459	SO157	7967.03	89.5
460	SO158	7950.03	217
461	SO159	7933.03	344.5
462	SO160	7916.04	89.5
463	SO161	7899.04	217
464	SO162	7882.04	344.5
465	SO163	7865.05	89.5
466	SO164	7848.05	217
467	SO165	7831.05	344.5
468	SO166	7814.06	89.5
469	SO167	7797.06	217
470	SO168	7780.06	344.5
471	SO169	7763.07	89.5
472	SO170	7746.07	217
473	SO171	7729.07	344.5
474	SO172	7712.08	89.5
475	SO173	7695.08	217
476	SO174	7678.08	344.5
477	SO175	7661.09	89.5
478	SO176	7644.09	217
479	SO177	7627.09	344.5
480	SO178	7610.1	89.5
481	SO179	7593.1	217
482	SO180	7576.1	344.5
483	SO181	7559.11	89.5
484	SO182	7542.11	217
485	SO183	7525.11	344.5
486	SO184	7508.12	89.5
487	SO185	7491.12	217
488	SO186	7474.12	344.5
489	SO187	7457.13	89.5
490	SO188	7440.13	217
491	SO189	7423.13	344.5
492	SO190	7406.14	89.5
493	SO191	7389.14	217
494	SO192	7372.14	344.5
495	SO193	7355.15	89.5
496	SO194	7338.15	217
497	SO195	7321.15	344.5
498	SO196	7304.16	89.5
499	SO197	7287.16	217
500	SO198	7270.16	344.5
501	SO199	7253.17	89.5
502	SO200	7236.17	217
503	SO201	7219.17	344.5
504	SO202	7202.18	89.5
505	SO203	7185.18	217
506	SO204	7168.18	344.5
507	SO205	7151.19	89.5
508	SO206	7134.19	217
509	SO207	7117.19	344.5
510	SO208	7100.2	89.5

New Vision Confidential

PAD	Pad_name	X	Y
511	SO209	7083.2	217
512	SO210	7066.2	344.5
513	SO211	7049.21	89.5
514	SO212	7032.21	217
515	SO213	7015.21	344.5
516	SO214	6998.22	89.5
517	SO215	6981.22	217
518	SO216	6964.22	344.5
519	SO217	6947.23	89.5
520	SO218	6930.23	217
521	SO219	6913.23	344.5
522	SO220	6896.24	89.5
523	SO221	6879.24	217
524	SO222	6862.24	344.5
525	SO223	6845.25	89.5
526	SO224	6828.25	217
527	SO225	6811.25	344.5
528	SO226	6794.26	89.5
529	SO227	6777.26	217
530	SO228	6760.26	344.5
531	SO229	6743.27	89.5
532	SO230	6726.27	217
533	SO231	6709.27	344.5
534	SO232	6692.28	89.5
535	SO233	6675.28	217
536	SO234	6658.28	344.5
537	SO235	6641.29	89.5
538	SO236	6624.29	217
539	SO237	6607.29	344.5
540	SO238	6590.3	89.5
541	SO239	6573.3	217
542	SO240	6556.3	344.5
543	SO241	6539.31	89.5
544	SO242	6522.31	217
545	SO243	6505.31	344.5
546	SO244	6488.32	89.5
547	SO245	6471.32	217
548	SO246	6454.32	344.5
549	SO247	6437.33	89.5
550	SO248	6420.33	217
551	SO249	6403.33	344.5
552	SO250	6386.34	89.5
553	SO251	6369.34	217
554	SO252	6352.34	344.5
555	SO253	6335.35	89.5
556	SO254	6318.35	217
557	SO255	6301.35	344.5
558	SO256	6284.36	89.5
559	SO257	6267.36	217
560	SO258	6250.36	344.5
561	SO259	6233.37	89.5
562	SO260	6216.37	217
563	SO261	6199.37	344.5
564	SO262	6182.38	89.5
565	SO263	6165.38	217
566	SO264	6148.38	344.5
567	SO265	6131.39	89.5

PAD	Pad_name	X	Y
568	SO266	6114.39	217
569	SO267	6097.39	344.5
570	SO268	6080.4	89.5
571	SO269	6063.4	217
572	SO270	6046.4	344.5
573	SO271	6029.41	89.5
574	SO272	6012.41	217
575	SO273	5995.41	344.5
576	SO274	5978.42	89.5
577	SO275	5961.42	217
578	SO276	5944.42	344.5
579	SO277	5927.43	89.5
580	SO278	5910.43	217
581	SO279	5893.43	344.5
582	SO280	5876.44	89.5
583	SO281	5859.44	217
584	SO282	5842.44	344.5
585	SO283	5825.45	89.5
586	SO284	5808.45	217
587	SO285	5791.45	344.5
588	SO286	5774.46	89.5
589	SO287	5757.46	217
590	SO288	5740.46	344.5
591	SO289	5723.47	89.5
592	SO290	5706.47	217
593	SO291	5689.47	344.5
594	SO292	5672.48	89.5
595	SO293	5655.48	217
596	SO294	5638.48	344.5
597	SO295	5621.49	89.5
598	SO296	5604.49	217
599	SO297	5587.49	344.5
600	SO298	5570.5	89.5
601	SO299	5553.5	217
602	SO300	5536.5	344.5
603	SO301	5519.51	89.5
604	SO302	5502.51	217
605	SO303	5485.51	344.5
606	SO304	5468.52	89.5
607	SO305	5451.52	217
608	SO305	5434.52	344.5
609	SO307	5417.53	89.5
610	SO308	5400.53	217
611	SO309	5383.53	344.5
612	SO310	5366.54	89.5
613	SO311	5349.54	217
614	SO312	5332.54	344.5
615	SO313	5315.55	89.5
616	SO314	5298.55	217
617	SO315	5281.55	344.5
618	SO316	5264.56	89.5
619	SO317	5247.56	217
620	SO318	5230.56	344.5
621	SO319	5213.57	89.5
622	SO320	5196.57	217
623	SO321	5179.57	344.5
624	SO322	5162.58	89.5

PAD	Pad_name	X	Y
625	SO323	5145.58	217
626	SO324	5128.58	344.5
627	SO325	5111.59	89.5
628	SO326	5094.59	217
629	SO327	5077.59	344.5
630	SO328	5060.6	89.5
631	SO329	5043.6	217
632	SO330	5026.6	344.5
633	SO331	5009.61	89.5
634	SO332	4992.61	217
635	SO333	4975.61	344.5
636	SO334	4958.62	89.5
637	SO335	4941.62	217
638	SO336	4924.62	344.5
639	SO337	4907.63	89.5
640	SO338	4890.63	217
641	SO339	4873.63	344.5
642	SO340	4856.64	89.5
643	SO341	4839.64	217
644	SO342	4822.64	344.5
645	SO343	4805.65	89.5
646	SO344	4788.65	217
647	SO345	4771.65	344.5
648	SO346	4754.66	89.5
649	SO347	4737.66	217
650	SO348	4720.66	344.5
651	SO349	4703.67	89.5
652	SO350	4686.67	217
653	SO351	4669.67	344.5
654	SO352	4652.68	89.5
655	SO353	4635.68	217
656	SO354	4618.68	344.5
657	SO355	4601.69	89.5
658	SO356	4584.69	217
659	SO357	4567.69	344.5
660	SO358	4550.7	89.5
661	SO359	4533.7	217
662	SO360	4516.7	344.5
663	SO361	4499.71	89.5
664	SO362	4482.71	217
665	SO363	4465.71	344.5
666	SO364	4448.72	89.5
667	SO365	4431.72	217
668	SO366	4414.72	344.5
669	SO367	4397.73	89.5
670	SO368	4380.73	217
671	SO369	4363.73	344.5
672	SO370	4346.74	89.5
673	SO371	4329.74	217
674	SO372	4312.74	344.5
675	SO373	4295.75	89.5
676	SO374	4278.75	217
677	SO375	4261.75	344.5
678	SO376	4244.76	89.5
679	SO377	4227.76	217
680	SO378	4210.76	344.5
681	SO379	4193.77	89.5

New Vision Confidential

PAD	Pad_name	X	Y
682	SO380	4176.77	217
683	SO381	4159.77	344.5
684	SO382	4142.78	89.5
685	SO383	4125.78	217
686	SO384	4108.78	344.5
687	SO385	4091.79	89.5
688	SO386	4074.79	217
689	SO387	4057.79	344.5
690	SO388	4040.8	89.5
691	SO389	4023.8	217
692	SO390	4006.8	344.5
693	SO391	3989.81	89.5
694	SO392	3972.81	217
695	SO393	3955.81	344.5
696	SO394	3938.82	89.5
697	SO395	3921.82	217
698	SO396	3904.82	344.5
699	SO397	3887.83	89.5
700	SO398	3870.83	217
701	SO399	3853.83	344.5
702	SO400	3836.84	89.5
703	SO401	3819.84	217
704	SO402	3802.84	344.5
705	SO403	3785.85	89.5
706	SO404	3768.85	217
707	SO405	3751.85	344.5
708	SO406	3734.86	89.5
709	SO407	3717.86	217
710	SO408	3700.86	344.5
711	SO409	3683.87	89.5
712	SO410	3666.87	217
713	SO411	3649.87	344.5
714	SO412	3632.88	89.5
715	SO413	3615.88	217
716	SO414	3598.88	344.5
717	SO415	3581.89	89.5
718	SO416	3564.89	217
719	SO417	3547.89	344.5
720	SO418	3530.9	89.5
721	SO419	3513.9	217
722	SO420	3496.9	344.5
723	SO421	3479.91	89.5
724	SO422	3462.91	217
725	SO423	3445.91	344.5
726	SO424	3428.92	89.5
727	SO425	3411.92	217
728	SO426	3394.92	344.5
729	SO427	3377.93	89.5
730	SO428	3360.93	217
731	SO429	3343.93	344.5
732	SO430	3326.94	89.5
733	SO431	3309.94	217
734	SO432	3292.94	344.5
735	SO433	3275.95	89.5
736	SO434	3258.95	217
737	SO435	3241.95	344.5
738	SO436	3224.96	89.5

PAD	Pad_name	X	Y
739	SO437	3207.96	217
740	SO438	3190.96	344.5
741	SO439	3173.97	89.5
742	SO440	3156.97	217
743	SO441	3139.97	344.5
744	SO442	3122.98	89.5
745	SO443	3105.98	217
746	SO444	3088.98	344.5
747	SO445	3071.99	89.5
748	SO446	3054.99	217
749	SO447	3037.99	344.5
750	SO448	3021	89.5
751	SO449	3004	217
752	SO450	2987	344.5
753	SO451	2970.01	89.5
754	SO452	2953.01	217
755	SO453	2936.01	344.5
756	SO454	2919.02	89.5
757	SO455	2902.02	217
758	SO456	2885.02	344.5
759	SO457	2868.03	89.5
760	SO458	2851.03	217
761	SO459	2834.03	344.5
762	SO460	2817.04	89.5
763	SO461	2800.04	217
764	SO462	2783.04	344.5
765	SO463	2766.05	89.5
766	SO464	2749.05	217
767	SO465	2732.05	344.5
768	SO466	2715.06	89.5
769	SO467	2698.06	217
770	SO468	2681.06	344.5
771	SO469	2664.07	89.5
772	SO470	2647.07	217
773	SO471	2630.07	344.5
774	SO472	2613.08	89.5
775	SO473	2596.08	217
776	SO474	2579.08	344.5
777	SO475	2562.09	89.5
778	SO476	2545.09	217
779	SO477	2528.09	344.5
780	SO478	2511.1	89.5
781	SO479	2494.1	217
782	SO480	2477.1	344.5
783	SO481	2460.11	89.5
784	SO482	2443.11	217
785	SO483	2426.11	344.5
786	SO484	2409.12	89.5
787	SO485	2392.12	217
788	SO486	2375.12	344.5
789	SO487	2358.13	89.5
790	SO488	2341.13	217
791	SO489	2324.13	344.5
792	SO490	2307.14	89.5
793	SO491	2290.14	217
794	SO492	2273.14	344.5
795	SO493	2256.15	89.5

PAD	Pad_name	X	Y
796	SO494	2239.15	217
797	SO495	2222.15	344.5
798	SO496	2205.16	89.5
799	SO497	2188.16	217
800	SO498	2171.16	344.5
801	SO499	2154.17	89.5
802	SO500	2137.17	217
803	SO501	2120.17	344.5
804	SO502	2103.18	89.5
805	SO503	2086.18	217
806	SO504	2069.18	344.5
807	SO505	2052.19	89.5
808	SO506	2035.19	217
809	SO507	2018.19	344.5
810	SO508	2001.2	89.5
811	SO509	1984.2	217
812	SO510	1967.2	344.5
813	SO511	1950.21	89.5
814	SO512	1933.21	217
815	SO513	1916.21	344.5
816	SO514	1899.22	89.5
817	SO515	1882.22	217
818	SO516	1865.22	344.5
819	SO517	1848.23	89.5
820	SO518	1831.23	217
821	SO519	1814.23	344.5
822	SO520	1797.24	89.5
823	SO521	1780.24	217
824	SO522	1763.24	344.5
825	SO523	1746.25	89.5
826	SO524	1729.25	217
827	SO525	1712.25	344.5
828	SO526	1695.26	89.5
829	SO527	1678.26	217
830	SO528	1661.26	344.5
831	SO529	1644.27	89.5
832	SO530	1627.27	217
833	SO531	1610.27	344.5
834	SO532	1593.28	89.5
835	SO533	1576.28	217
836	SO534	1559.28	344.5
837	SO535	1542.29	89.5
838	SO536	1525.29	217
839	SO537	1508.29	344.5
840	SO538	1491.3	89.5
841	SO539	1474.3	217
842	SO540	1457.3	344.5
843	SO541	1440.31	89.5
844	SO542	1423.31	217
845	SO543	1406.31	344.5
846	SO544	1389.32	89.5
847	SO545	1372.32	217
848	SO546	1355.32	344.5
849	SO547	1338.33	89.5
850	SO548	1321.33	217
851	SO549	1304.33	344.5
852	SO550	1287.34	89.5

New Vision Confidential

PAD	Pad_name	X	Y
853	SO551	1270.34	217
854	SO552	1253.34	344.5
855	SO553	1236.35	89.5
856	SO554	1219.35	217
857	SO555	1202.35	344.5
858	SO556	1185.36	89.5
859	SO557	1168.36	217
860	SO558	1151.36	344.5
861	SO559	1134.37	89.5
862	SO560	1117.37	217
863	SO561	1100.37	344.5
864	SO562	1083.38	89.5
865	SO563	1066.38	217
866	SO564	1049.38	344.5
867	SO565	1032.39	89.5
868	SO566	1015.39	217
869	SO567	998.39	344.5
870	SO568	981.4	89.5
871	SO569	964.4	217
872	SO570	947.4	344.5
873	SO571	930.41	89.5
874	SO572	913.41	217
875	SO573	896.41	344.5
876	SO574	879.42	89.5
877	SO575	862.42	217
878	SO576	845.42	344.5
879	SO577	828.43	89.5
880	SO578	811.43	217
881	SO579	794.43	344.5
882	SO580	777.44	89.5
883	SO581	760.44	217
884	SO582	743.44	344.5
885	SO583	726.45	89.5
886	SO584	709.45	217
887	SO585	692.45	344.5
888	SO586	675.46	89.5
889	SO587	658.46	217
890	SO588	641.46	344.5
891	SO589	624.47	89.5
892	SO590	607.47	217
893	SO591	590.47	344.5
894	SO592	573.48	89.5
895	SO593	556.48	217
896	SO594	539.48	344.5
897	SO595	522.49	89.5
898	SO596	505.49	217
899	SO597	488.49	344.5
900	SO598	471.5	89.5
901	SO599	454.5	217
902	SO600	437.5	344.5
903	SHIELDING	403.5	344.5
904	SHIELDING	369.5	344.5
905	SHIELDING	335.5	344.5
906	SHIELDING	301.5	344.5
907	SHIELDING	267.5	344.5
908	SHIELDING	233.5	344.5
909	SHIELDING	-233.5	344.5

PAD	Pad_name	X	Y
910	SHIELDING	-267.5	344.5
911	SHIELDING	-301.5	344.5
912	SHIELDING	-335.5	344.5
913	SHIELDING	-369.5	344.5
914	SHIELDING	-403.5	344.5
915	SO601	-437.5	344.5
916	SO602	-454.5	217
917	SO603	-471.5	89.5
918	SO604	-488.49	344.5
919	SO605	-505.49	217
920	SO606	-522.49	89.5
921	SO607	-539.48	344.5
922	SO608	-556.48	217
923	SO609	-573.48	89.5
924	SO610	-590.47	344.5
925	SO611	-607.47	217
926	SO612	-624.47	89.5
927	SO613	-641.46	344.5
928	SO614	-658.46	217
929	SO615	-675.46	89.5
930	SO616	-692.45	344.5
931	SO617	-709.45	217
932	SO618	-726.45	89.5
933	SO619	-743.44	344.5
934	SO620	-760.44	217
935	SO621	-777.44	89.5
936	SO622	-794.43	344.5
937	SO623	-811.43	217
938	SO624	-828.43	89.5
939	SO625	-845.42	344.5
940	SO626	-862.42	217
941	SO627	-879.42	89.5
942	SO628	-896.41	344.5
943	SO629	-913.41	217
944	SO630	-930.41	89.5
945	SO631	-947.4	344.5
946	SO632	-964.4	217
947	SO633	-981.4	89.5
948	SO634	-998.39	344.5
949	SO635	-1015.39	217
950	SO636	-1032.39	89.5
951	SO637	-1049.38	344.5
952	SO638	-1066.38	217
953	SO639	-1083.38	89.5
954	SO640	-1100.37	344.5
955	SO641	-1117.37	217
956	SO642	-1134.37	89.5
957	SO643	-1151.36	344.5
958	SO644	-1168.36	217
959	SO645	-1185.36	89.5
960	SO646	-1202.35	344.5
961	SO647	-1219.35	217
962	SO648	-1236.35	89.5
963	SO649	-1253.34	344.5
964	SO650	-1270.34	217
965	SO651	-1287.34	89.5
966	SO652	-1304.33	344.5

PAD	Pad_name	X	Y
967	SO653	-1321.33	217
968	SO654	-1338.33	89.5
969	SO655	-1355.32	344.5
970	SO656	-1372.32	217
971	SO657	-1389.32	89.5
972	SO658	-1406.31	344.5
973	SO659	-1423.31	217
974	SO660	-1440.31	89.5
975	SO661	-1457.3	344.5
976	SO662	-1474.3	217
977	SO663	-1491.3	89.5
978	SO664	-1508.29	344.5
979	SO665	-1525.29	217
980	SO666	-1542.29	89.5
981	SO667	-1559.28	344.5
982	SO668	-1576.28	217
983	SO669	-1593.28	89.5
984	SO670	-1610.27	344.5
985	SO671	-1627.27	217
986	SO672	-1644.27	89.5
987	SO673	-1661.26	344.5
988	SO674	-1678.26	217
989	SO675	-1695.26	89.5
990	SO676	-1712.25	344.5
991	SO677	-1729.25	217
992	SO678	-1746.25	89.5
993	SO679	-1763.24	344.5
994	SO680	-1780.24	217
995	SO681	-1797.24	89.5
996	SO682	-1814.23	344.5
997	SO683	-1831.23	217
998	SO684	-1848.23	89.5
999	SO685	-1865.22	344.5
1000	SO686	-1882.22	217
1001	SO687	-1899.22	89.5
1002	SO688	-1916.21	344.5
1003	SO689	-1933.21	217
1004	SO690	-1950.21	89.5
1005	SO691	-1967.2	344.5
1006	SO692	-1984.2	217
1007	SO693	-2001.2	89.5
1008	SO694	-2018.19	344.5
1009	SO695	-2035.19	217
1010	SO696	-2052.19	89.5
1011	SO697	-2069.18	344.5
1012	SO698	-2086.18	217
1013	SO699	-2103.18	89.5
1014	SO700	-2120.17	344.5
1015	SO701	-2137.17	217
1016	SO702	-2154.17	89.5
1017	SO703	-2171.16	344.5
1018	SO704	-2188.16	217
1019	SO705	-2205.16	89.5
1020	SO706	-2222.15	344.5
1021	SO707	-2239.15	217
1022	SO708	-2256.15	89.5
1023	SO709	-2273.14	344.5

New Vision Confidential

PAD	Pad_name	X	Y
1024	SO710	-2290.14	217
1025	SO711	-2307.14	89.5
1026	SO712	-2324.13	344.5
1027	SO713	-2341.13	217
1028	SO714	-2358.13	89.5
1029	SO715	-2375.12	344.5
1030	SO716	-2392.12	217
1031	SO717	-2409.12	89.5
1032	SO718	-2426.11	344.5
1033	SO719	-2443.11	217
1034	SO720	-2460.11	89.5
1035	SO721	-2477.1	344.5
1036	SO722	-2494.1	217
1037	SO723	-2511.1	89.5
1038	SO724	-2528.09	344.5
1039	SO725	-2545.09	217
1040	SO726	-2562.09	89.5
1041	SO727	-2579.08	344.5
1042	SO728	-2596.08	217
1043	SO729	-2613.08	89.5
1044	SO730	-2630.07	344.5
1045	SO731	-2647.07	217
1046	SO732	-2664.07	89.5
1047	SO733	-2681.06	344.5
1048	SO734	-2698.06	217
1049	SO735	-2715.06	89.5
1050	SO736	-2732.05	344.5
1051	SO737	-2749.05	217
1052	SO738	-2766.05	89.5
1053	SO739	-2783.04	344.5
1054	SO740	-2800.04	217
1055	SO741	-2817.04	89.5
1056	SO742	-2834.03	344.5
1057	SO743	-2851.03	217
1058	SO744	-2868.03	89.5
1059	SO745	-2885.02	344.5
1060	SO746	-2902.02	217
1061	SO747	-2919.02	89.5
1062	SO748	-2936.01	344.5
1063	SO749	-2953.01	217
1064	SO750	-2970.01	89.5
1065	SO751	-2987	344.5
1066	SO752	-3004	217
1067	SO753	-3021	89.5
1068	SO754	-3037.99	344.5
1069	SO755	-3054.99	217
1070	SO756	-3071.99	89.5
1071	SO757	-3088.98	344.5
1072	SO758	-3105.98	217
1073	SO759	-3122.98	89.5
1074	SO760	-3139.97	344.5
1075	SO761	-3156.97	217
1076	SO762	-3173.97	89.5
1077	SO763	-3190.96	344.5
1078	SO764	-3207.96	217
1079	SO765	-3224.96	89.5
1080	SO766	-3241.95	344.5

PAD	Pad_name	X	Y
1081	SO767	-3258.95	217
1082	SO768	-3275.95	89.5
1083	SO769	-3292.94	344.5
1084	SO770	-3309.94	217
1085	SO771	-3326.94	89.5
1086	SO772	-3343.93	344.5
1087	SO773	-3360.93	217
1088	SO774	-3377.93	89.5
1089	SO775	-3394.92	344.5
1090	SO776	-3411.92	217
1091	SO777	-3428.92	89.5
1092	SO778	-3445.91	344.5
1093	SO779	-3462.91	217
1094	SO780	-3479.91	89.5
1095	SO781	-3496.9	344.5
1096	SO782	-3513.9	217
1097	SO783	-3530.9	89.5
1098	SO784	-3547.89	344.5
1099	SO785	-3564.89	217
1100	SO786	-3581.89	89.5
1101	SO787	-3598.88	344.5
1102	SO788	-3615.88	217
1103	SO789	-3632.88	89.5
1104	SO790	-3649.87	344.5
1105	SO791	-3666.87	217
1106	SO792	-3683.87	89.5
1107	SO793	-3700.86	344.5
1108	SO794	-3717.86	217
1109	SO795	-3734.86	89.5
1110	SO796	-3751.85	344.5
1111	SO797	-3768.85	217
1112	SO798	-3785.85	89.5
1113	SO799	-3802.84	344.5
1114	SO800	-3819.84	217
1115	SO801	-3836.84	89.5
1116	SO802	-3853.83	344.5
1117	SO803	-3870.83	217
1118	SO804	-3887.83	89.5
1119	SO805	-3904.82	344.5
1120	SO806	-3921.82	217
1121	SO807	-3938.82	89.5
1122	SO808	-3955.81	344.5
1123	SO809	-3972.81	217
1124	SO810	-3989.81	89.5
1125	SO811	-4006.8	344.5
1126	SO812	-4023.8	217
1127	SO813	-4040.8	89.5
1128	SO814	-4057.79	344.5
1129	SO815	-4074.79	217
1130	SO816	-4091.79	89.5
1131	SO817	-4108.78	344.5
1132	SO818	-4125.78	217
1133	SO819	-4142.78	89.5
1134	SO820	-4159.77	344.5
1135	SO821	-4176.77	217
1136	SO822	-4193.77	89.5
1137	SO823	-4210.76	344.5

PAD	Pad_name	X	Y
1138	SO824	-4227.76	217
1139	SO825	-4244.76	89.5
1140	SO826	-4261.75	344.5
1141	SO827	-4278.75	217
1142	SO828	-4295.75	89.5
1143	SO829	-4312.74	344.5
1144	SO830	-4329.74	217
1145	SO831	-4346.74	89.5
1146	SO832	-4363.73	344.5
1147	SO833	-4380.73	217
1148	SO834	-4397.73	89.5
1149	SO835	-4414.72	344.5
1150	SO836	-4431.72	217
1151	SO837	-4448.72	89.5
1152	SO838	-4465.71	344.5
1153	SO839	-4482.71	217
1154	SO840	-4499.71	89.5
1155	SO841	-4516.7	344.5
1156	SO842	-4533.7	217
1157	SO843	-4550.7	89.5
1158	SO844	-4567.69	344.5
1159	SO845	-4584.69	217
1160	SO846	-4601.69	89.5
1161	SO847	-4618.68	344.5
1162	SO848	-4635.68	217
1163	SO849	-4652.68	89.5
1164	SO850	-4669.67	344.5
1165	SO851	-4686.67	217
1166	SO852	-4703.67	89.5
1167	SO853	-4720.66	344.5
1168	SO854	-4737.66	217
1169	SO855	-4754.66	89.5
1170	SO856	-4771.65	344.5
1171	SO857	-4788.65	217
1172	SO858	-4805.65	89.5
1173	SO859	-4822.64	344.5
1174	SO860	-4839.64	217
1175	SO861	-4856.64	89.5
1176	SO862	-4873.63	344.5
1177	SO863	-4890.63	217
1178	SO864	-4907.63	89.5
1179	SO865	-4924.62	344.5
1180	SO866	-4941.62	217
1181	SO867	-4958.62	89.5
1182	SO868	-4975.61	344.5
1183	SO869	-4992.61	217
1184	SO870	-5009.61	89.5
1185	SO871	-5026.6	344.5
1186	SO872	-5043.6	217
1187	SO873	-5060.6	89.5
1188	SO874	-5077.59	344.5
1189	SO875	-5094.59	217
1190	SO876	-5111.59	89.5
1191	SO877	-5128.58	344.5
1192	SO878	-5145.58	217
1193	SO879	-5162.58	89.5
1194	SO880	-5179.57	344.5

New Vision Confidential

PAD	Pad_name	X	Y
1195	SO881	-5196.57	217
1196	SO882	-5213.57	89.5
1197	SO883	-5230.56	344.5
1198	SO884	-5247.56	217
1199	SO885	-5264.56	89.5
1200	SO886	-5281.55	344.5
1201	SO887	-5298.55	217
1202	SO888	-5315.55	89.5
1203	SO889	-5332.54	344.5
1204	SO890	-5349.54	217
1205	SO891	-5366.54	89.5
1206	SO892	-5383.53	344.5
1207	SO893	-5400.53	217
1208	SO894	-5417.53	89.5
1209	SO895	-5434.52	344.5
1210	SO896	-5451.52	217
1211	SO897	-5468.52	89.5
1212	SO898	-5485.51	344.5
1213	SO899	-5502.51	217
1214	SO900	-5519.51	89.5
1215	SO901	-5536.5	344.5
1216	SO902	-5553.5	217
1217	SO903	-5570.5	89.5
1218	SO904	-5587.49	344.5
1219	SO905	-5604.49	217
1220	SO906	-5621.49	89.5
1221	SO907	-5638.48	344.5
1222	SO908	-5655.48	217
1223	SO909	-5672.48	89.5
1224	SO910	-5689.47	344.5
1225	SO911	-5706.47	217
1226	SO912	-5723.47	89.5
1227	SO913	-5740.46	344.5
1228	SO914	-5757.46	217
1229	SO915	-5774.46	89.5
1230	SO916	-5791.45	344.5
1231	SO917	-5808.45	217
1232	SO918	-5825.45	89.5
1233	SO919	-5842.44	344.5
1234	SO920	-5859.44	217
1235	SO921	-5876.44	89.5
1236	SO922	-5893.43	344.5
1237	SO923	-5910.43	217
1238	SO924	-5927.43	89.5
1239	SO925	-5944.42	344.5
1240	SO926	-5961.42	217
1241	SO927	-5978.42	89.5
1242	SO928	-5995.41	344.5
1243	SO929	-6012.41	217
1244	SO930	-6029.41	89.5
1245	SO931	-6046.4	344.5
1246	SO932	-6063.4	217
1247	SO933	-6080.4	89.5
1248	SO934	-6097.39	344.5
1249	SO935	-6114.39	217
1250	SO936	-6131.39	89.5
1251	SO937	-6148.38	344.5

PAD	Pad_name	X	Y
1252	SO938	-6165.38	217
1253	SO939	-6182.38	89.5
1254	SO940	-6199.37	344.5
1255	SO941	-6216.37	217
1256	SO942	-6233.37	89.5
1257	SO943	-6250.36	344.5
1258	SO944	-6267.36	217
1259	SO945	-6284.36	89.5
1260	SO946	-6301.35	344.5
1261	SO947	-6318.35	217
1262	SO948	-6335.35	89.5
1263	SO949	-6352.34	344.5
1264	SO950	-6369.34	217
1265	SO951	-6386.34	89.5
1266	SO952	-6403.33	344.5
1267	SO953	-6420.33	217
1268	SO954	-6437.33	89.5
1269	SO955	-6454.32	344.5
1270	SO956	-6471.32	217
1271	SO957	-6488.32	89.5
1272	SO958	-6505.31	344.5
1273	SO959	-6522.31	217
1274	SO960	-6539.31	89.5
1275	SO961	-6556.3	344.5
1276	SO962	-6573.3	217
1277	SO963	-6590.3	89.5
1278	SO964	-6607.29	344.5
1279	SO965	-6624.29	217
1280	SO966	-6641.29	89.5
1281	SO967	-6658.28	344.5
1282	SO968	-6675.28	217
1283	SO969	-6692.28	89.5
1284	SO970	-6709.27	344.5
1285	SO971	-6726.27	217
1286	SO972	-6743.27	89.5
1287	SO973	-6760.26	344.5
1288	SO974	-6777.26	217
1289	SO975	-6794.26	89.5
1290	SO976	-6811.25	344.5
1291	SO977	-6828.25	217
1292	SO978	-6845.25	89.5
1293	SO979	-6862.24	344.5
1294	SO980	-6879.24	217
1295	SO981	-6896.24	89.5
1296	SO982	-6913.23	344.5
1297	SO983	-6930.23	217
1298	SO984	-6947.23	89.5
1299	SO985	-6964.22	344.5
1300	SO986	-6981.22	217
1301	SO987	-6998.22	89.5
1302	SO988	-7015.21	344.5
1303	SO989	-7032.21	217
1304	SO990	-7049.21	89.5
1305	SO991	-7066.2	344.5
1306	SO992	-7083.2	217
1307	SO993	-7100.2	89.5
1308	SO994	-7117.19	344.5

PAD	Pad_name	X	Y
1309	SO995	-7134.19	217
1310	SO996	-7151.19	89.5
1311	SO997	-7168.18	344.5
1312	SO998	-7185.18	217
1313	SO999	-7202.18	89.5
1314	SO1000	-7219.17	344.5
1315	SO1001	-7236.17	217
1316	SO1002	-7253.17	89.5
1317	SO1003	-7270.16	344.5
1318	SO1004	-7287.16	217
1319	SO1005	-7304.16	89.5
1320	SO1006	-7321.15	344.5
1321	SO1007	-7338.15	217
1322	SO1008	-7355.15	89.5
1323	SO1009	-7372.14	344.5
1324	SO1010	-7389.14	217
1325	SO1011	-7406.14	89.5
1326	SO1012	-7423.13	344.5
1327	SO1013	-7440.13	217
1328	SO1014	-7457.13	89.5
1329	SO1015	-7474.12	344.5
1330	SO1016	-7491.12	217
1331	SO1017	-7508.12	89.5
1332	SO1018	-7525.11	344.5
1333	SO1019	-7542.11	217
1334	SO1020	-7559.11	89.5
1335	SO1021	-7576.1	344.5
1336	SO1022	-7593.1	217
1337	SO1023	-7610.1	89.5
1338	SO1024	-7627.09	344.5
1339	SO1025	-7644.09	217
1340	SO1026	-7661.09	89.5
1341	SO1027	-7678.08	344.5
1342	SO1028	-7695.08	217
1343	SO1029	-7712.08	89.5
1344	SO1030	-7729.07	344.5
1345	SO1031	-7746.07	217
1346	SO1032	-7763.07	89.5
1347	SO1033	-7780.06	344.5
1348	SO1034	-7797.06	217
1349	SO1035	-7814.06	89.5
1350	SO1036	-7831.05	344.5
1351	SO1037	-7848.05	217
1352	SO1038	-7865.05	89.5
1353	SO1039	-7882.04	344.5
1354	SO1040	-7899.04	217
1355	SO1041	-7916.04	89.5
1356	SO1042	-7933.03	344.5
1357	SO1043	-7950.03	217
1358	SO1044	-7967.03	89.5
1359	SO1045	-7984.02	344.5
1360	SO1046	-8001.02	217
1361	SO1047	-8018.02	89.5
1362	SO1048	-8035.01	344.5
1363	SO1049	-8052.01	217
1364	SO1050	-8069.01	89.5
1365	SO1051	-8086	344.5

New Vision Confidential

PAD	Pad_name	X	Y
1366	SO1052	-8103	217
1367	SO1053	-8120	89.5
1368	SO1054	-8136.99	344.5
1369	SO1055	-8153.99	217
1370	SO1056	-8170.99	89.5
1371	SO1057	-8187.98	344.5
1372	SO1058	-8204.98	217
1373	SO1059	-8221.98	89.5
1374	SO1060	-8238.97	344.5
1375	SO1061	-8255.97	217
1376	SO1062	-8272.97	89.5
1377	SO1063	-8289.96	344.5
1378	SO1064	-8306.96	217
1379	SO1065	-8323.96	89.5
1380	SO1066	-8340.95	344.5
1381	SO1067	-8357.95	217
1382	SO1068	-8374.95	89.5
1383	SO1069	-8391.94	344.5
1384	SO1070	-8408.94	217
1385	SO1071	-8425.94	89.5
1386	SO1072	-8442.93	344.5
1387	SO1073	-8459.93	217
1388	SO1074	-8476.93	89.5
1389	SO1075	-8493.92	344.5
1390	SO1076	-8510.92	217
1391	SO1077	-8527.92	89.5
1392	SO1078	-8544.91	344.5
1393	SO1079	-8561.91	217
1394	SO1080	-8578.91	89.5
1395	SO1081	-8595.9	344.5
1396	SO1082	-8612.9	217
1397	SO1083	-8629.9	89.5
1398	SO1084	-8646.89	344.5
1399	SO1085	-8663.89	217
1400	SO1086	-8680.89	89.5
1401	SO1087	-8697.88	344.5
1402	SO1088	-8714.88	217
1403	SO1089	-8731.88	89.5
1404	SO1090	-8748.87	344.5
1405	SO1091	-8765.87	217
1406	SO1092	-8782.87	89.5
1407	SO1093	-8799.86	344.5
1408	SO1094	-8816.86	217
1409	SO1095	-8833.86	89.5
1410	SO1096	-8850.85	344.5
1411	SO1097	-8867.85	217
1412	SO1098	-8884.85	89.5
1413	SO1099	-8901.84	344.5
1414	SO1100	-8918.84	217
1415	SO1101	-8935.84	89.5
1416	SO1102	-8952.83	344.5
1417	SO1103	-8969.83	217
1418	SO1104	-8986.83	89.5
1419	SO1105	-9003.82	344.5
1420	SO1106	-9020.82	217
1421	SO1107	-9037.82	89.5
1422	SO1108	-9054.81	344.5

PAD	Pad_name	X	Y
1423	SO1109	-9071.81	217
1424	SO1110	-9088.81	89.5
1425	SO1111	-9105.8	344.5
1426	SO1112	-9122.8	217
1427	SO1113	-9139.8	89.5
1428	SO1114	-9156.79	344.5
1429	SO1115	-9173.79	217
1430	SO1116	-9190.79	89.5
1431	SO1117	-9207.78	344.5
1432	SO1118	-9224.78	217
1433	SO1119	-9241.78	89.5
1434	SO1120	-9258.77	344.5
1435	SO1121	-9275.77	217
1436	SO1122	-9292.77	89.5
1437	SO1123	-9309.76	344.5
1438	SO1124	-9326.76	217
1439	SO1125	-9343.76	89.5
1440	SO1126	-9360.75	344.5
1441	SO1127	-9377.75	217
1442	SO1128	-9394.75	89.5
1443	SO1129	-9411.74	344.5
1444	SO1130	-9428.74	217
1445	SO1131	-9445.74	89.5
1446	SO1132	-9462.73	344.5
1447	SO1133	-9479.73	217
1448	SO1134	-9496.73	89.5
1449	SO1135	-9513.72	344.5
1450	SO1136	-9530.72	217
1451	SO1137	-9547.72	89.5
1452	SO1138	-9564.71	344.5
1453	SO1139	-9581.71	217
1454	SO1140	-9598.71	89.5
1455	SO1141	-9615.7	344.5
1456	SO1142	-9632.7	217
1457	SO1143	-9649.7	89.5
1458	SO1044	-9666.69	344.5
1459	SO1145	-9683.69	217
1460	SO1146	-9700.69	89.5
1461	SO1147	-9717.68	344.5
1462	SO1148	-9734.68	217
1463	SO1149	-9751.68	89.5
1464	SO1150	-9768.67	344.5
1465	SO1151	-9785.67	217
1466	SO1152	-9802.67	89.5
1467	SO1153	-9819.66	344.5
1468	SO1154	-9836.66	217
1469	SO1155	-9853.66	89.5
1470	SO1156	-9870.65	344.5
1471	SO1157	-9887.65	217
1472	SO1158	-9904.65	89.5
1473	SO1159	-9921.64	344.5
1474	SO1160	-9938.64	217
1475	SO1161	-9955.64	89.5
1476	SO1162	-9972.63	344.5
1477	SO1163	-9989.63	217
1478	SO1164	-10006.63	89.5
1479	SO1165	-10023.62	344.5

PAD	Pad_name	X	Y
1480	SO1166	-10040.62	217
1481	SO1167	-10057.62	89.5
1482	SO1168	-10074.61	344.5
1483	SO1169	-10091.61	217
1484	SO1170	-10108.61	89.5
1485	SO1171	-10125.6	344.5
1486	SO1172	-10142.6	217
1487	SO1173	-10159.6	89.5
1488	SO1174	-10176.59	344.5
1489	SO1175	-10193.59	217
1490	SO1176	-10210.59	89.5
1491	SO1177	-10227.58	344.5
1492	SO1178	-10244.58	217
1493	SO1179	-10261.58	89.5
1494	SO1180	-10278.57	344.5
1495	SO1181	-10295.57	217
1496	SO1182	-10312.57	89.5
1497	SO1183	-10329.56	344.5
1498	SO1184	-10346.56	217
1499	SO1185	-10363.56	89.5
1500	SO1186	-10380.55	344.5
1501	SO1187	-10397.55	217
1502	SO1188	-10414.55	89.5
1503	SO1189	-10431.54	344.5
1504	SO1190	-10448.54	217
1505	SO1191	-10465.54	89.5
1506	SO1192	-10482.53	344.5
1507	SO1193	-10499.53	217
1508	SO1194	-10516.53	89.5
1509	SO1195	-10533.52	344.5
1510	SO1196	-10550.52	217
1511	SO1197	-10567.52	89.5
1512	SO1198	-10584.51	344.5
1513	SO1199	-10601.51	217
1514	SO1200	-10618.51	89.5
1515	SHIELDING	-10664	364.5
1516	COM1_T	-10714	364.5
1517	COM1_T	-10764	364.5
1518	DUMMY	-10814	364.5
1519	DUMMY	-10864	364.5
1520	DUMMY	-10914	364.5

ALIGNMENT_MARK_R	10773	93
ALIGNMENT_MARK_L	-10773	93

New Vision Confidential

Revision History

Version No.	Date	Page	Introduction
0.1	2013-12-04	All	New build.
0.2	2013-12-19	P29	Add chip size:22608um× 923um(including seal ring and scribe line).
	2014-03-04	All	Revise NV3858 name: NV3858GBC.
0.3	2014-03-12	All	Change NV3858GB name to NV3858GBC.

NewVision Confidential

Information furnished is believed to be accurate and reliable. However, New Vision Microelectronics Inc. assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of New Vision Microelectronics Inc. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information if previously supplied.