

1536 CH Source Driver with LVDS TCON For 1024RGBx768/600 TFT LCD

Specification Preliminary

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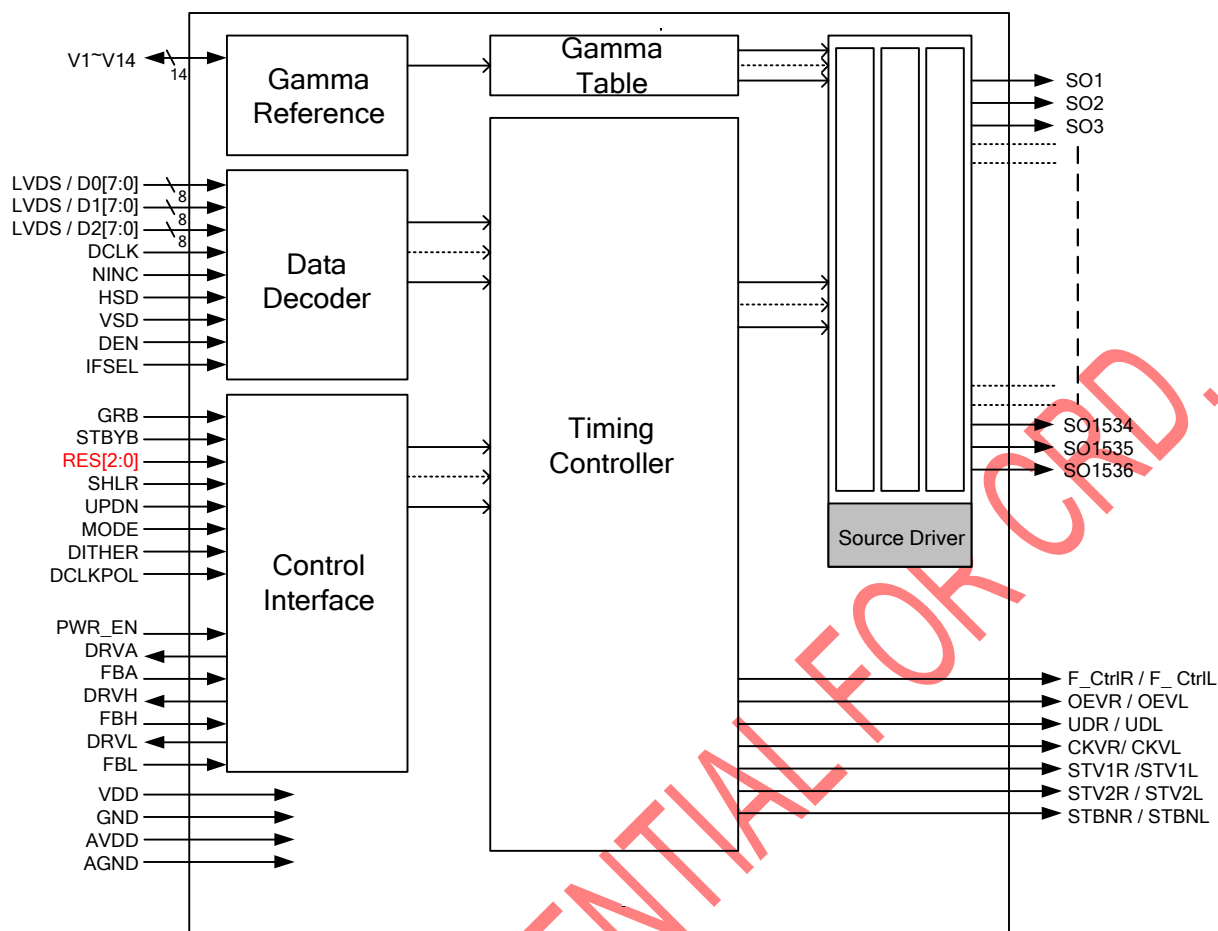
1. Introduction

The ILI6150 is a highly integrated solution for small size to middle size a-Si TFT-LCD panels. This chip integrates 1536ch for normal cascade and dual gate mode source driver with LVDS and parallel RGB TTL input interface. This chip is special designed for low cost UMPC application.

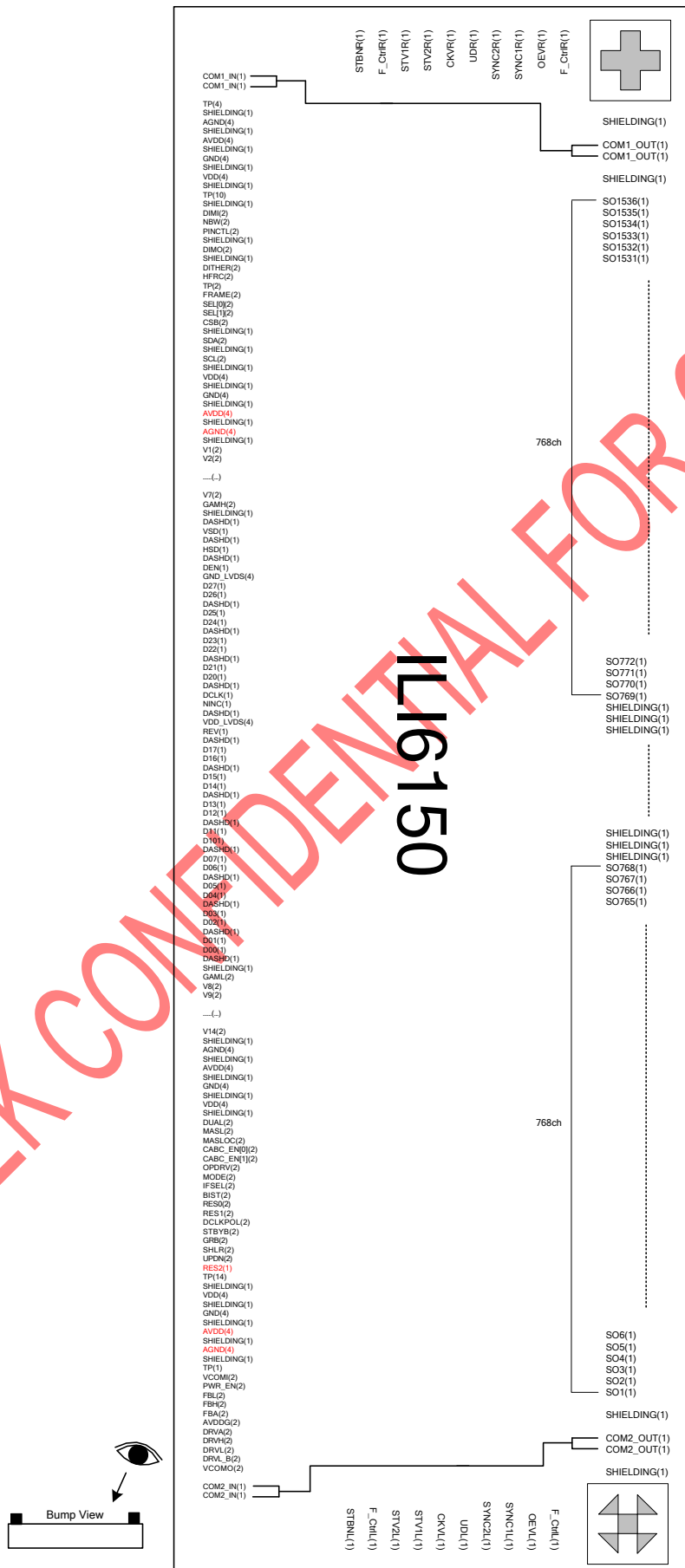
2. Features

- Special design for 1024RGBX600 TFT LCD Panel with LVDS/TTL 8/8/8 Bits interface
- Integrate 1536 channel source driver with single or dual gate function
- Support cascade function with bidirectional shift control (CMOS signal)
- Support panel resolution (HxV) :
1024RGBX768, 1024RGBX600, 800RGBX600, 800RGBX480, 960RGBX640, 600RGBX1024
- 8-bit resolution 256 gray-scale with Dithering (6 bits DAC + 2 bit FRC or HFRC)
- Support Pin Control function for Up/Down, Left/Right ... control
- Power for digital circuit(VDD): 2.3V ~ 3.6V
- Power for analog circuit(AVDD): 8V ~ 13.5V
- Support Normal White & Normal Black Panel
- Operating frequency: 71MHz for LVDS interface
- Embedded Gamma Table for special custom request
- V1~V14 for adjusting Gamma correction
- 1 + 2 dot inversion architecture
- Built-In CABC function
- Built-In AUTO BIST pattern
- COG package
- Chip Size : 25000um X 700um、 Output bump pitch : 15um

3. Block Diagram

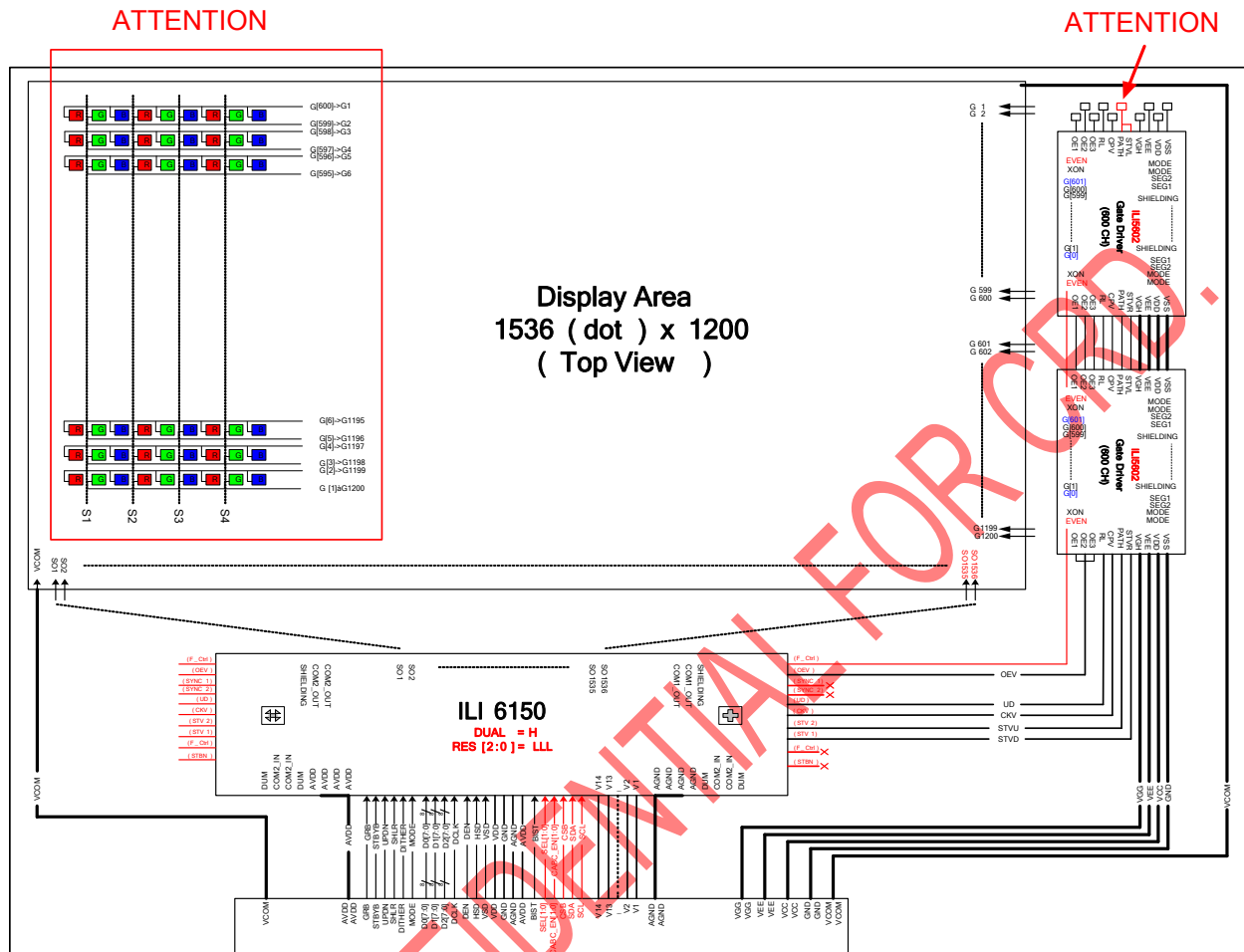


4. Pad Sequence

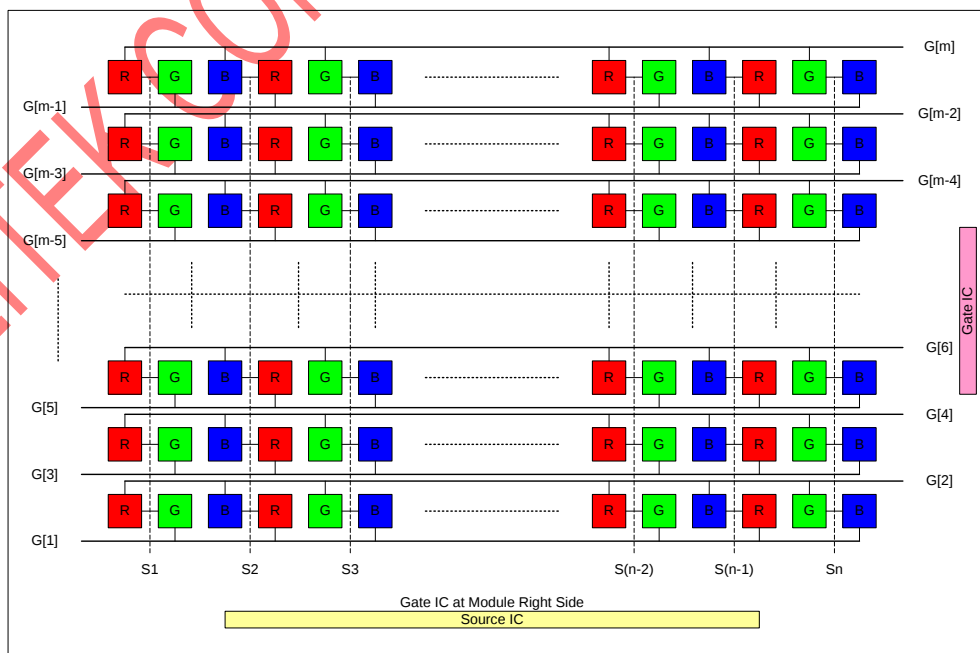


5. Application Block Diagram

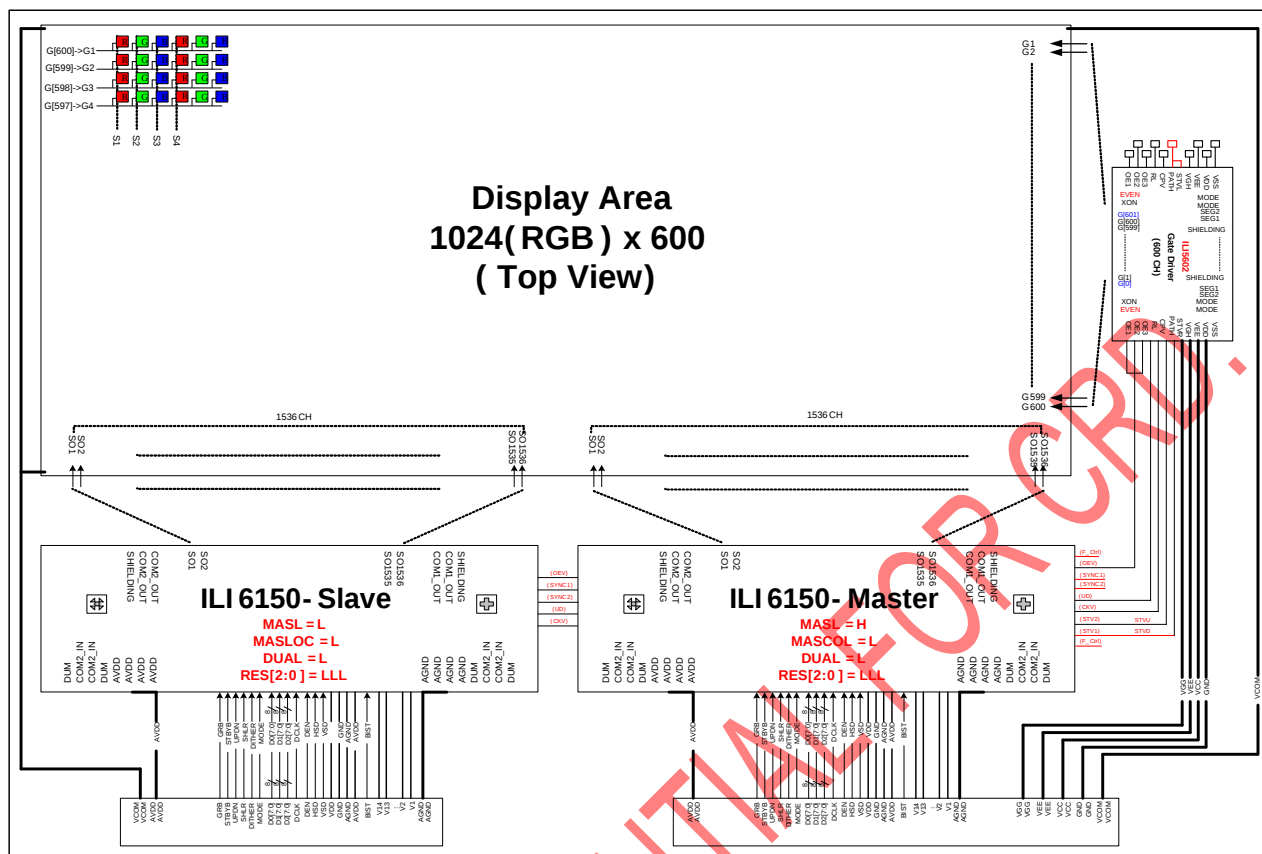
5.1 Dual Gate



5.2 Dual Gate Color Filter Type



5.3 Cascade with Two FPC



6. Pin Descriptions

Pin Name	I/O	Descriptions																		
D07 ~ D00 D17 ~ D10 D27 ~ D20	I	LVDS or Parallel RGB data Input. Select by "IFSEL" pin. <table border="1"> <thead> <tr> <th>Pin name</th><th>TTL Interface</th><th>LVDS Interface</th></tr> </thead> <tbody> <tr> <td>IFSEL</td><td>L</td><td>H</td></tr> <tr> <td>D2[0], D2[1]</td><td>B[0], B[1]</td><td>NIND0, PIND1</td></tr> <tr> <td>D2[2], D2[3]</td><td>B[2], B[3]</td><td>NIND2, PIND3</td></tr> <tr> <td>D2[4], D2[5]</td><td>B[4], B[5]</td><td>NIND4, PIND5</td></tr> <tr> <td>D2[6], D2[7]</td><td>B[6], B[7]</td><td>NIND6, PIND7</td></tr> </tbody> </table> LVDS 6 bit data input : PIND[2:0], NIND[2:0]. D[07:00] = R[7:0] data; D[17:10] = G[7:0] data; D[27:20] = B[7:0] data. For 18bit RGB interface, connect two LSB bits of all the R/G/B data buses to GND. Note : D07~D00→SO1, SO4 ... SO1531, SO1534 D17~D10→SO2, SO5 ... SO1532, SO1535 D27~D20→SO3, SO6 ... SO1533, SO1536 Note: Please note the relation between RGB data and Color Filter sequence	Pin name	TTL Interface	LVDS Interface	IFSEL	L	H	D2[0], D2[1]	B[0], B[1]	NIND0, PIND1	D2[2], D2[3]	B[2], B[3]	NIND2, PIND3	D2[4], D2[5]	B[4], B[5]	NIND4, PIND5	D2[6], D2[7]	B[6], B[7]	NIND6, PIND7
Pin name	TTL Interface	LVDS Interface																		
IFSEL	L	H																		
D2[0], D2[1]	B[0], B[1]	NIND0, PIND1																		
D2[2], D2[3]	B[2], B[3]	NIND2, PIND3																		
D2[4], D2[5]	B[4], B[5]	NIND4, PIND5																		
D2[6], D2[7]	B[6], B[7]	NIND6, PIND7																		
DCLK	I	Clock Input pin for LVDS or TTL mode. Select by "IFSEL" pin. <table border="1"> <thead> <tr> <th>Pin name</th><th>TTL Interface</th><th>LVDS Interface</th></tr> </thead> <tbody> <tr> <td>IFSEL</td><td>L</td><td>H</td></tr> <tr> <td>DCLK</td><td>DCLK</td><td>PINC</td></tr> </tbody> </table>	Pin name	TTL Interface	LVDS Interface	IFSEL	L	H	DCLK	DCLK	PINC									
Pin name	TTL Interface	LVDS Interface																		
IFSEL	L	H																		
DCLK	DCLK	PINC																		
NINC	I	Negative LVDS differential clock input.																		
V1~V14	I	Full Range Application: V1~V14 are the external gamma correction points. The voltage of these pins must be: AGND+0.1<V14<V13<V12<V11<V10<V9<V8; V7<V6<V5<V4<V3<V2<V1< AVDD-0.1 . Note: VGMH and VGML are floating																		
SHLR	I	Source Right or Left sequence control. Normally pull high. SHLR = "L", shift left: last data = SO1←SO2←SO3.....←SO1536 = first data. SHLR = "H", shift right: first data = SO1→SO2→SO3.....→SO1536 = last data.																		
SEL[1:0]	I	Gate on sequence select. Normally pull low <table border="1"> <thead> <tr> <th>SEL[0]</th><th>SEL[1]</th><th>Pin control function</th></tr> </thead> <tbody> <tr> <td>1</td><td>1</td><td>Z+弓</td></tr> <tr> <td>1</td><td>0</td><td>弓</td></tr> <tr> <td>0</td><td>1</td><td>∇ (Inverse Z)</td></tr> <tr> <td>0</td><td>0</td><td>Z</td></tr> </tbody> </table>	SEL[0]	SEL[1]	Pin control function	1	1	Z+弓	1	0	弓	0	1	∇ (Inverse Z)	0	0	Z			
SEL[0]	SEL[1]	Pin control function																		
1	1	Z+弓																		
1	0	弓																		
0	1	∇ (Inverse Z)																		
0	0	Z																		
CABC_EN[1:0]	I	CABC H/W enable pin. Normally pull low <table border="1"> <thead> <tr> <th>CABC_EN1</th><th>CABC_EN0</th><th>Mode</th></tr> </thead> <tbody> <tr> <td>0</td><td>0</td><td>CABC OFF</td></tr> <tr> <td>0</td><td>1</td><td>User interface Image</td></tr> <tr> <td>1</td><td>0</td><td>Still Picture</td></tr> <tr> <td>1</td><td>1</td><td>Moving Image</td></tr> </tbody> </table> Remark: Default CABC OFF	CABC_EN1	CABC_EN0	Mode	0	0	CABC OFF	0	1	User interface Image	1	0	Still Picture	1	1	Moving Image			
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0	0	CABC OFF																		
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HSD	I	<table border="1"> <thead> <tr> <th>Pin name</th><th>TTL Interface</th><th>LVDS Interface</th></tr> </thead> <tbody> <tr> <td>IFSEL</td><td>L</td><td>H</td></tr> <tr> <td>HSD</td><td>Horizontal Sync input (Negative polarity)</td><td>L : 8 Bit H : 6 Bit</td></tr> </tbody> </table>	Pin name	TTL Interface	LVDS Interface	IFSEL	L	H	HSD	Horizontal Sync input (Negative polarity)	L : 8 Bit H : 6 Bit									
Pin name	TTL Interface	LVDS Interface																		
IFSEL	L	H																		
HSD	Horizontal Sync input (Negative polarity)	L : 8 Bit H : 6 Bit																		

Pin Name	I/O	Descriptions		
VSD	I	Pin name	TTL Interface	LVDS Interface
		IFSEL	L	H
		VSD	Vertical Sync input (Negative polarity)	Connected to FPC and Pull Low
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 under TTL mode. Normally pull high H: DE mode. L: HSD/VSD mode.		
DITHER	I	Dithering function enable control. Normally pull low DITHER = "1", Enable internal dithering function DITHER = "0", Disable internal dithering function		
HFRC	I	H-FRC selection. Normally pull low HFRC = H : H-FRC enable HFRC = L : H-FRC disable If DITHER = "0", disable dithering function(H-FRC and FRC disable)		
PINCTL	I	Enable pin control function. Normally pull high PINCTL="0", Disable pin control function. PINCTL="1", Enable pin control function. NOTE: The related 3-wire control register bit control will be disabled under PINCTL="1".		
REV	I	Controls whether the data of D00~D27 are inverted or not. Normally pulled low. When "REV"=1 these data will be inverted. EX. "00H" → "3FH", "07H" → "38H", "15H" → "2AH", and so on.		
DCLKPOL	I	Input clock edge selection. Normally pull low CLKPOL = "1", Latch data at DCLK rising edge. CLKPOL = "0", Latch data at DCLK falling edge. (Default)		
DUAL	I	Dual Gate function enables control. Normally pull high DUAL = "1", Enable Dual Gate Function. (Default) DUAL = "0", Disable Dual Gate Function Note: Cascade function will be disabled under "dual gate" mode!!		
F_CtrlR/F_CtrlL	O	Gate driver control signal (For special Gate on sequence). Note: In Cascade structure, let this pin floating In Dual Gate structure, connect this pin to gate driver's F_Ctrl. And setting gate driver's SEL[1:0] to "00" for Z Scan Type.		
IFSEL	I	TTL and LVDS Interface selection. Normally pull low IFSEL = L : TTL interface IFSEL = H : LVDS interface		
GAMH	I	When INTERNAL Gamma Table is used, GAMH tied to AVDDG via resistor for PWR_EN = H, enable PWM or tied to AVDD for PWR_EN = L, disable PWM. (When used external gamma, GAMH must tie low)		
GAML	I	When using INTERNAL Gamma Table, tied to GND. (When used external gamma, GAML must tie low)		
GRB	I	Global reset pin. Active Low to enter Reset State. Normally pull high. Suggest to connecting with an RC reset circuit for stability.		

Pin Name	I/O	Descriptions																																
STBYB	I	Standby mode & Normally pulled high . STBYB = "1", normal operation STBYB = "0", timing controller, source driver will turn off, all output are High-Z																																
MASL	I	Master and Slave Mode selection. Normally pull high . MASL ="H", for Master mode. (Default Mode) MASL ="L", for Slave mode. Only the Master chip will issue the Gate and Cascade control signal.																																
MASLOC	I	Master location definition pin. Normally pull low . MASLOC ="L", Master locate on right side (Panel top view). (Default Mode) MASLOC ="H", Master locate on left side (Panel top view).																																
RES[2:0]	I	Display resolution selection. RES[2:0] Normally pull low <table><tr><th>RES[2:0]</th><th>Resolution</th><th>Enable Channel</th><th>Disable Channel</th></tr><tr><td>L L L</td><td>1024X600</td><td rowspan="2">SO1~SO1536</td><td rowspan="2">--</td></tr><tr><td>L L H</td><td>1024X768</td></tr><tr><td>L H L</td><td>800X600</td><td rowspan="2">SO1~SO600 ; SO937~SO1536</td><td rowspan="2">SO601~SO936 (Hi-Z)</td></tr><tr><td>L H H</td><td>800X480</td></tr><tr><td>H L L</td><td>960RGBX540</td><td>SO1~SO720 ;</td><td>SO721~SO816</td></tr><tr><td>H L H</td><td>960RGBX640</td><td>SO817~SO1536</td><td>(Hi-Z)</td></tr><tr><td>H H L</td><td>600RGBX1024</td><td>SO1~SO450 ; SO1087~SO1536</td><td>SO451~SO1086 (Hi-Z)</td></tr><tr><td>H H H</td><td></td><td colspan="2">N.A</td></tr></table>	RES[2:0]	Resolution	Enable Channel	Disable Channel	L L L	1024X600	SO1~SO1536	--	L L H	1024X768	L H L	800X600	SO1~SO600 ; SO937~SO1536	SO601~SO936 (Hi-Z)	L H H	800X480	H L L	960RGBX540	SO1~SO720 ;	SO721~SO816	H L H	960RGBX640	SO817~SO1536	(Hi-Z)	H H L	600RGBX1024	SO1~SO450 ; SO1087~SO1536	SO451~SO1086 (Hi-Z)	H H H		N.A	
RES[2:0]	Resolution	Enable Channel	Disable Channel																															
L L L	1024X600	SO1~SO1536	--																															
L L H	1024X768																																	
L H L	800X600	SO1~SO600 ; SO937~SO1536	SO601~SO936 (Hi-Z)																															
L H H	800X480																																	
H L L	960RGBX540	SO1~SO720 ;	SO721~SO816																															
H L H	960RGBX640	SO817~SO1536	(Hi-Z)																															
H H L	600RGBX1024	SO1~SO450 ; SO1087~SO1536	SO451~SO1086 (Hi-Z)																															
H H H		N.A																																
UPDN	I	Gate Up or Down scan control. Normally pull low . UPDN = "L", STV2 output vertical start pulse and UD pin output logical "0" to Gate driver. UPDN = "H", 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 = H : BIST(DCLK input is not needed) BIST = L : Normal Operation																																
NBW	I	Normally black or normally white setting. Normally pulled low . NBW = H : Normally black NBW = L : Normally white																																
FRAME	I	Frame inverse or not select. Normally pulled Low FRAME = "1", Uniform FRAME = "0", Frame inverse (Default)																																
OEVR/OEVL	O	Gate driver control signal (CABC and BIST sync control)																																
SYNC1R/SYNC1L	O	CABC and BIST sync control																																
SYNC2R/SYNC2L	O	CABC and BIST sync control																																
UDR/UDL	O	Gate driver control signal (CABC and BIST sync control)																																
CKVR/CKVL	O	Gate driver control signal (CABC and BIST sync control)																																
STV1R/STV1L	O	Gate driver control signal																																
STV2R/STV2L	O	Gate driver control signal																																
STBNR/STBNL	O	Gate driver control signal																																
DIMI	I	Brightness control signal. Normally pull high																																
DIMO	O	Backlight dimmer signal for external controller. DIMO = "0", Turn off external backlight controller DIMO = "1", Logical control signal to turn on external backlight controller NOTE: If CABC OFF, DIMO = DIMI. Else DIMO is controlled by CABC																																

Pin Name	I/O	Descriptions
OPDRV	I	Source OP driving selection. Normally pull low OPDRV = H : 133% OPDRV = L : normal
CSB	I	Serial communication chip select. Normally pull Low
SDA	I/O	Serial communication data input. Normally pull Low
SCL	I	Serial communication clock input. Normally pull Low
AVDD	PI	Power supply for analog circuits
AGND	PI	Ground pins for analog circuits
VDD	PI	Power supply for digital circuits
GND	PI	Ground pins for digital circuits
VDD_LVDS	PI	LVDS power
GND_LVDS	PI	LVDS ground
PWR_EN	I	POWER Enable Function Control Pin. PWR_EN=H, Enable PWM → Charge Pump and VCOM buffer. PWR_EN=L, Disable PWM → Charge Pump and VCOM buffer. Normally pull low.
FBA	I	N.A (Keep at Open)
DRVA	O	N.A (Keep at Open)
FBH	I	N.A (Keep at Open)
DRVH	O	N.A (Keep at Open)
FBL	I	N.A (Keep at Open)
DRVL	O	N.A (Keep at Open)
DRVL_B	O	N.A (Keep at Open)
VCOMI	I	N.A (Keep at Open)
VCOMO	O	N.A (Keep at Open)
AVDDG	O	AVDD regulate output.
SO1~SO1536	O	Output Driver signal
COM1_IN COM1_OUT	S	Internal link together between input side and output side.
COM2_IN COM2_OUT	S	Internal link together between input side and output side.
TP	T	Test pin for ILITEK only. Float these pins for normal operation.
SHIELDING	SH	IC Shielding pads. Those pins are internally connected to the AGND. RECOMMAND to add shielding lines on the FPC to reduce EMI.
DASHD	SH	Data Bus Shielding pad. Those pins are internally connected to the GND. RECOMMAND to add shielding lines on the FPC to reduce EMI.

Pin Name	I/O	Descriptions
DUM	D	Dummy pads. Those pins are floating pads.

Note:

IO Define	Function
I	Input
O	Output
P	Power
D	Dummy
S	Shorted Line
M	Mark
PI	Power Input
PO	Power Output
T	Testing
SH	Sgielding
I/O	Input/Output
PS	Power Setting

ILI6150 Pass Line Description:

PASS LINE NO.	PAN NAME	
1	COM1_IN	COM1_OUT
2	COM2_IN	COM2_OUT

7. Value of Wiring Resistance

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(ohm)	Pin Name	Wiring resistance value(Ω)
AVDD	<5	RES0	<100
AGND	<5	RES1	<100
VDD	<5	RES2	<100
GND	<5	SHLR	<100
V1~V14	<5	UPDN	<100
DRVx	<5	BIST	<100
FBx	<5	MODE	<100
VCOMI	<5	DCLKPOL	<100
VCOMO	<5	DIMO	<100
D00~D07	<5	IFSEL	<100
D10~D17	<5	F_Ctrlx	<500
D20~D27	<5	OEVx	<500
DCLK	<5	UDx	<500
NINC	<5	CKVx	<500
VSD	<20	STV1x	<500
HSD	<20	STV2x	<500
DEN	<20	STBNx	<500
GRB	<100		
STBYB	<100		
DITHER	<100		

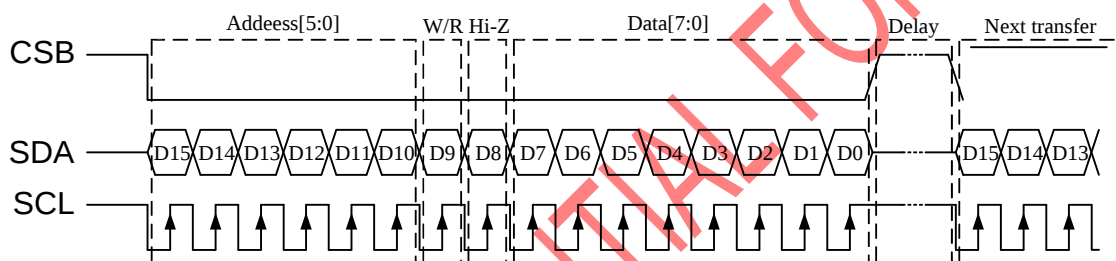
8. 3-Wire Serial Port Interface

8.1 3-Wire Command Format

ILI6150 use the 3-wire serial port as communication interface for all the function and parameter setting. 3-Wire Communication can be bi-directional controlled by the "R/W" bit in address field. ILI6150 3-Wire engine act as a "slave mode" for all the time, and will not issue any command to the 3-Wire bus itself.

Under read mode, 3-Wire engine will return the data during "Data phase". The returned data should be latched at the rising edge of SCL by external controller. Data in the "Hi-Z phase" will be ignored by 3-Wire engine during write operation, and should be ignored during read operation also. During read operation, external controller should float SDA pin under "Hi-Z phase" and "Data phase".

Each Read/Write operation should be exactly 16 bit. To prevent from incorrect setting of the internal register, any write operation with more or less than 16 bit data during a CSB Low period will be ignored by 3-Wire engine. For prevent from incorrect setting of the internal register. Please refer to the section of "3-Wire Timing Diagram" for the detail timing.



3-Wire Command Format:

Bit	Description
D15-D10	Register Address [5:0].
D9	W/R control bit. "0" for Write; "1" for Read
D8	Hi-Z bit during read mode. Any data within this bits will be ignored during write mode
D7-D0	Data for the W/R operation to the address indicated by Address phase

3-Wire Writer Format:

MSB								LSB							
D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
Register Address[5:0]						0	X	DATA(Issue by external controller)							

3-Wire Read Format:

MSB								LSB							
D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
Register Address[5:0]						1	Hi-Z	DATA(Issue by 3-Wire engine)							

8.2 3-Wire Control Registers

Following table list all the 3-Wire control registers and bit name definition for ILI6150.

Refer to the next section for detail register function description, please.

Setting of all the 3-Wire registers will take effect at the coming falling edge of VSD except GRB and STB bit.

Command Function	D15	D14	D13	D12	D11	D10	D09	D08	D07	D06	D05	D04	D03	D02	D01	D00
	Address							R/W	X/Hi-Z	Data Bit						
R0 System Control Register	0	0	0	0	0	0	0	X	PWR_EN	--	LR	UD	STB	GRB	CLKPOL	MODE
	0	0	0	0	0	0	0	X	0	--	1	0	1	1	0	1
	00H									2DH						
R1 System Control Register	0	0	0	0	0	1	0	X	CABC1	CABC0	HFRG	DIT	BIST	RESL1	RESL0	RESL2
	0	0	0	0	0	1	0	X	0	0	0	0	0	0	0	0
	01H									00H						

R0: System Control Register

Designation	Data Bit	Description
MODE	R0[0]	DE / SYNC mode select. MODE="0", HSD/VSD mode. MODE="1", DE mode. (Default)
DCLKPOL	R0[1]	DCLK polarity control bit. DCLKPOL="0": Data sampling at DCLK falling edge. (Default) DCLKPOL="1": Data sampling at DCLK rising edge.
GRB	R0[2]	Global reset bit. GRB="0", The controller is in reset state. GRB="1", Normal operation. (Default)
STBYB	R0[3]	Standby mode selection bit. STBYB="0", Timing control, driver and DC-DC converter, are off, and all outputs are High-Z. STBYB="1", Normal operation. (Default)
UPDN	R0[4]	G Gate Up or Down scan control. 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
SHLR	R0[5]	Right/Left sequence control of source drive SHLR="0", Shift left: Last data=SO1<-SO2<-SO3 ... <-SO1536=First data. SHLR="1", Shift right: First data=SO1->SO2->SO3 ... ->SO1536=Last data. (Default)
	R0[6]	Reserved
PWR_EN	R0[7]	POWER Enable Function Control Pin. PWR_EN=H, Enable PWM & Charge Pump Circuit. PWR_EN=L, Disable PWM & Charge Pump Circuit. Normally pull low.

R1: System Control Register

Designation	Address	Description																													
RES[2:0]	R1[2:0]	Display resolution selection.																													
		<table><tr><th>RES[2:0]</th><th>Resolution</th><th>Enable Channel</th><th>Disable Channel</th></tr><tr><td>L L L</td><td>1024X600</td><td rowspan="2">SO1~SO1536</td><td rowspan="2">--</td></tr><tr><td>L L H</td><td>1024X768</td></tr><tr><td>L H L</td><td>800X600</td><td rowspan="2">SO1~SO600 ; SO937~SO1536</td><td rowspan="2">SO601~SO936 (Hi-Z)</td></tr><tr><td>L H H</td><td>800X480</td></tr><tr><td>H L L</td><td>960RGBX540</td><td rowspan="2">SO1~SO720 ; SO817~SO1536</td><td rowspan="2">SO721~SO816 (Hi-Z)</td></tr><tr><td>H L H</td><td>960RGBX640</td></tr><tr><td>H H L</td><td>600RGBX1024</td><td>SO1~SO450 ; SO1087~SO1536</td><td>SO451~SO1086 (Hi-Z)</td></tr><tr><td>H H H</td><td colspan="2">N.A</td></tr></table>	RES[2:0]	Resolution	Enable Channel	Disable Channel	L L L	1024X600	SO1~SO1536	--	L L H	1024X768	L H L	800X600	SO1~SO600 ; SO937~SO1536	SO601~SO936 (Hi-Z)	L H H	800X480	H L L	960RGBX540	SO1~SO720 ; SO817~SO1536	SO721~SO816 (Hi-Z)	H L H	960RGBX640	H H L	600RGBX1024	SO1~SO450 ; SO1087~SO1536	SO451~SO1086 (Hi-Z)	H H H	N.A	
		RES[2:0]	Resolution	Enable Channel	Disable Channel																										
		L L L	1024X600	SO1~SO1536	--																										
		L L H	1024X768																												
		L H L	800X600	SO1~SO600 ; SO937~SO1536	SO601~SO936 (Hi-Z)																										
		L H H	800X480																												
		H L L	960RGBX540	SO1~SO720 ; SO817~SO1536	SO721~SO816 (Hi-Z)																										
		H L H	960RGBX640																												
		H H L	600RGBX1024	SO1~SO450 ; SO1087~SO1536	SO451~SO1086 (Hi-Z)																										
H H H	N.A																														
BIST	R1[3]	Normal Operation/BIST pattern select. BIST = H : BIST(DCLK input is not needed) BIST = L : Normal Operation (Default)																													
DITHER	R1[4]	Dithering function enable control. DITHER = "1", Enable internal dithering function DITHER = "0", Disable internal dithering function (Default)																													
HFRC	R1[5]	H-FRC selection. HFRC = H : H-FRC enable HFRC = L : H-FRC disable (Default) If DITHER = "0", disable dithering function(H-FRC and FRC disable)																													
CABC_EN[1:0]	R1[7:6]	CABC H/W enable pin. Normally pull low. <table><tr><th>CABC_EN1</th><th>CABC_EN0</th><th>Mode</th></tr><tr><td>0</td><td>0</td><td>CABC OFF</td></tr><tr><td>0</td><td>1</td><td>User interface Image</td></tr><tr><td>1</td><td>0</td><td>Still Picture</td></tr><tr><td>1</td><td>1</td><td>Moving Image</td></tr></table> Remark: Default CABC OFF	CABC_EN1	CABC_EN0	Mode	0	0	CABC OFF	0	1	User interface Image	1	0	Still Picture	1	1	Moving Image														
CABC_EN1	CABC_EN0	Mode																													
0	0	CABC OFF																													
0	1	User interface Image																													
1	0	Still Picture																													
1	1	Moving Image																													

9. Function Description

9.1 Power On/Off Sequence

To prevent the device damage from latch up, the power On-Off sequence must be followed.

Power On: VDD,GND→AVDD,AGND→V1~V14→Input Signals

Power Off: Input Signals→V1~V14→ AVDD,AGND→ VDD,GND

9.2 Power On/Off and Standby Control

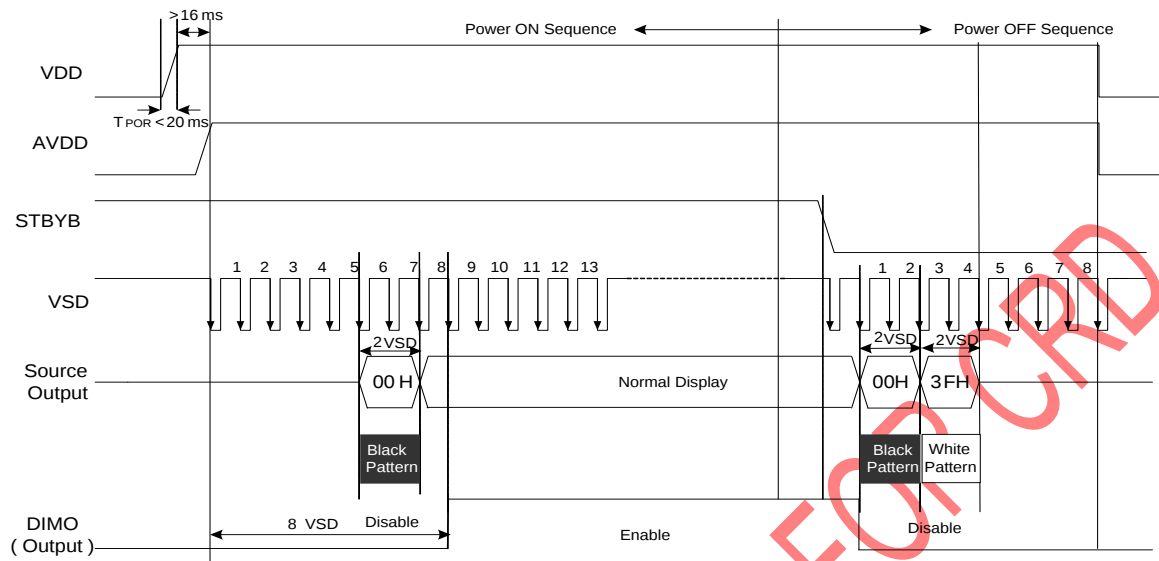
In order to prevent IC from power on reset fail, the rising time (TPOR) of the digital power supply VDD should be maintained within the given specifications. Refer to “AC Characteristics” for more detail on timing.

9.3 Power On-Off Sequence Timing

LITEK CONFIDENTIAL FOR CRD.

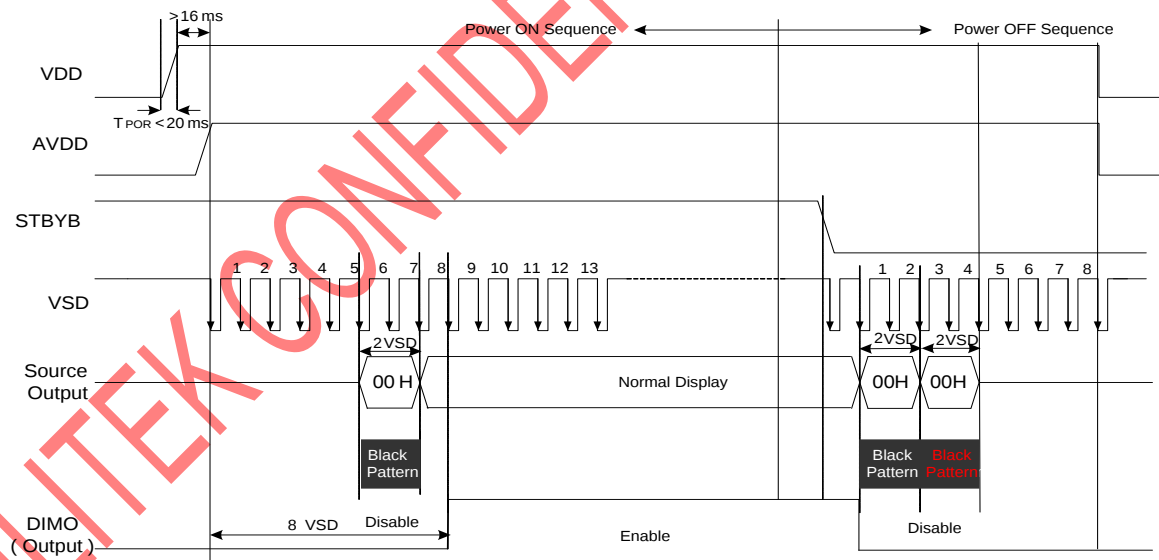
Case1: For Normal White Module

NBW = L (Default) ; REV= L (Default)



Case2: For Normal Block Module

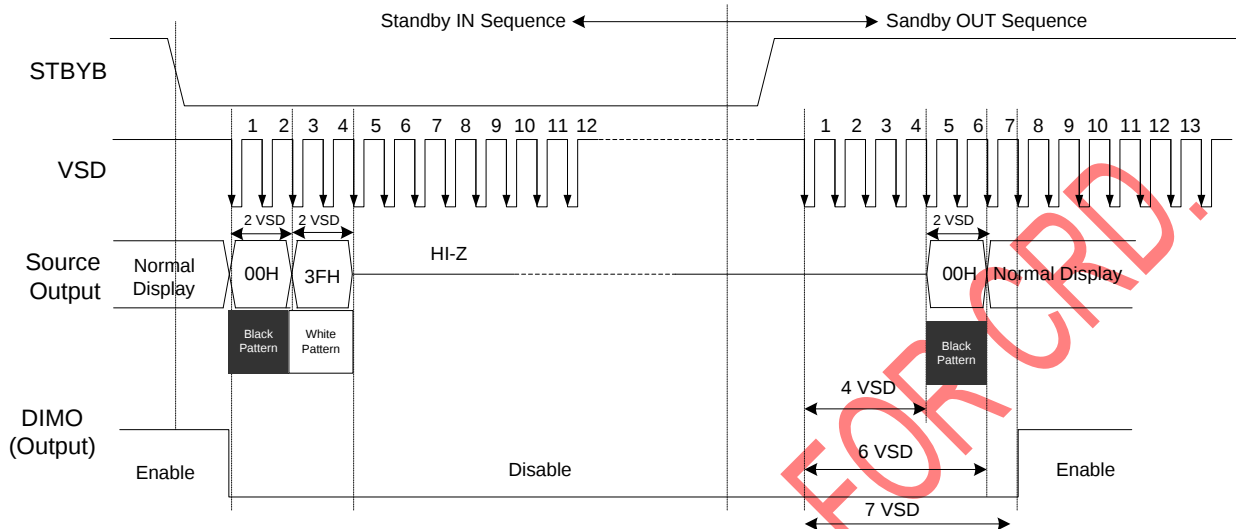
NBW = H / REV= L (Default)



9.4 Standby On-Off Sequence Timing

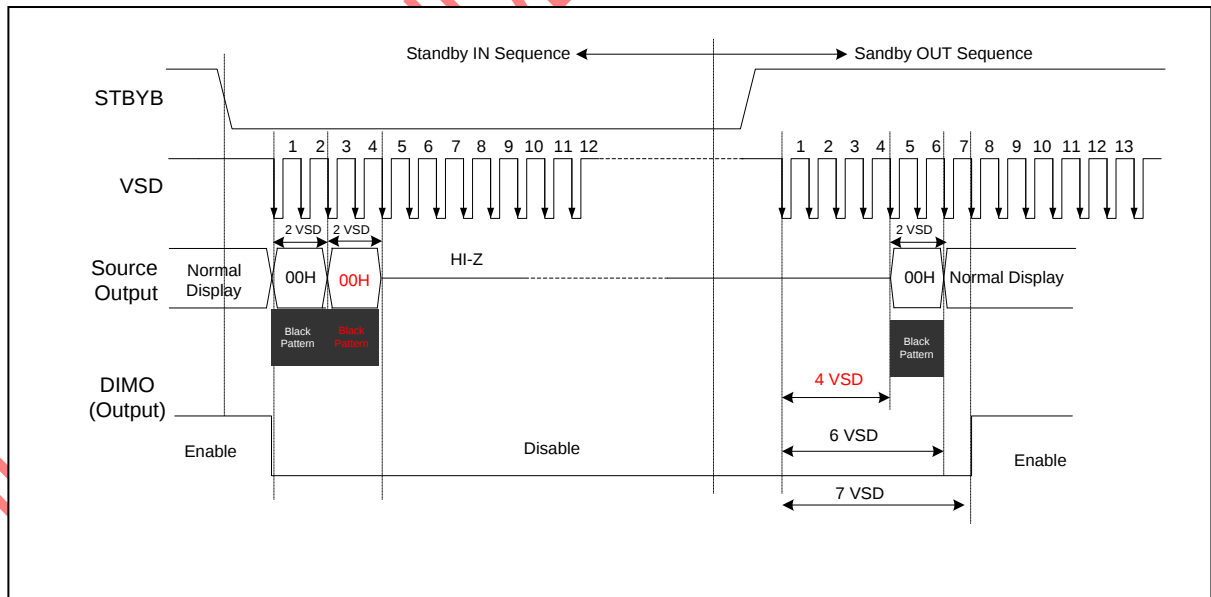
Case1: For Normal White Module

NBW = L (Default) ; REV= L (Default)



Case2: For Normal Block Module

NBW = H / REV= L (Default)



9.5 Input Data VS Output Channels

1. DUAL= 0

(1) SHLR = 1, right shift

Output	SO1	SO2	SO3	---	SO1534	SO1535	SO1536
Order	First data			→	Last data		
Odd Line	D07~D00	D17~D10	D27~D20	---	D07~D00	D17~D10	D27~D20
Evne Line	D07~D00	D17~D10	D27~D20	---	D07~D00	D17~D10	D27~D20

(2) SHLR = 0, left shift

Output	SO1	SO2	SO3	---	SO1534	SO1535	SO1536
Order	First data			←	Last data		
OddLine	D07~D00	D17~D10	D27~D20	---	D07~D00	D17~D10	D27~D20
Evne Line	D07~D00	D17~D10	D27~D20	---	D07~D00	D17~D10	D27~D20

2. DUAL= 1

(1) SHLR = 1, right shift

Output	SO1	SO2	SO3	---	SO1534	SO1535	SO1536
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
Evne Line Gn	D07~D00	D27~D20	D17~D10	---	D07~D00	D27~D20	D17~D10
Evne Line Gn+1	D17~D10	D07~D00	D27~D20	---	D17~D10	D07~D00	D27~D20

(2) SHLR = 0, left shift

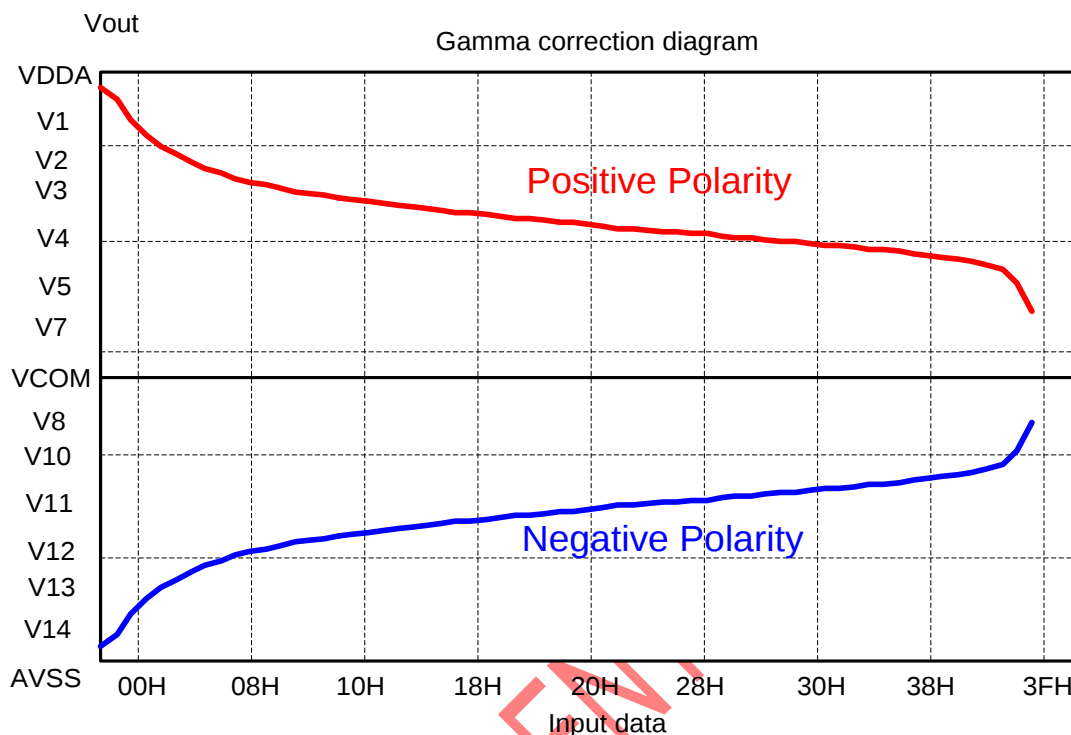
Output	SO1	SO2	SO3	---	SO1534	SO1535	SO1536
Order	First data			←	Last data		
Odd Line /Gn	D07~D00	D27~D20	D17~D10	---	D07~D00	D27~D20	D17~D10
Odd Line /Gn+1	D17~D10	D07~D00	D27~D20	---	D17~D10	D07~D00	D27~D20
Evne Line n	D07~D00	D27~D20	D17~D10	---	D07~D00	D27~D20	D17~D10
Evne Line Gn+1	D17~D10	D07~D00	D27~D20	---	D17~D10	D07~D00	D27~D20

9.6 Input Data VS Output Voltage

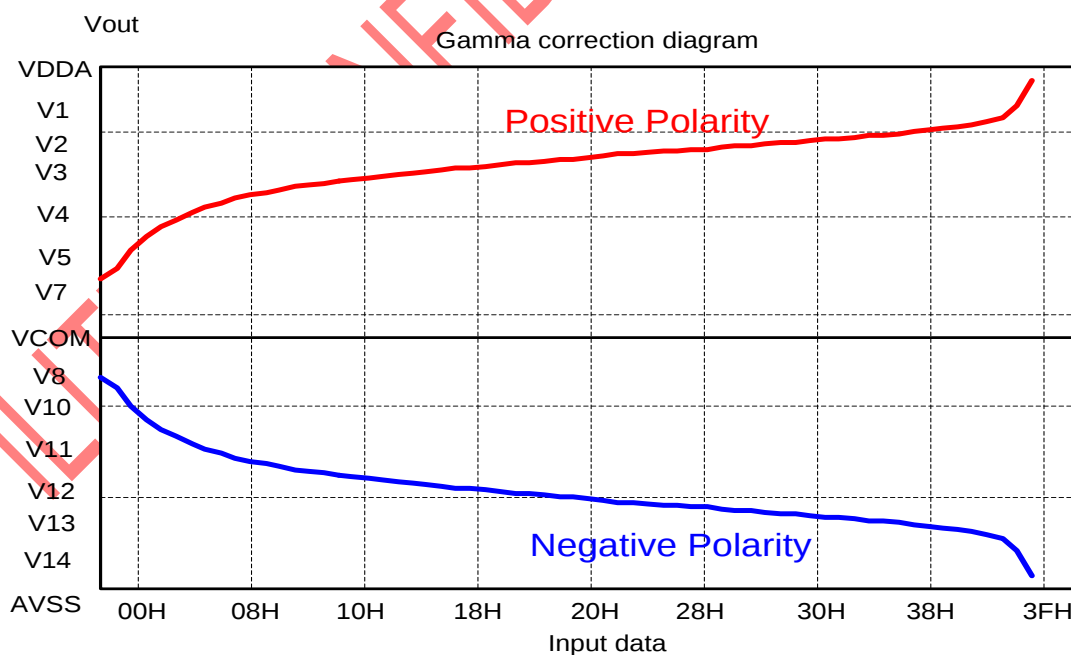
The figure below shows the relationship between the input data and the output voltage. Refer to the following pages for the relative resistor values and voltage calculation method.

Gamma Tables vary for each customer. Contact ILITEK for more detail information.

Case1: NBW= L: Normal White (Default)



Case2: NBW= H: Normal Black



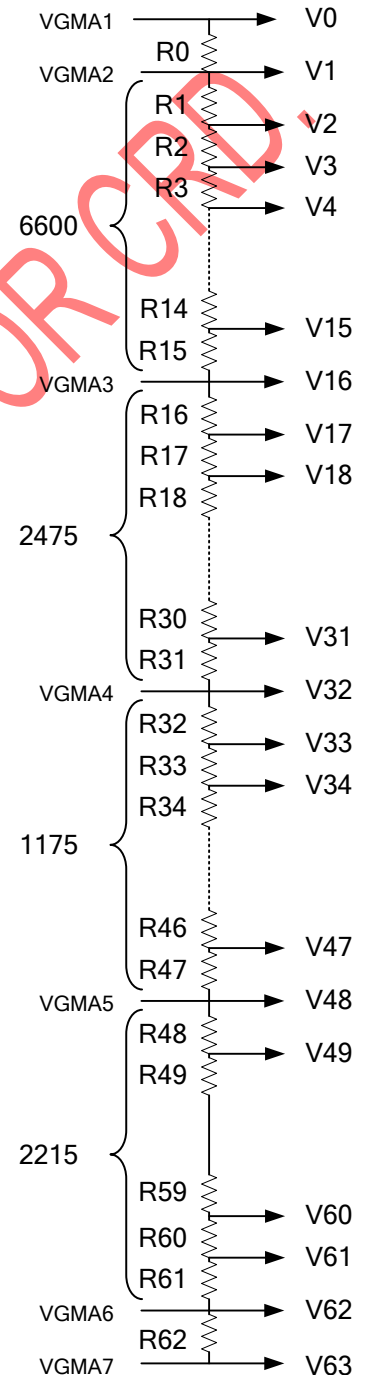
Remark: $AGND+0.1 < V14 < V13 < V12 < V11 < V10 < V9 < V8; V7 < V6 < V5 < V4 < V3 < V2 < V1 < AVDD-0.1$

9.7 Input Data and Output Voltage Reference Table

Case1: NBW= L: Normal White (Default)

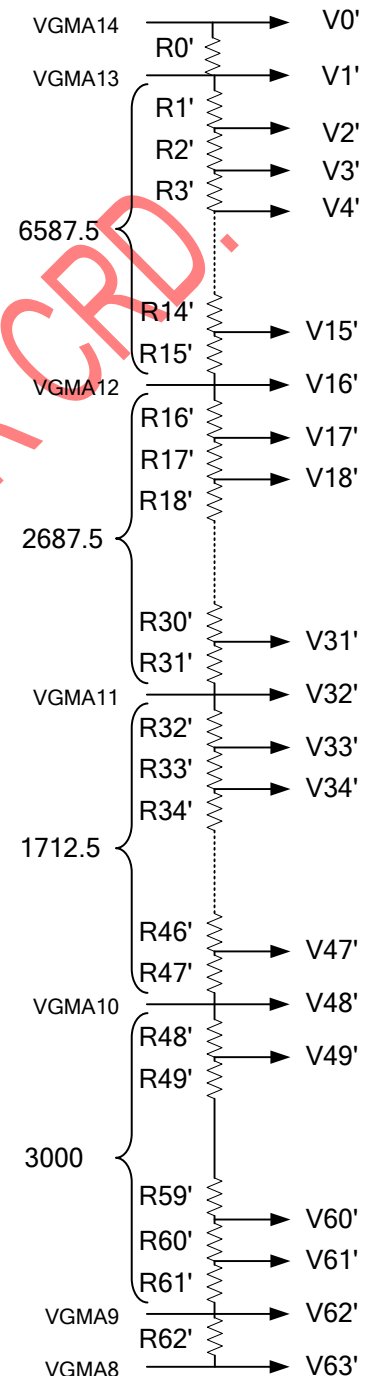
Relationship between input data and output voltage for **positive polarity**:

Data	Output Voltage	Rn	Ω_Ratio
00H	V0	R0	Open
01H	V1	R1	1000
02H	V2	R2	850
03H	V3	R3	675
04H	V4	R4	500
05H	V5	R5	425
06H	V6	R6	350
07H	V7	R7	300
08H	V8	R8	275
09H	V9	R9	225
0AH	V10	R10	225
0BH	V11	R11	200
0CH	V12	R12	175
0DH	V13	R13	175
0EH	V14	R14	175
0FH	V15	R15	150
10H	V16	R16	175
11H	V17	R17	150
12H	V18	R18	150
13H	V19	R19	150
14H	V20	R20	150
15H	V21	R21	150
16H	V22	R22	150
17H	V23	R23	125
18H	V24	R24	125
19H	V25	R25	125
1AH	V26	R26	100
1BH	V27	R27	100
1CH	V28	R28	100
1DH	V29	R29	100
1EH	V30	R30	100
1FH	V31	R31	125
20H	V32	R32	75
21H	V33	R33	75
22H	V34	R34	75
23H	V35	R35	75
24H	V36	R36	75
25H	V37	R37	75
26H	V38	R38	75
27H	V39	R39	75
28H	V40	R40	75
29H	V41	R41	75
2AH	V42	R42	75
2BH	V43	R43	75
2CH	V44	R44	75
2DH	V45	R45	75
2EH	V46	R46	75
2FH	V47	R47	50
30H	V48	R48	75
31H	V49	R49	75
32H	V50	R50	75
33H	V51	R51	75
34H	V52	R52	75
35H	V53	R53	75
36H	V54	R54	75
37H	V55	R55	75
38H	V56	R56	125
39H	V57	R57	125
3AH	V58	R58	175
3BH	V59	R59	275
3CH	V60	R60	300
3DH	V61	R61	300
3EH	V62	R62	Open
3FH	V63	Total	10850



Relationship between input data and output voltage for **negative polarity**:

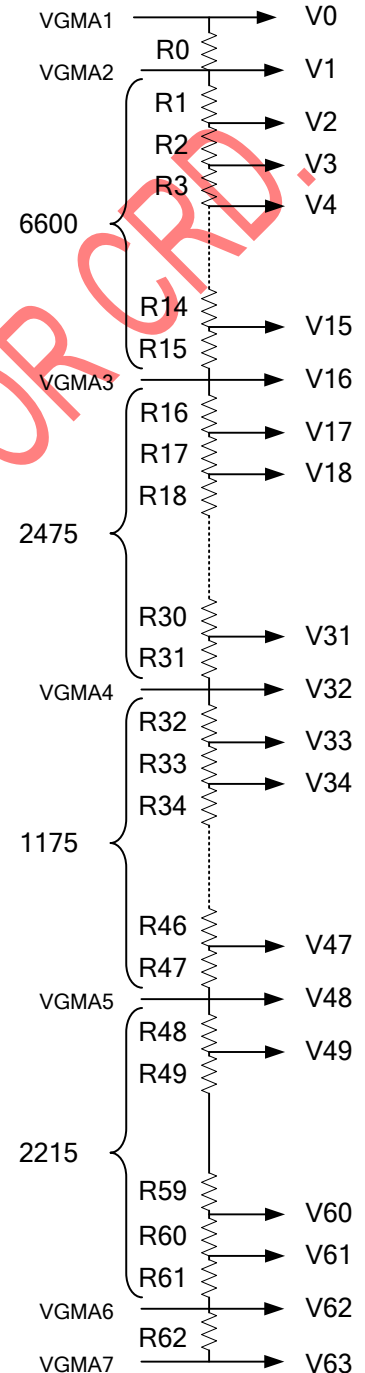
Data	Output Voltage	Rn	Ω Ratio
00H	V0' VGMA14	R0'	Open
01H	V1' VGMA13	R1'	1025
02H	V2' $VGMA13 + (VGMA12 - VGMA13) \times 0.1798$	R2'	825
03H	V3' $VGMA13 + (VGMA12 - VGMA13) \times 0.3246$	R3'	650
04H	V4' $VGMA13 + (VGMA12 - VGMA13) \times 0.4386$	R4'	500
05H	V5' $VGMA13 + (VGMA12 - VGMA13) \times 0.5263$	R5'	450
06H	V6' $VGMA13 + (VGMA12 - VGMA13) \times 0.6053$	R6'	350
07H	V7' $VGMA13 + (VGMA12 - VGMA13) \times 0.6667$	R7'	300
08H	V8' $VGMA13 + (VGMA12 - VGMA13) \times 0.7193$	R8'	250
09H	V9' $VGMA13 + (VGMA12 - VGMA13) \times 0.7632$	R9'	225
0AH	V10' $VGMA13 + (VGMA12 - VGMA13) \times 0.8026$	R10'	225
0BH	V11' $VGMA13 + (VGMA12 - VGMA13) \times 0.8421$	R11'	200
0CH	V12' $VGMA13 + (VGMA12 - VGMA13) \times 0.8772$	R12'	200
0DH	V13' $VGMA13 + (VGMA12 - VGMA13) \times 0.9123$	R13'	175
0EH	V14' $VGMA13 + (VGMA12 - VGMA13) \times 0.9430$	R14'	175
0FH	V15' $VGMA13 + (VGMA12 - VGMA13) \times 0.9737$	R15'	150
10H	V16' VGMA12	R16'	175
11H	V17' $VGMA12 + (VGMA11 - VGMA12) \times 0.0761$	R17'	175
12H	V18' $VGMA12 + (VGMA11 - VGMA12) \times 0.1522$	R18'	175
13H	V19' $VGMA12 + (VGMA11 - VGMA12) \times 0.2283$	R19'	175
14H	V20' $VGMA12 + (VGMA11 - VGMA12) \times 0.3043$	R20'	150
15H	V21' $VGMA12 + (VGMA11 - VGMA12) \times 0.3696$	R21'	150
16H	V22' $VGMA12 + (VGMA11 - VGMA12) \times 0.4348$	R22'	150
17H	V23' $VGMA12 + (VGMA11 - VGMA12) \times 0.5000$	R23'	125
18H	V24' $VGMA12 + (VGMA11 - VGMA12) \times 0.5543$	R24'	125
19H	V25' $VGMA12 + (VGMA11 - VGMA12) \times 0.6087$	R25'	125
1AH	V26' $VGMA12 + (VGMA11 - VGMA12) \times 0.6630$	R26'	125
1BH	V27' $VGMA12 + (VGMA11 - VGMA12) \times 0.7174$	R27'	125
1CH	V28' $VGMA12 + (VGMA11 - VGMA12) \times 0.7717$	R28'	125
1DH	V29' $VGMA12 + (VGMA11 - VGMA12) \times 0.8261$	R29'	125
1EH	V30' $VGMA12 + (VGMA11 - VGMA12) \times 0.8804$	R30'	125
1FH	V31' $VGMA12 + (VGMA11 - VGMA12) \times 0.9348$	R31'	150
20H	V32' VGMA11	R32'	75
21H	V33' $VGMA11 + (VGMA10 - VGMA11) \times 0.0566$	R33'	75
22H	V34' $VGMA11 + (VGMA10 - VGMA11) \times 0.1132$	R34'	75
23H	V35' $VGMA11 + (VGMA10 - VGMA11) \times 0.1698$	R35'	75
24H	V36' $VGMA11 + (VGMA10 - VGMA11) \times 0.2264$	R36'	75
25H	V37' $VGMA11 + (VGMA10 - VGMA11) \times 0.2830$	R37'	75
26H	V38' $VGMA11 + (VGMA10 - VGMA11) \times 0.3396$	R38'	75
27H	V39' $VGMA11 + (VGMA10 - VGMA11) \times 0.3962$	R39'	75
28H	V40' $VGMA11 + (VGMA10 - VGMA11) \times 0.4528$	R40'	75
29H	V41' $VGMA11 + (VGMA10 - VGMA11) \times 0.5094$	R41'	75
2AH	V42' $VGMA11 + (VGMA10 - VGMA11) \times 0.5660$	R42'	75
2BH	V43' $VGMA11 + (VGMA10 - VGMA11) \times 0.6226$	R43'	100
2CH	V44' $VGMA11 + (VGMA10 - VGMA11) \times 0.6791$	R44'	100
2DH	V45' $VGMA11 + (VGMA10 - VGMA11) \times 0.7356$	R45'	100
2EH	V46' $VGMA11 + (VGMA10 - VGMA11) \times 0.7921$	R46'	100
2FH	V47' $VGMA11 + (VGMA10 - VGMA11) \times 0.8485$	R47'	100
30H	V48' VGMA10	R48'	100
31H	V49' $VGMA10 + (VGMA9 - VGMA10) \times 0.0396$	R49'	100
32H	V50' $VGMA10 + (VGMA9 - VGMA10) \times 0.0792$	R50'	100
33H	V51' $VGMA10 + (VGMA9 - VGMA10) \times 0.1188$	R51'	100
34H	V52' $VGMA10 + (VGMA9 - VGMA10) \times 0.1584$	R52'	125
35H	V53' $VGMA10 + (VGMA9 - VGMA10) \times 0.2079$	R53'	150
36H	V54' $VGMA10 + (VGMA9 - VGMA10) \times 0.2673$	R54'	150
37H	V55' $VGMA10 + (VGMA9 - VGMA10) \times 0.3267$	R55'	150
38H	V56' $VGMA10 + (VGMA9 - VGMA10) \times 0.3861$	R56'	175
39H	V57' $VGMA10 + (VGMA9 - VGMA10) \times 0.4554$	R57'	175
3AH	V58' $VGMA10 + (VGMA9 - VGMA10) \times 0.5248$	R58'	250
3BH	V59' $VGMA10 + (VGMA9 - VGMA10) \times 0.6238$	R59'	300
3CH	V60' $VGMA10 + (VGMA9 - VGMA10) \times 0.7426$	R60'	300
3DH	V61' $VGMA10 + (VGMA9 - VGMA10) \times 0.8614$	R61'	350
3EH	V62' VGMA9	R62'	Open
3FH	V63' VGMA8	Total'	11850



Case2: NBW= H: Normal Black

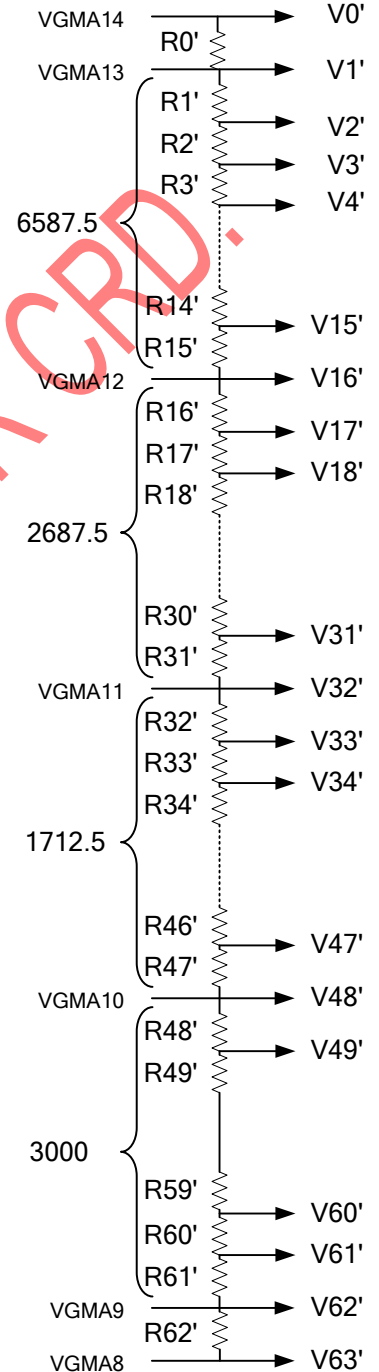
Relationship between input data and output voltage for **positive polarity**:

Data	Output Voltage	Rn	Ω_Ratio
3FH	V0 VGMA1	R0	Open
3EH	V1 VGMA2	R1	1000
3DH	V2 VGMA2 + (VGMA3-VGMA2) x 0.1754	R2	850
3CH	V3 VGMA2 + (VGMA3-VGMA2) x 0.3246	R3	675
3BH	V4 VGMA2 + (VGMA3-VGMA2) x 0.4430	R4	500
3AH	V5 VGMA2 + (VGMA3-VGMA2) x 0.5307	R5	425
39H	V6 VGMA2 + (VGMA3-VGMA2) x 0.6053	R6	350
38H	V7 VGMA2 + (VGMA3-VGMA2) x 0.6667	R7	300
37H	V8 VGMA2 + (VGMA3-VGMA2) x 0.7193	R8	275
36H	V9 VGMA2 + (VGMA3-VGMA2) x 0.7675	R9	225
35H	V10 VGMA2 + (VGMA3-VGMA2) x 0.8070	R10	225
34H	V11 VGMA2 + (VGMA3-VGMA2) x 0.8465	R11	200
33H	V12 VGMA2 + (VGMA3-VGMA2) x 0.8816	R12	175
32H	V13 VGMA2 + (VGMA3-VGMA2) x 0.9123	R13	175
31H	V14 VGMA2 + (VGMA3-VGMA2) x 0.9430	R14	175
30H	V15 VGMA2 + (VGMA3-VGMA2) x 0.9737	R15	150
2FH	V16 VGMA3	R16	175
2EH	V17 VGMA3 + (VGMA4-VGMA3) x 0.0843	R17	150
2DH	V18 VGMA3 + (VGMA4-VGMA3) x 0.1566	R18	150
2CH	V19 VGMA3 + (VGMA4-VGMA3) x 0.2289	R19	150
2BH	V20 VGMA3 + (VGMA4-VGMA3) x 0.3012	R20	150
2AH	V21 VGMA3 + (VGMA4-VGMA3) x 0.3735	R21	150
29H	V22 VGMA3 + (VGMA4-VGMA3) x 0.4458	R22	150
28H	V23 VGMA3 + (VGMA4-VGMA3) x 0.5181	R23	125
27H	V24 VGMA3 + (VGMA4-VGMA3) x 0.5783	R24	125
26H	V25 VGMA3 + (VGMA4-VGMA3) x 0.6386	R25	125
25H	V26 VGMA3 + (VGMA4-VGMA3) x 0.6988	R26	100
24H	V27 VGMA3 + (VGMA4-VGMA3) x 0.7470	R27	100
23H	V28 VGMA3 + (VGMA4-VGMA3) x 0.7952	R28	100
22H	V29 VGMA3 + (VGMA4-VGMA3) x 0.8434	R29	100
21H	V30 VGMA3 + (VGMA4-VGMA3) x 0.8916	R30	100
20H	V31 VGMA3 + (VGMA4-VGMA3) x 0.9398	R31	125
1FH	V32 VGMA4	R32	75
1EH	V33 VGMA4 + (VGMA5-VGMA4) x 0.0638	R33	75
1DH	V34 VGMA4 + (VGMA5-VGMA4) x 0.1277	R34	75
1CH	V35 VGMA4 + (VGMA5-VGMA4) x 0.1915	R35	75
1BH	V36 VGMA4 + (VGMA5-VGMA4) x 0.2553	R36	75
1AH	V37 VGMA4 + (VGMA5-VGMA4) x 0.3191	R37	75
19H	V38 VGMA4 + (VGMA5-VGMA4) x 0.3830	R38	75
18H	V39 VGMA4 + (VGMA5-VGMA4) x 0.4468	R39	75
17H	V40 VGMA4 + (VGMA5-VGMA4) x 0.5106	R40	75
16H	V41 VGMA4 + (VGMA5-VGMA4) x 0.5745	R41	75
15H	V42 VGMA4 + (VGMA5-VGMA4) x 0.6383	R42	75
14H	V43 VGMA4 + (VGMA5-VGMA4) x 0.7021	R43	75
13H	V44 VGMA4 + (VGMA5-VGMA4) x 0.7660	R44	75
12H	V45 VGMA4 + (VGMA5-VGMA4) x 0.8298	R45	75
11H	V46 VGMA4 + (VGMA5-VGMA4) x 0.8936	R46	75
10H	V47 VGMA4 + (VGMA5-VGMA4) x 0.9574	R47	50
0FH	V48 VGMA5	R48	75
0EH	V49 VGMA5 + (VGMA6-VGMA5) x 0.0395	R49	75
0DH	V50 VGMA5 + (VGMA6-VGMA5) x 0.0789	R50	75
0CH	V51 VGMA5 + (VGMA6-VGMA5) x 0.1184	R51	75
0BH	V52 VGMA5 + (VGMA6-VGMA5) x 0.1579	R52	75
0AH	V53 VGMA5 + (VGMA6-VGMA5) x 0.1974	R53	75
09H	V54 VGMA5 + (VGMA6-VGMA5) x 0.2368	R54	75
08H	V55 VGMA5 + (VGMA6-VGMA5) x 0.2763	R55	75
07H	V56 VGMA5 + (VGMA6-VGMA5) x 0.3158	R56	125
06H	V57 VGMA5 + (VGMA6-VGMA5) x 0.3816	R57	125
05H	V58 VGMA5 + (VGMA6-VGMA5) x 0.4474	R58	175
04H	V59 VGMA5 + (VGMA6-VGMA5) x 0.5395	R59	275
03H	V60 VGMA5 + (VGMA6-VGMA5) x 0.6842	R60	300
02H	V61 VGMA5 + (VGMA6-VGMA5) x 0.8421	R61	300
01H	V62 VGMA6	R62	Open
00H	V63 VGMA7	Total	12465



Relationship between input data and output voltage for **negative polarity**:

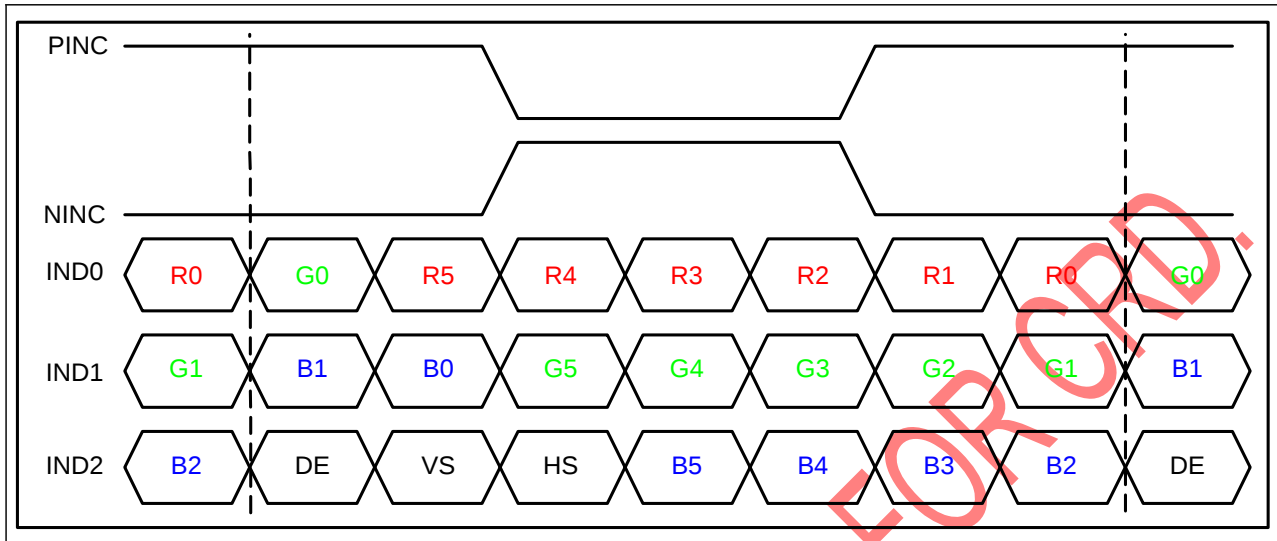
Data		Output Voltage	Rn	Ω Ratio
3FH	V0'	VGMA14	R0'	Open
3EH	V1'	VGMA13	R1'	1025
3DH	V2'	$VGMA13 + (VGMA12 - VGMA13) \times 0.1798$	R2'	825
3CH	V3'	$VGMA13 + (VGMA12 - VGMA13) \times 0.3246$	R3'	650
3BH	V4'	$VGMA13 + (VGMA12 - VGMA13) \times 0.4386$	R4'	500
3AH	V5'	$VGMA13 + (VGMA12 - VGMA13) \times 0.5263$	R5'	450
39H	V6'	$VGMA13 + (VGMA12 - VGMA13) \times 0.6053$	R6'	350
38H	V7'	$VGMA13 + (VGMA12 - VGMA13) \times 0.6667$	R7'	300
37H	V8'	$VGMA13 + (VGMA12 - VGMA13) \times 0.7193$	R8'	250
36H	V9'	$VGMA13 + (VGMA12 - VGMA13) \times 0.7632$	R9'	225
35H	V10'	$VGMA13 + (VGMA12 - VGMA13) \times 0.8026$	R10'	225
34H	V11'	$VGMA13 + (VGMA12 - VGMA13) \times 0.8421$	R11'	200
33H	V12'	$VGMA13 + (VGMA12 - VGMA13) \times 0.8772$	R12'	200
32H	V13'	$VGMA13 + (VGMA12 - VGMA13) \times 0.9123$	R13'	175
31H	V14'	$VGMA13 + (VGMA12 - VGMA13) \times 0.9430$	R14'	175
30H	V15'	$VGMA13 + (VGMA12 - VGMA13) \times 0.9737$	R15'	150
2FH	V16'	VGMA12	R16'	175
2EH	V17'	$VGMA12 + (VGMA11 - VGMA12) \times 0.0761$	R17'	175
2DH	V18'	$VGMA12 + (VGMA11 - VGMA12) \times 0.1522$	R18'	175
2CH	V19'	$VGMA12 + (VGMA11 - VGMA12) \times 0.2283$	R19'	175
2BH	V20'	$VGMA12 + (VGMA11 - VGMA12) \times 0.3043$	R20'	150
2AH	V21'	$VGMA12 + (VGMA11 - VGMA12) \times 0.3696$	R21'	150
29H	V22'	$VGMA12 + (VGMA11 - VGMA12) \times 0.4348$	R22'	150
28H	V23'	$VGMA12 + (VGMA11 - VGMA12) \times 0.5000$	R23'	125
27H	V24'	$VGMA12 + (VGMA11 - VGMA12) \times 0.5543$	R24'	125
26H	V25'	$VGMA12 + (VGMA11 - VGMA12) \times 0.6087$	R25'	125
25H	V26'	$VGMA12 + (VGMA11 - VGMA12) \times 0.6630$	R26'	125
24H	V27'	$VGMA12 + (VGMA11 - VGMA12) \times 0.7174$	R27'	125
23H	V28'	$VGMA12 + (VGMA11 - VGMA12) \times 0.7717$	R28'	125
22H	V29'	$VGMA12 + (VGMA11 - VGMA12) \times 0.8261$	R29'	125
21H	V30'	$VGMA12 + (VGMA11 - VGMA12) \times 0.8804$	R30'	125
20H	V31'	$VGMA12 + (VGMA11 - VGMA12) \times 0.9348$	R31'	150
1FH	V32'	VGMA11	R32'	75
1EH	V33'	$VGMA11 + (VGMA10 - VGMA11) \times 0.0566$	R33'	75
1DH	V34'	$VGMA11 + (VGMA10 - VGMA11) \times 0.1132$	R34'	75
1CH	V35'	$VGMA11 + (VGMA10 - VGMA11) \times 0.1698$	R35'	75
1BH	V36'	$VGMA11 + (VGMA10 - VGMA11) \times 0.2264$	R36'	75
1AH	V37'	$VGMA11 + (VGMA10 - VGMA11) \times 0.2830$	R37'	75
19H	V38'	$VGMA11 + (VGMA10 - VGMA11) \times 0.3396$	R38'	75
18H	V39'	$VGMA11 + (VGMA10 - VGMA11) \times 0.3962$	R39'	75
17H	V40'	$VGMA11 + (VGMA10 - VGMA11) \times 0.4528$	R40'	75
16H	V41'	$VGMA11 + (VGMA10 - VGMA11) \times 0.5094$	R41'	75
15H	V42'	$VGMA11 + (VGMA10 - VGMA11) \times 0.5660$	R42'	75
14H	V43'	$VGMA11 + (VGMA10 - VGMA11) \times 0.6226$	R43'	100
13H	V44'	$VGMA11 + (VGMA10 - VGMA11) \times 0.6981$	R44'	100
12H	V45'	$VGMA11 + (VGMA10 - VGMA11) \times 0.7736$	R45'	100
11H	V46'	$VGMA11 + (VGMA10 - VGMA11) \times 0.8491$	R46'	100
10H	V47'	$VGMA11 + (VGMA10 - VGMA11) \times 0.9245$	R47'	100
0FH	V48'	VGMA10	R48'	100
0EH	V49'	$VGMA10 + (VGMA9 - VGMA10) \times 0.0396$	R49'	100
0DH	V50'	$VGMA10 + (VGMA9 - VGMA10) \times 0.0792$	R50'	100
0CH	V51'	$VGMA10 + (VGMA9 - VGMA10) \times 0.1188$	R51'	100
0BH	V52'	$VGMA10 + (VGMA9 - VGMA10) \times 0.1584$	R52'	125
0AH	V53'	$VGMA10 + (VGMA9 - VGMA10) \times 0.2079$	R53'	150
09H	V54'	$VGMA10 + (VGMA9 - VGMA10) \times 0.2673$	R54'	150
08H	V55'	$VGMA10 + (VGMA9 - VGMA10) \times 0.3267$	R55'	150
07H	V56'	$VGMA10 + (VGMA9 - VGMA10) \times 0.3861$	R56'	175
06H	V57'	$VGMA10 + (VGMA9 - VGMA10) \times 0.4554$	R57'	175
05H	V58'	$VGMA10 + (VGMA9 - VGMA10) \times 0.5248$	R58'	250
04H	V59'	$VGMA10 + (VGMA9 - VGMA10) \times 0.6238$	R59'	300
03H	V60'	$VGMA10 + (VGMA9 - VGMA10) \times 0.7426$	R60'	300
02H	V61'	$VGMA10 + (VGMA9 - VGMA10) \times 0.8614$	R61'	350
01H	V62'	VGMA9	R62'	Open
00H	V63'	VGMA8	Total'	13987.9



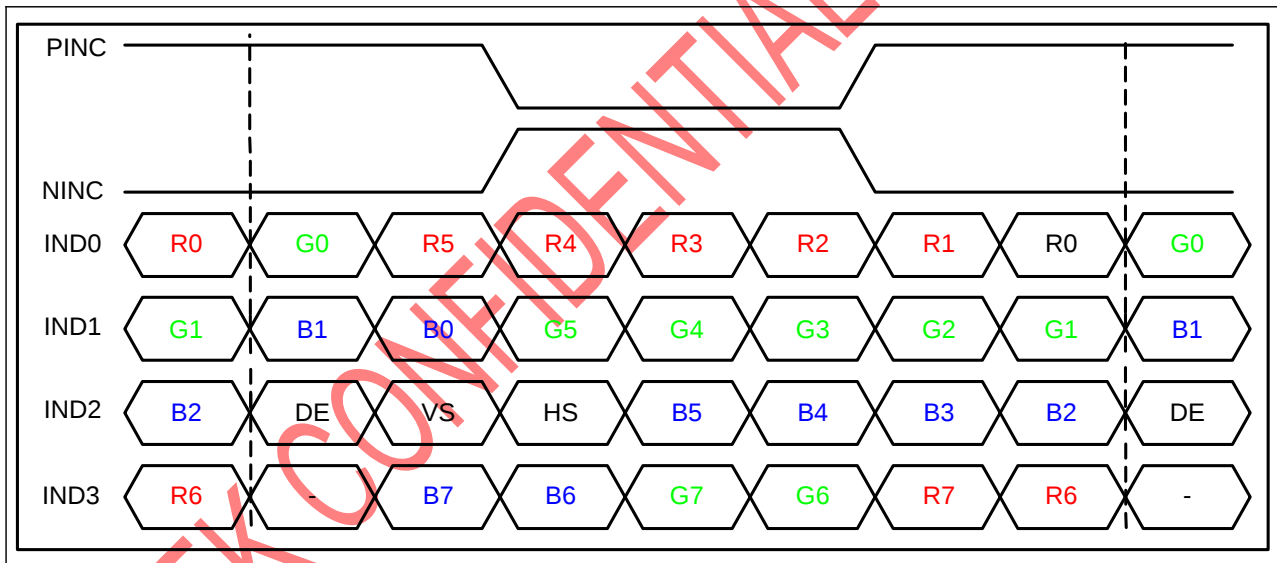
10. Function Description

10.1 Data Input Format for LVDS

6bit LVDS input

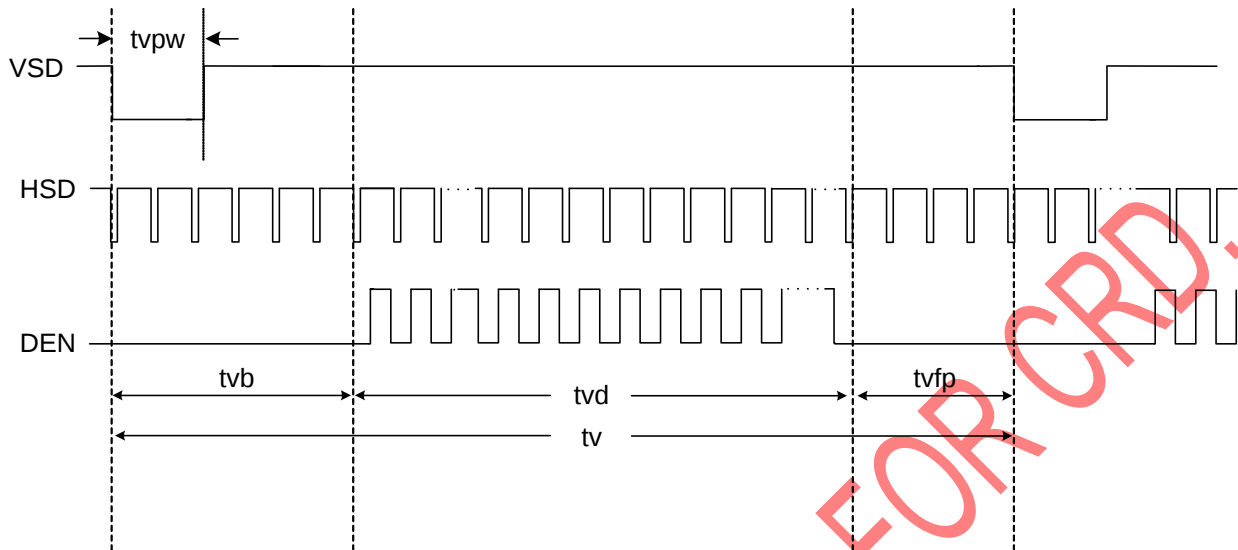


8bit LVDS input

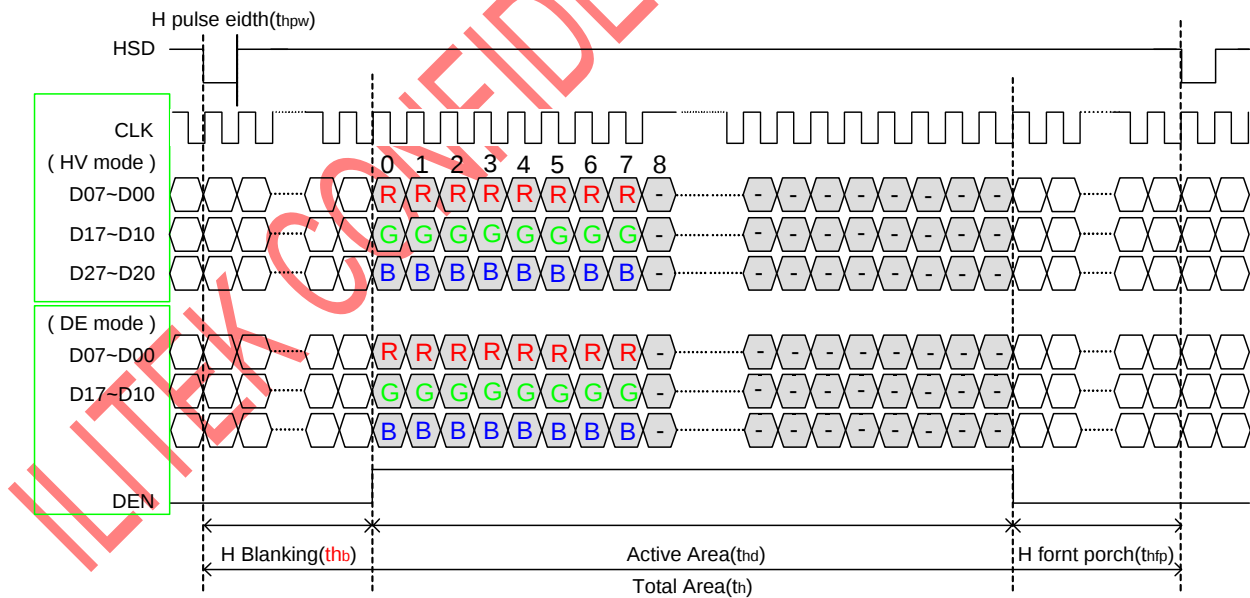


10.2 Data Input Format for TTL

Vertical input timing



Horizontal input timing



10.3 Parallel RGB input timing table

1. 1024x768 panel
DE Mode

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
DCLK frequency Frame rate = 60Hz	fclk	54.33	65	71	MHz
Horizontal display area	thd	1024			DCLK
HSYNC period time	th	1164	1344	1400	DCLK
HSYNC blanking	thb+thfp	140	320	376	DCLK
Vertical display area	tvd	768			H
VSYNC period time	tv	778	806	845	H
VSYNC blanking	tvb+tvfp	10	38	77	H

HV Mode
a. Horizontal input timing

Parameter		Symbol	Value			Unit
Horizontal display area		thd	1024			DCLK
DCLK frequency Frame rate = 60Hz		fclk	Min	Typ.	Max	MHz
			57	65	70.5	
1 Horizontal Line		th	1200	1344	1400	DCLK
HSYNC pulse width	Min	thpw	1			DCLK
	Typ.		-			
	Max		140			
HSYNC blanking		thb	160	160	160	
HSYNC front porch		thfp	16	160	216	

b. Vertical input timing

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
Vertical display area	tvd	768			H
VSYNC period time	tv	792	806	840	H
VSYNC pulse width	tvpw	1	-	20	H
VSYNC blanking	tvb	23	23	23	H
VSYNC front porch	tvfp	1	15	49	H

2. 1024x600 panel

DE Mode

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
DCLK frequency Frame rate = 60Hz	fclk	42.6	51.2	67.2	MHz
Horizontal display area	thd	1024			DCLK
HSYNC period time	th	1164	1344	1400	DCLK
HSYNC blanking	thb+thfp	140	320	376	DCLK
Vertical display area	tvd	600			H
VSYNC period time	tv	610	635	800	H
VSYNC blanking	tvb+tvfp	10	35	200	H

HV Mode

a. Horizontal input timing

Parameter		Symbol	Value			Unit
Horizontal display area		thd	1024			DCLK
DCLK frequency Frame rate = 60Hz		fclk	Min	Typ.	Max	
			44.9	51.2	63	MHz
1 Horizontal Line		th	1200	1344	1400	DCLK
HSYNC pulse width	Min	thpw	1			DCLK
	Typ.		-			
	Max		140			
HSYNC blanking		thb	160	160	160	
HSYNC front porch		thfp	16	160	216	

b. Vertical input timing

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
Vertical display area	tvd	600			H
VSYNC period time	tv	624	635	750	H
VSYNC pulse width	tvpw	1	-	20	H
VSYNC blanking	tvb	23	23	23	H
VSYNC front porch	tvfp	1	12	127	H

3. 800x600 panel

DE Mode

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
DCLK frequency Frame rate = 60Hz	fclk	34.4	39.6	62.4	MHz
Horizontal display area	thd	800			DCLK
HSYNC period time	th	940	1000	1300	DCLK
HSYNC blanking	thb+thfp	140	200	500	DCLK
Vertical display area	tvd	600			H
VSYNC period time	tv	610	660	800	H
VSYNC blanking	tvb+tvfp	10	60	200	H

HV Mode

a. Horizontal input timing

Parameter		Symbol	Value			Unit
Horizontal display area		thd	800			DCLK
DCLK frequency Frame rate = 60Hz		fclk	Min	Typ.	Max	
			34.5	39.6	50.4	MHz
1 Horizontal Line		th	900	1000	1200	DCLK
HSYNC pulse width	Min	thpw	1			DCLK
	Typ.		-			
	Max		40			
HSYNC blanking		thb	88	88	88	
HSYNC front porch		thfp	12	112	312	

b. Vertical input timing

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
Vertical display area	tvd	600			H
VSYNC period time	tv	640	660	700	H
VSYNC pulse width	tvpw	1	-	20	H
VSYNC blanking	tvb	39	39	39	H
VSYNC front porch	tvfp	1	21	61	H

4. 800x480 panel

DE Mode

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
DCLK frequency Frame rate = 60Hz	fclk	27.64	29.2	54.6	MHz
Horizontal display area	thd	800			DCLK
HSYNC period time	th	940	928	1300	DCLK
HSYNC blanking	thb+thfp	140	128	500	DCLK
Vertical display area	tvd	480			H
VSYNC period time	tv	490	525	700	H
VSYNC blanking	tvb+tvfp	10	45	220	H

HV Mode

a. Horizontal input timing

Parameter		Symbol	Value			Unit
Horizontal display area		thd	800			DCLK
DCLK frequency Frame rate = 60Hz		fclk	Min	Typ.	Max	MHz
			27.7	29.2	39.6	
1 Horizontal Line		th	900	928	1100	DCLK
HSYNC pulse width	Min	thpw	1			DCLK
	Typ.		-			
	Max		40			
HSYNC blanking		thb	88	88	88	
HSYNC front porch		thfp	12	40	212	

b. Vertical input timing

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
Vertical display area	tvd	480			H
VSYNC period time	tv	513	525	600	H
VSYNC pulse width	tvpw	1	-	3	H
VSYNC blanking	tvb	32	32	32	H
VSYNC front porch	tvfp	1	13	88	H

5. 960x540 panel

DE Mode

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
DCLK frequency Frame rate = 60Hz	fclk	37.82	38.6	43.2	MHz
Horizontal display area	thd	960			DCLK
HSYNC period time	th	1100	1100	1200	DCLK
HSYNC blanking	thb+thfp	140	140	240	DCLK
Vertical display area	tvd	540			H
VSYNC period time	tv	573	585	600	H
VSYNC blanking	tvb+tvfp	33	45	60	H

HV Mode

a. Horizontal input timing

Parameter		Symbol	Value			Unit
Horizontal display area		thd	960			DCLK
DCLK frequency Frame rate = 60Hz		fclk	Min	Typ.	Max	MHz
			36.4	38.6	43.2	
1 Horizontal Line		th	1060	1100	1200	DCLK
HSYNC pulse width	Min	thpw	1			DCLK
	Typ.		--			
	Max		20			
HSYNC blanking		thb	88	88	88	
HSYNC front porch		thfp	12	52	152	

b. Vertical input timing

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
Vertical display area	tvd	540			H
VSYNC period time	tv	573	585	600	H
VSYNC pulse width	tvpw	1	--	3	H
VSYNC blanking	tvb	32	32	32	H
VSYNC front porch	tvfp	1	13	88	H

6. 960x640 panel

DE Mode

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
DCLK frequency Frame rate = 60Hz	fclk	44.89	45.87	56.60	MHz
Horizontal display area	thd	960			DCLK
HSYNC period time	th	1100	1100	1200	DCLK
HSYNC blanking	thb+thfp	140	140	240	DCLK
Vertical display area	tvd	640			H
VSYNC period time	tv	680	695	786	H
VSYNC blanking	tvb+tvfp	40	55	146	H

HV Mode

a. Horizontal input timing

Parameter		Symbol	Value			Unit
Horizontal display area		thd	960			DCLK
DCLK frequency Frame rate = 60Hz		fclk	Min	Typ.	Max	MHz
			43.25	45.87	55.30	
1 Horizontal Line		th	1060	1100	1200	DCLK
HSYNC pulse width	Min	thpw	1			DCLK
	Typ.		--			
	Max		20			
HSYNC blanking		thb	88	88	88	
HSYNC front porch		thfp	12	52	152	

b. Vertical input timing

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
Vertical display area	tvd	640			H
VSYNC period time	tv	680	695	786	H
VSYNC pulse width	tvpw	1	-	20	H
VSYNC blanking	tvb	39	39	39	H
VSYNC front porch	tvfp	1	16	107	H

7. 600x1024 panel

DE Mode

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
DCLK frequency Frame rate = 60Hz	fclk	45.47	50.97	65.76	MHz
Horizontal display area	thd	600			DCLK
HSYNC period time	th	740	800	1000	DCLK
HSYNC blanking	thb+thfp	140	200	400	DCLK
Vertical display area	tvd	1024			H
VSYNC period time	tv	1048	1062	1096	H
VSYNC blanking	tvb+tvfp	24	38	72	H

HV Mode

a. Horizontal input timing

Parameter		Symbol	Value			Unit
Horizontal display area		thd	600			DCLK
DCLK frequency Frame rate = 60Hz		fclk	Min	Typ.	Max	MHz
			44	50.97	65.76	
1 Horizontal Line		th	700	800	1000	DCLK
HSYNC pulse width	Min	thpw	1			DCLK
	Typ.		--			
	Max		40			
HSYNC blanking		thb	88	88	88	
HSYNC front porch		thfp	12	112	312	

b. Vertical input timing

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
Vertical display area	tvd	1024			H
VSYNC period time	tv	1048	1062	1096	H
VSYNC pulse width	tvpw	1	-	20	H
VSYNC blanking	tvb	23	23	23	H
VSYNC front porch	tvfp	1	15	49	H

11. Absolute Maximum Rating

Description	Min	Max	Unit
Logic supply voltage, VDD Digital input voltage	-0.5	5	V
Analog supply voltage, AVDD Gamma voltage , V1~V14 SO1 ~ SO1536	-0.5	15	V

TEMPREATURE

Description	Min	Max	Unit
Operating temperature	-20	85	°C
Storage temperature	-55	125	°C

Stresses above those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only. Functional operation of this device at these or under any other conditions above those indicated in the operational sections of this specification is not implied and exposure to absolute maximum rating conditions for extended periods may affect device reliability.

11.1 DC Electrical Characteristics

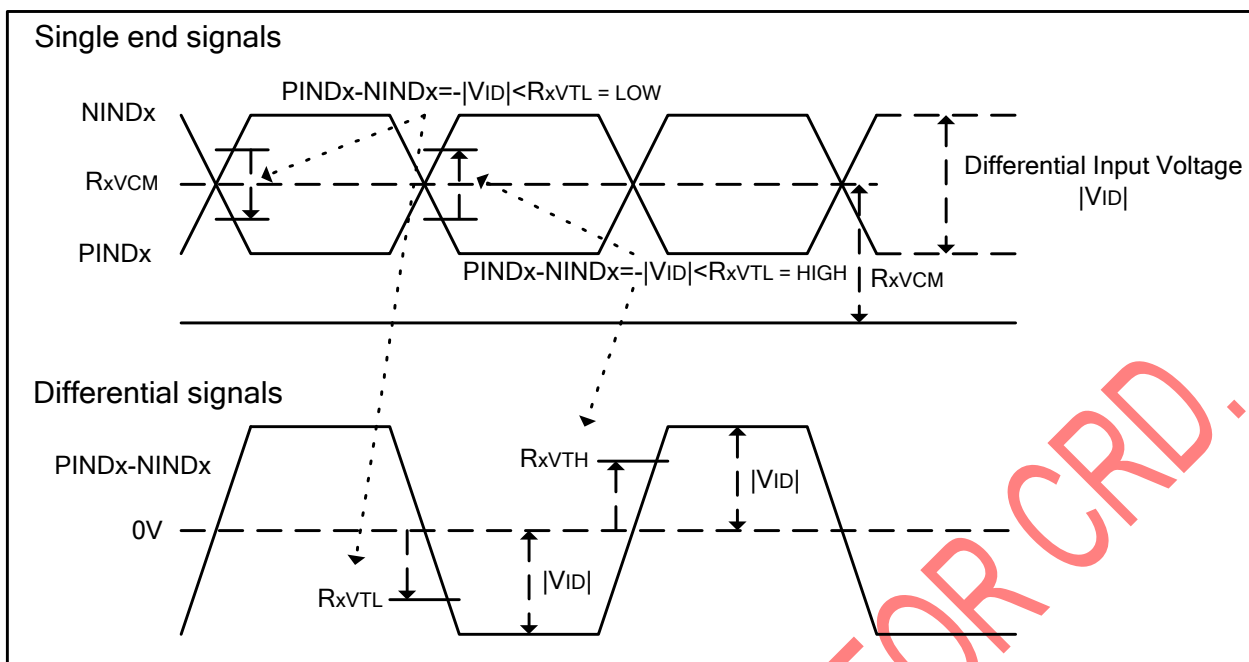
TTL mode

(VDD= 2.3 to 3.6V, AVDD= 8 to 13.5V, GND=AGND= 0V, TA= -20 to +85°C)

Parameter	Symbol	Min	Typ.	Max	Unit	Conditions
Power Supply voltage	VDD	2.3	-	3.6	V	--
Power Supply voltage	AVDD	8	-	13.5	V	--
Low level input voltage	Vil	0	-	0.3xVDD	V	For the digital circuit
High level input voltage	Vih	0.7xVDD	-	VDD	V	For the digital circuit
Input leakage current	Ii	-	-	+/-1	uA	For the digital circuit
High level output voltage	Voh	VDD-0.4	-	-	V	Ioh=-400A
Low level output voltage	Vol	-	-	GND+0.4	V	Iol=+400A
Pull low / high resistor	Ri	200K	250K	300K	ohm	For the digital input pin, VDD=3.3V
Digital Operating Current	Idd	-	15	25	mA	Fclk=65MHz, FLD=50K, VDD=3.3V
Digital Standby current	Ist1	-	10	50	uA	Clock and all function are stopped
Analog Operating Current	Idda	-	10	12	mA	No load, Fclk=65MHz, FLD=50KHz AVDD=10V, V1=8V, V14=0.4V
Analog Standby current	Ist2	-	10	50	uA	No load, Clock and all functions are Stopped
Input level of V1~V7	Vref1	0.4xAVDD	-	AVDD-0.1	V	Gamma correction voltage input
Input level of V8~V14	Vref2	0.1	-	0.6xAVDD	V	Gamma correction voltage input
Output Voltage deviatio	Vod1	-	+/-20	+/-35	mV	Vo=AGND+0.1V~AGND+0.5V and Vo=AGND-0.5V~AGND-0.1V
Output Voltage deviation	Vod2	-	+/-15	+/-20	mV	Vo=AGND+0.5V~AGND-0.5V
Output Voltage Offset Between Chips	Voc	-	-	+/-20	V	Vo=AGND+0.5V~AGND-0.5V
Dynamic Range of Output	Vdr	0.1	-	AVDD-0.1	V	S1~S1536
Sinking Range of Output	IOLy	80	-	-	uA	S1~S1536; Vo=0.1V v.s 1.0V AVDD=13.5V
Driving Range of Output	IOHy	80	-	-	uA	S1~S1536; Vo=13.4V v.s 12.5V AVDD=13.5V
Resistance of Gamma Table	Rg	0.7xRn	1.0xRn	1.3xRn	ohm	Rn: internal gamma resistor

LVDS mode (Receiver Differential Input: PIND0~PIND3, NIND0~NIND3, PINc, NINc)

Parameter	Symbol	Min	Typ.	Max	Unit	Conditions
Differential input high threshold voltage	RxVTH	-	-	0.1	V	RxVCM=1.2V
Differential input low threshold voltage	RxVTL	-0.1	-	-	V	
Input voltage range (singled-end)	RxVIN	0	-	2.4	V	
Differential input common mode voltage	RxVCM	VID/2	-	2.1- VID /2	V	
Differential input voltage	VID	0.2	-	0.6	V	
Differential input leakage current	RVxliz	-10	-	+10	uA	
LVDS Digital Operating Current	Iddlvds	-	22	30	mA	Fclk=65MHz, VDD=3.3V
LVDS Digital Standby Current	Istlvds	-	200	300	uA	Clock & all Functions are stopped



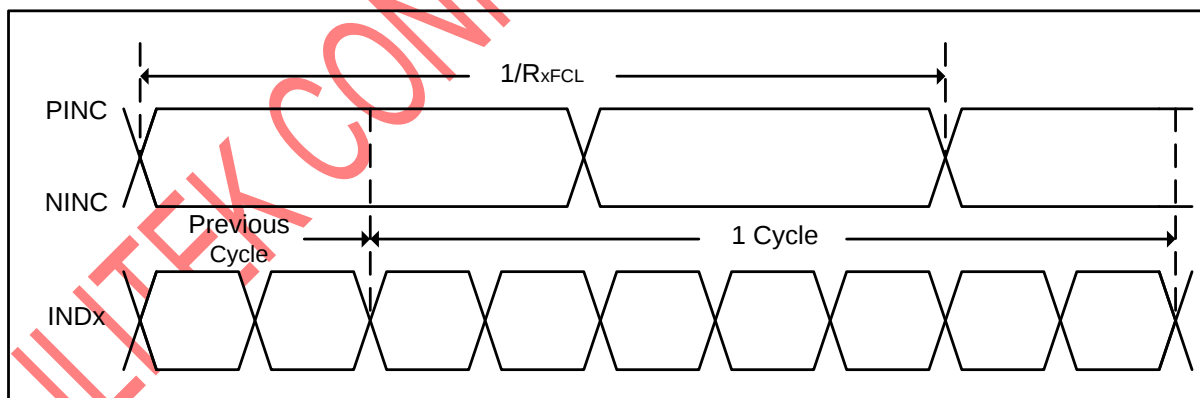
11.2 AC Electrical Characteristics

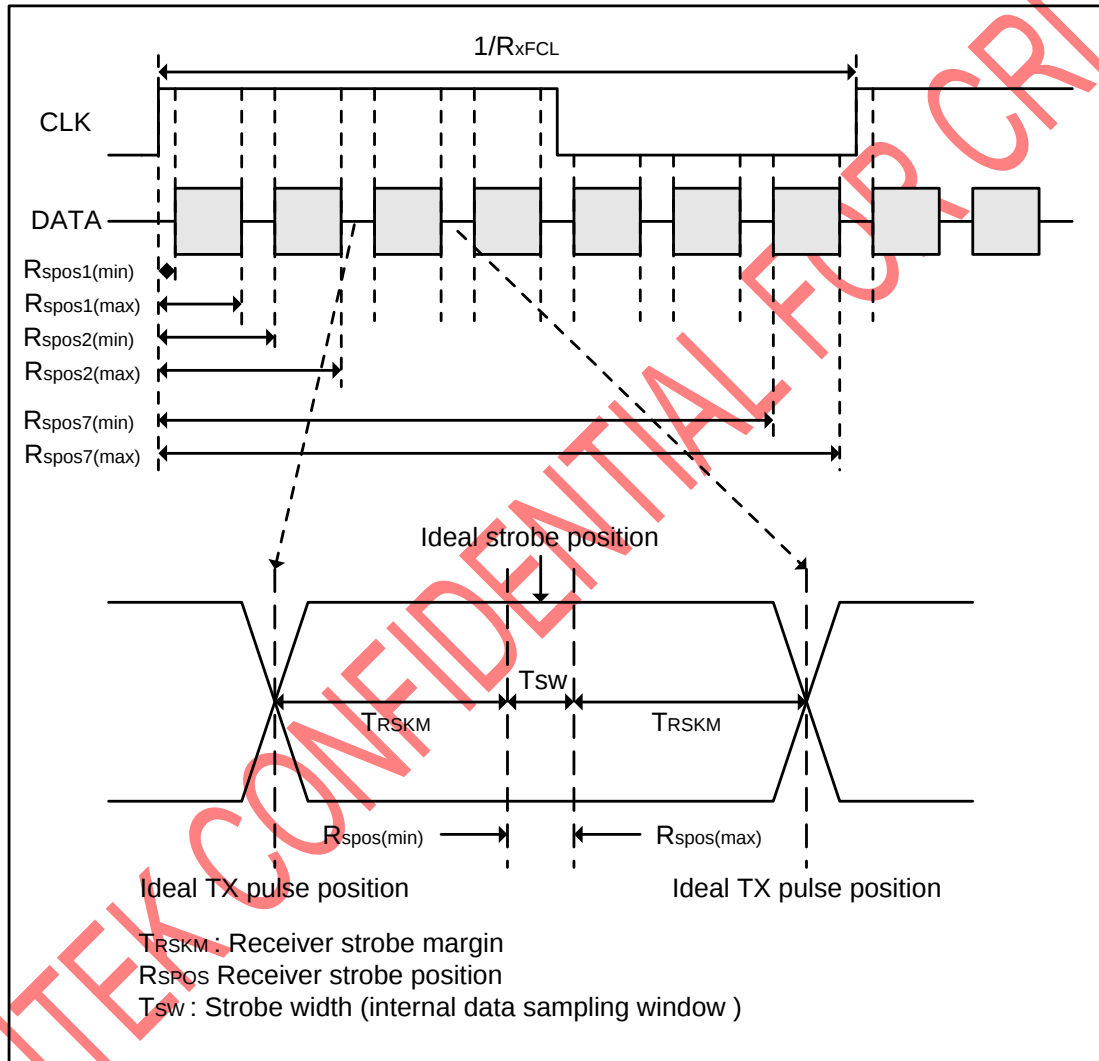
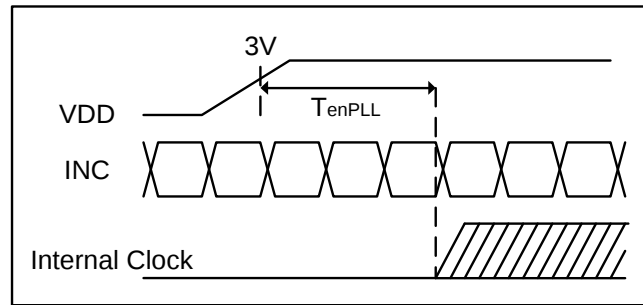
TTL mode(VDD= 2.3 to 3.6V, AVDD= 8 to 13.5V, GND=AGND= 0V, TA= -20 to +85°C)

Parameter	Symbol	Min	Typ.	Max	Unit	Conditions
VDD power on Slew rate	TPOR	-	-	20	ms	From 0V to 0.9VDD
RSTB pulse width	TRst	50	-	-	us	DCLK=65MHz
DCLK cycle time	Tcph	14			ns	
DCLK pulse duty	Tcwh	40	50	60	%	
VSD setup time	Tvst	5	-	-	ns	
VSD hold time	Tvhd	5	-	-	ns	
HSD setup time	Thst	5	-	-	ns	
HSD hold time	Thhd	5	-	-	ns	
Data setup time	Tdsu	5	-	-	ns	D0[7:0],D1[7:0],D2[7:0] to DCLK
Data hold time	Tdhu	5	-	-	ns	D0[7:0],D1[7:0],D2[7:0] to DCLK
OE setup time	Tesu	5	-	-	ns	
OE hold time	Tehd	5	-	-	ns	
Output stable time	Tsst	-	-	6	us	10% to 90% target Voltage. CL=90pF,R=10K ohm (Cascade) Dual gate
				3		

LVDS mode

Parameter	Symbol	Min	Typ.	Max	Unit	Conditions
Clock frequency	RxFCLK	26.2		71	MHz	
Input data skew margin	TRSKM	500			ps	VID =400mv RxVCM=1.2V RxFCLK=71MHz
Clock high time	TLVCH		4/(7x RxFCLK)		ns	
Clock low time	TLVCL		3/(7xRxFCLK)		ns	
VSD setup time	TenPLL			150	us	





SSC tolerance of LVDS receiver

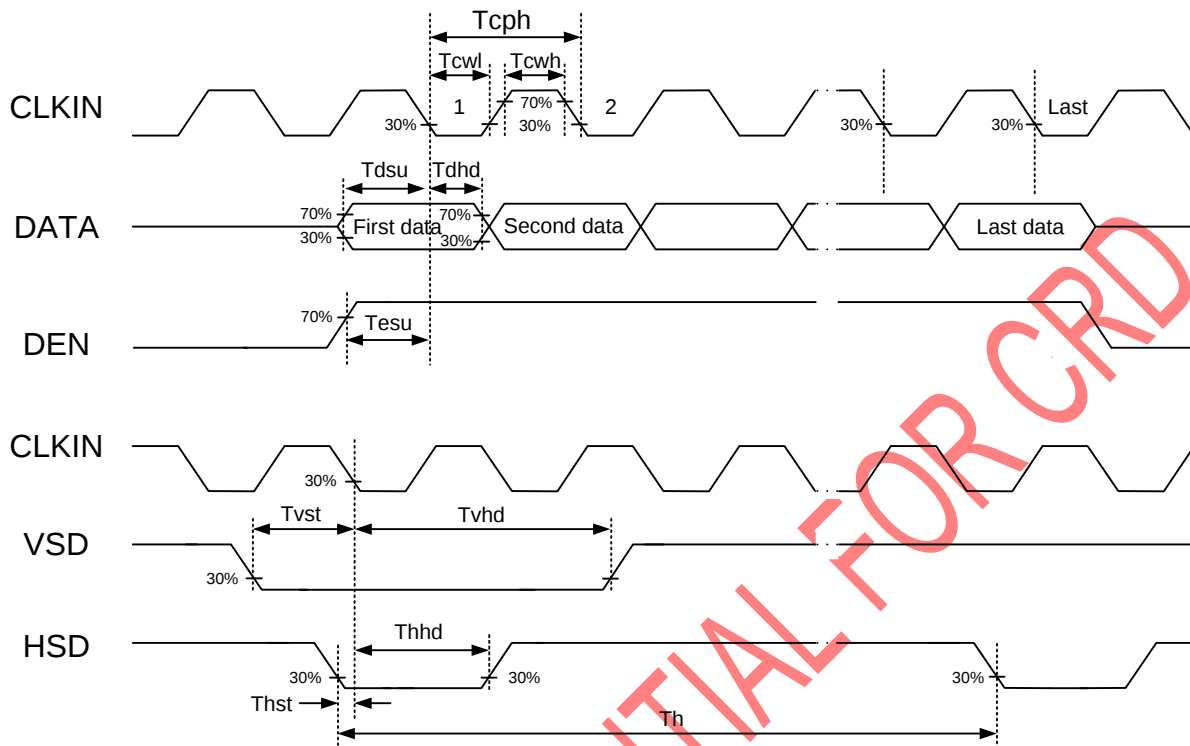
symbol	parameter	condition	Min	Typ.	Max	Units
SSCMF	Modulation Freq.		23		93	KHz
SSCMR	Modulation Rate	LVDS clock=71MHz center spread			+/-3	%

parameter	symbol	Min	Typ.	Max	Units	condition
DCLK Frequency	Fclk	-	65	71	MHz	VDD=2.3V~3.6V
DCLK Cycle Time	Tclk	14.1	15.4	-	Ns	
DCLK Pulse Duty	Tcwh	40	50	60	%	Tclk
Time from HSD to Source Output	Thso	-	64	-	DCLK	
Time from HSD to LD	Thld	-	64	-	DCLK	
Time from HSD to STV	Thstv	-	2	-	DCLK	
Time from HSD to CKV	Thckv	-	20	-	DCLK	
Time from HSD to OEV	Thoev	-	4	-	DCLK	
LD Pulse Width	Twld	-	10	-	DCLK	
CKV Pulse Width	Twckv	-	66	-	DCLK	
OEV Pulse Width	Twoev	-	74	-	DCLK	

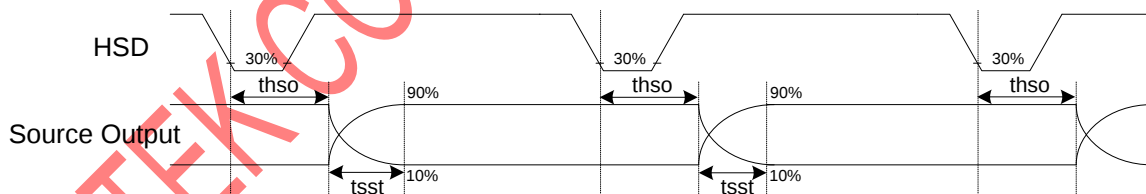
ILITEK CONFIDENTIAL FOR CRD.

12. Timing Diagram

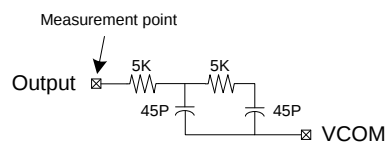
12.1 input Clock and Data Timing Diagram



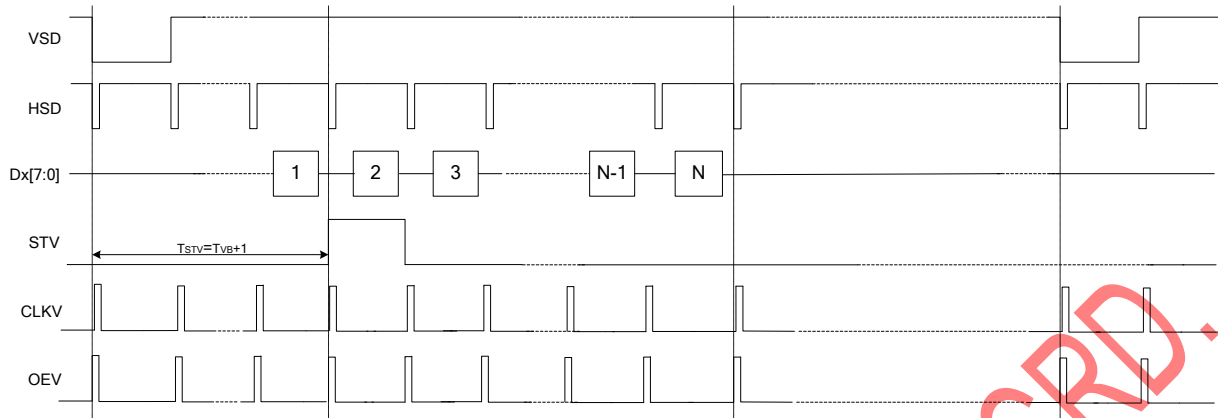
12.2 Source Output Timing Diagram (cascade)



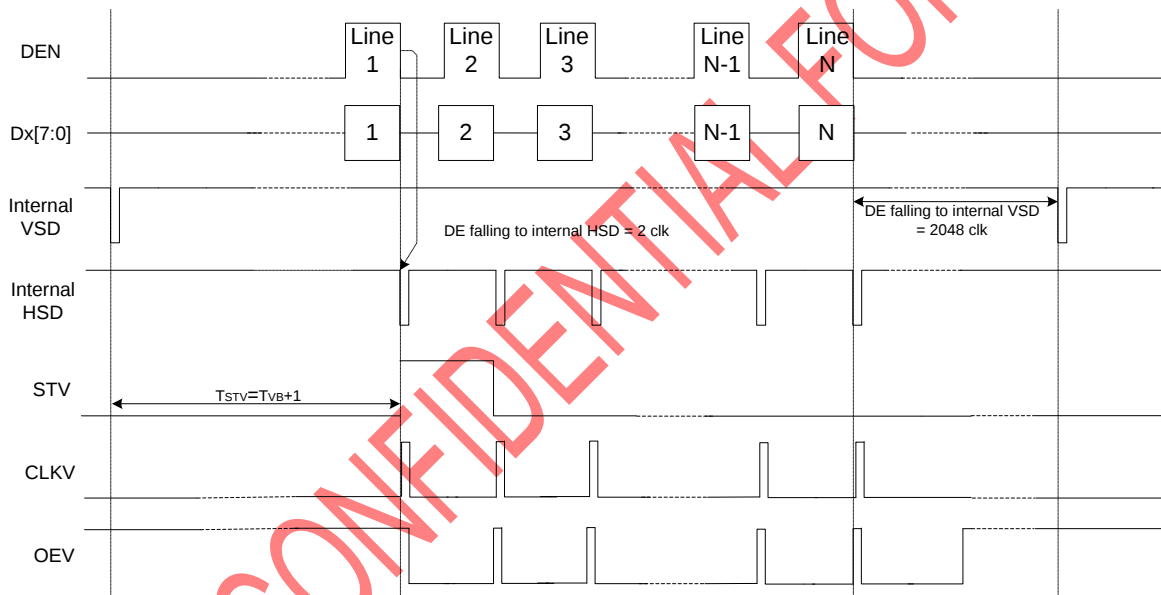
Output load condition :



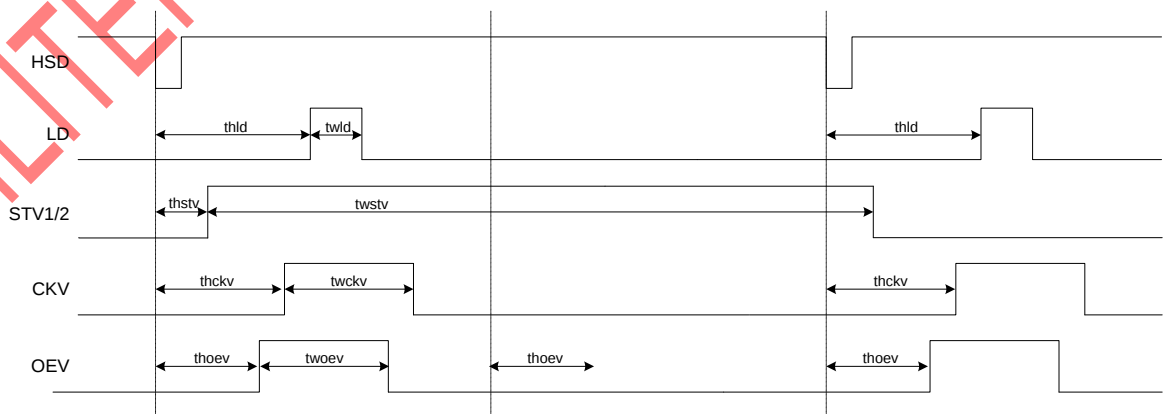
12.3 Vertical Timing Diagram HV (cascade)



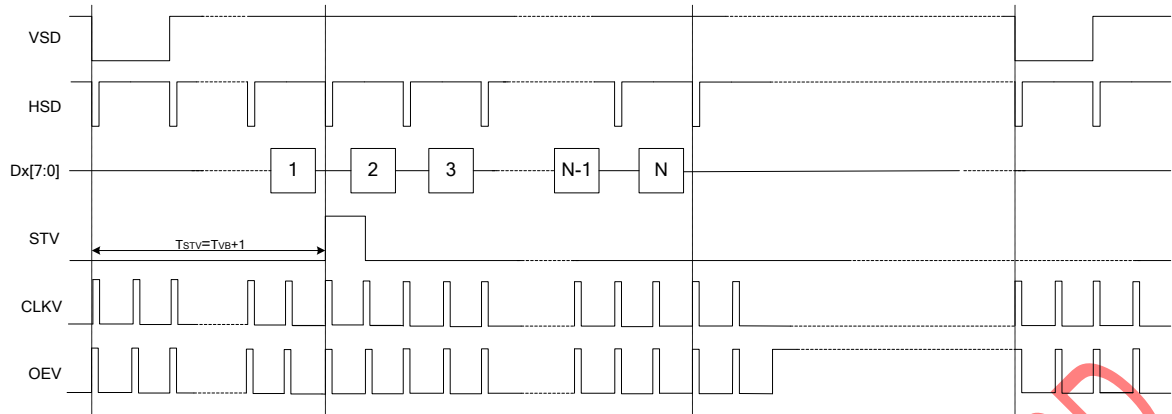
12.4 Vertical Timing Diagram DE (cascade)



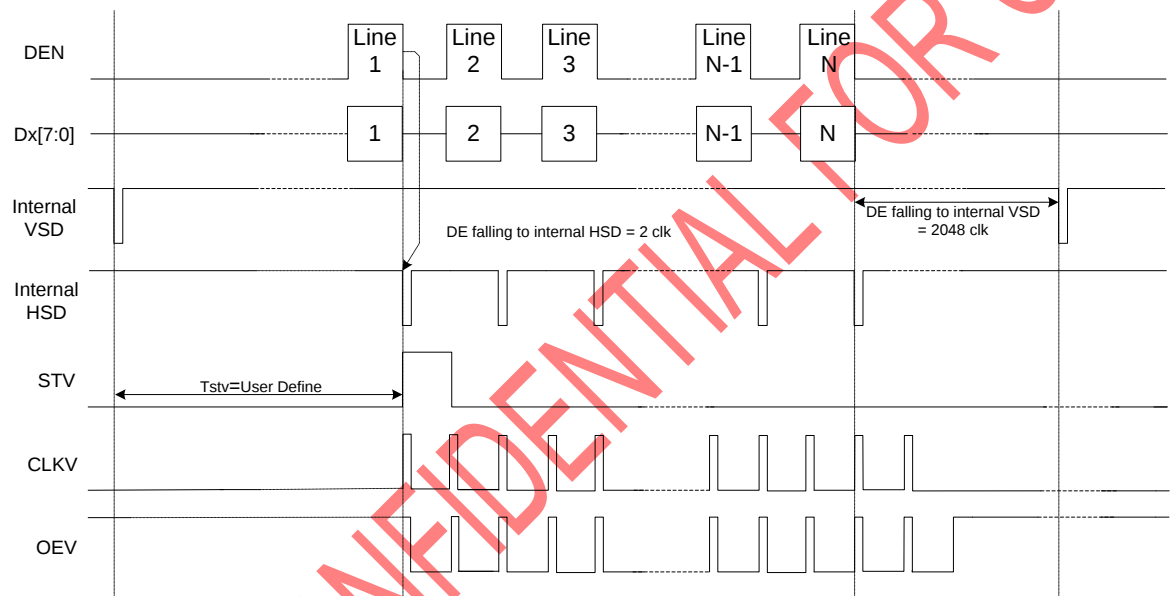
12.5 Gate output Timing Diagram HV (cascade)



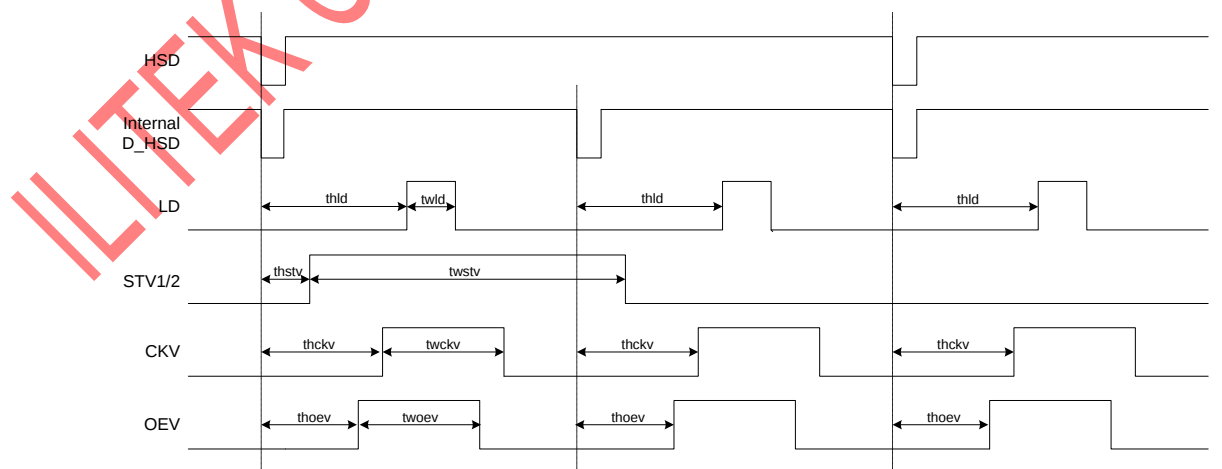
12.6 Vertical Timing Diagram HV (dual gate)



12.7 Vertical Timing Diagram DE (dual gate)



12.8 Gate output Timing Diagram HV (dual gate)



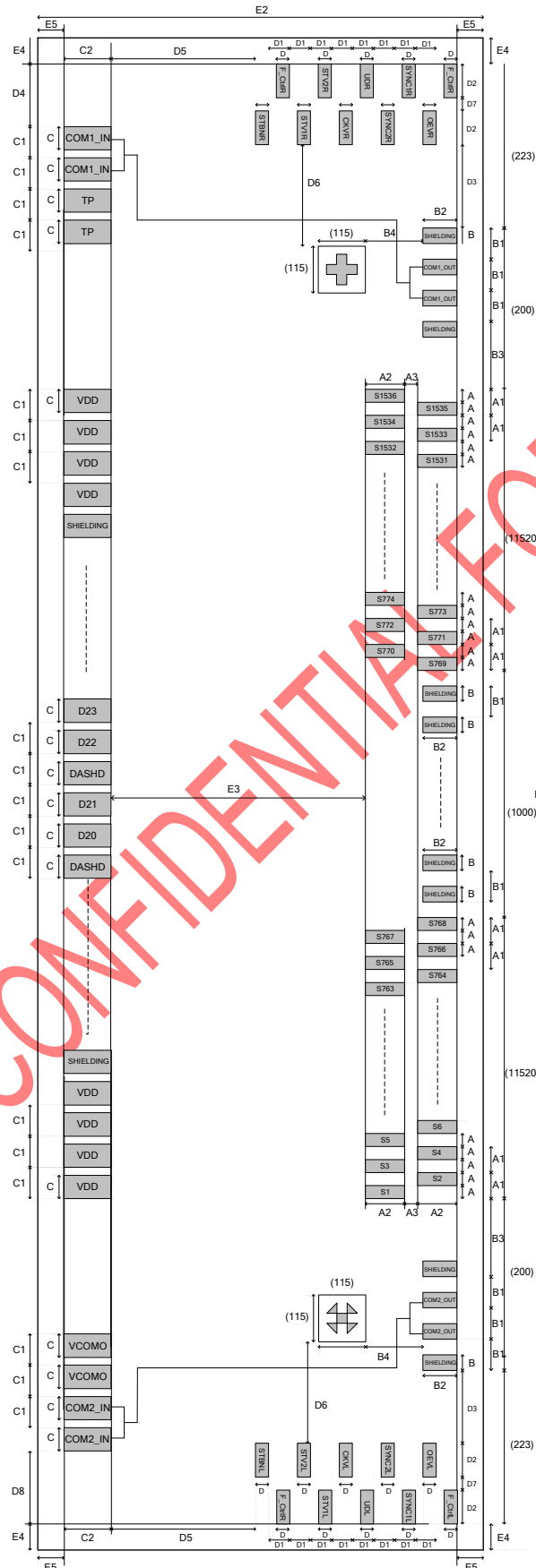
12.9 Internal VCO OSC timing Specification

(At GND = 0V, TA= +25°C)

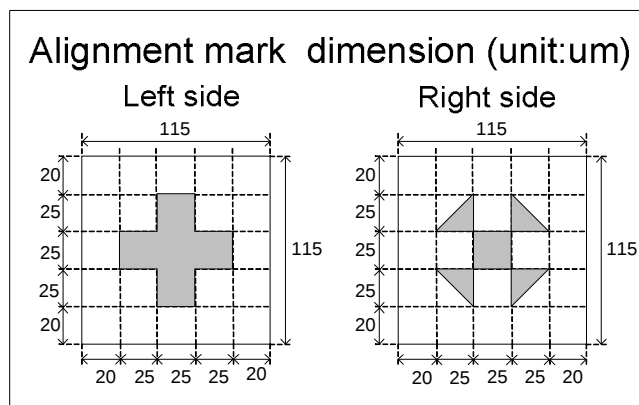
Condition	Min	Typ	Max	Unit
VDD=2.7V	25.2	28	30.8	MHz
VDD=3.3V	27.9	31	34.1	

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13. Pad outline Dimension (Bump Side)



13.1 Alignment Mark



13.2 Pad Information

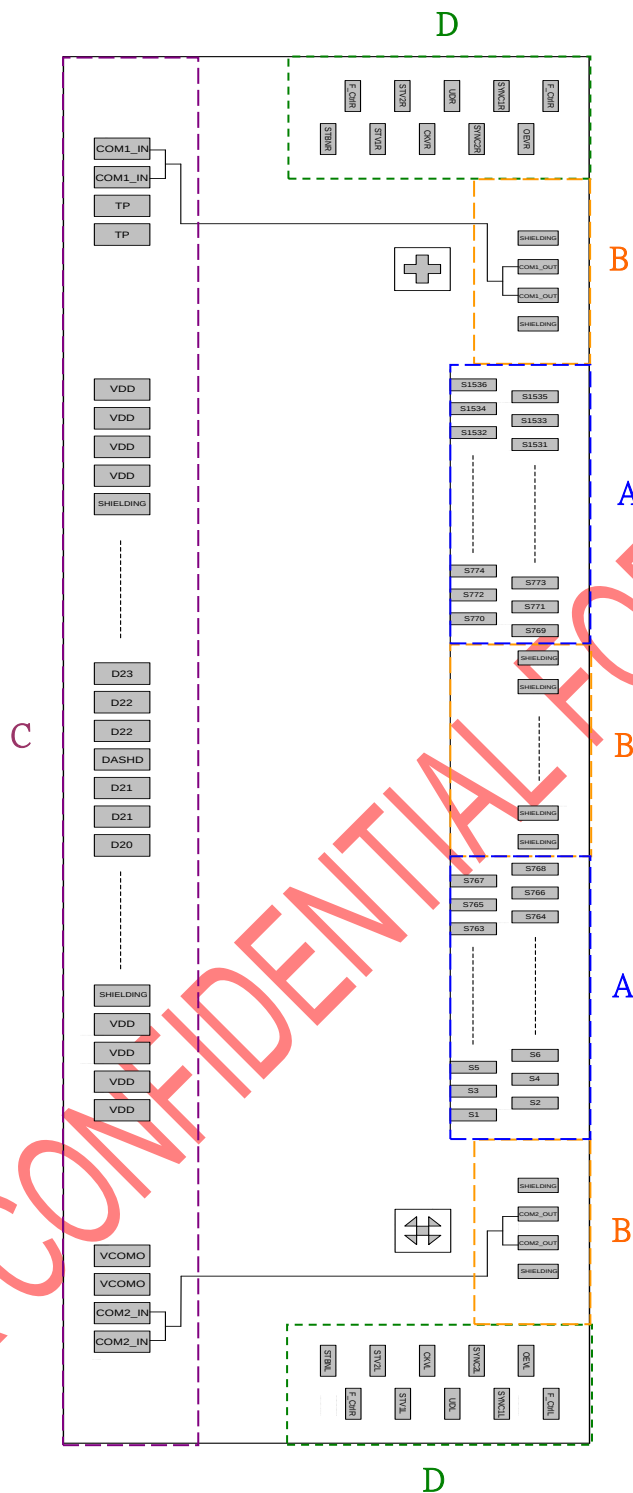
Symbol	Dimension in um	Symbol	Dimension in um
A	13	D	28
A1	30	D1	40
A2	98	D2	78
A3	32	D3	45
		D4	33
B	28	D5	98
B1	50	D6	75
B2	68	D7	22
B3	50	D8	53
B4	51	E1	25000
		E2	700
C	63	E3	258
C1	85	E4	58
C2	98	E5	58

Note:

A. Chip dimension include scribe line.

B. Bump Height 9um

14. Pad Coordinate



Pads Area	Pads Width x Height	Pin Description	Pads No	Total Pads
A.	13X98 (um x um)	Source Out Pads	307~1074,1084~1851	1536
B.	28X68 (um x um)	Shielding & COM_Out	303~306,1075~1083,1852~1855	17
C.	63X98 (um x um)	Input Signals Pads, VCOM_In & TP	1~292	292
D.	28X78 (um x um)	Gate Control Signal at Right and Left Side	293~302,1856~1865	20

14.1 Pad Location

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
1	COM1_IN	-12377.5	-243	52	HFRC	-8042.5	-243	103	V7	-3707.5	-243
2	COM1_IN	-12292.5	-243	53	TP	-7957.5	-243	104	GAMH	-3622.5	-243
3	TP	-12207.5	-243	54	TP	-7872.5	-243	105	GAMH	-3537.5	-243
4	TP	-12122.5	-243	55	FRAME	-7787.5	-243	106	SHIELDING	-3452.5	-243
5	TP	-12037.5	-243	56	FRAME	-7702.5	-243	107	DASHD	-3367.5	-243
6	TP	-11952.5	-243	57	SEL[0]	-7617.5	-243	108	VSD	-3282.5	-243
7	SHIELDING	-11867.5	-243	58	SEL[0]	-7532.5	-243	109	DASHD	-3197.5	-243
8	AGND	-11782.5	-243	59	SEL[1]	-7447.5	-243	110	HSD	-3112.5	-243
9	AGND	-11697.5	-243	60	SEL[1]	-7362.5	-243	111	DASHD	-3027.5	-243
10	AGND	-11612.5	-243	61	CSB	-7277.5	-243	112	DEN	-2942.5	-243
11	AGND	-11527.5	-243	62	CSB	-7192.5	-243	113	GND_LVDS	-2857.5	-243
12	SHIELDING	-11442.5	-243	63	SHIELDING	-7107.5	-243	114	GND_LVDS	-2772.5	-243
13	AVDD	-11357.5	-243	64	SDA	-7022.5	-243	115	GND_LVDS	-2687.5	-243
14	AVDD	-11272.5	-243	65	SDA	-6937.5	-243	116	GND_LVDS	-2602.5	-243
15	AVDD	-11187.5	-243	66	SHIELDING	-6852.5	-243	117	D27	-2517.5	-243
16	AVDD	-11102.5	-243	67	SCL	-6767.5	-243	118	D26	-2432.5	-243
17	SHIELDING	-11017.5	-243	68	SCL	-6682.5	-243	119	DASHD	-2347.5	-243
18	GND	-10932.5	-243	69	SHIELDING	-6597.5	-243	120	D25	-2262.5	-243
19	GND	-10847.5	-243	70	VDD	-6512.5	-243	121	D24	-2177.5	-243
20	GND	-10762.5	-243	71	VDD	-6427.5	-243	122	DASHD	-2092.5	-243
21	GND	-10677.5	-243	72	VDD	-6342.5	-243	123	D23	-2007.5	-243
22	SHIELDING	-10592.5	-243	73	VDD	-6257.5	-243	124	D22	-1922.5	-243
23	VDD	-10507.5	-243	74	SHIELDING	-6172.5	-243	125	DASHD	-1837.5	-243
24	VDD	-10422.5	-243	75	GND	-6087.5	-243	126	D21	-1752.5	-243
25	VDD	-10337.5	-243	76	GND	-6002.5	-243	127	D20	-1667.5	-243
26	VDD	-10252.5	-243	77	GND	-5917.5	-243	128	DASHD	-1582.5	-243
27	SHIELDING	-10167.5	-243	78	GND	-5832.5	-243	129	DCLK	-1497.5	-243
28	TP	-10082.5	-243	79	SHIELDING	-5747.5	-243	130	NINC	-1412.5	-243
29	TP	-9997.5	-243	80	AVDD	-5662.5	-243	131	DASHD	-1327.5	-243
30	TP	-9912.5	-243	81	AVDD	-5577.5	-243	132	VDD_LVDS	-1242.5	-243
31	TP	-9827.5	-243	82	AVDD	-5492.5	-243	133	VDD_LVDS	-1157.5	-243
32	TP	-9742.5	-243	83	AVDD	-5407.5	-243	134	VDD_LVDS	-1072.5	-243
33	TP	-9657.5	-243	84	SHIELDING	-5322.5	-243	135	VDD_LVDS	-987.5	-243
34	TP	-9572.5	-243	85	AGND	-5237.5	-243	136	REV	-902.5	-243
35	TP	-9487.5	-243	86	AGND	-5152.5	-243	137	DASHD	-817.5	-243
36	TP	-9402.5	-243	87	AGND	-5067.5	-243	138	D17	-732.5	-243
37	TP	-9317.5	-243	88	AGND	-4982.5	-243	139	D16	-647.5	-243
38	SHIELDING	-9232.5	-243	89	SHIELDING	-4897.5	-243	140	DASHD	-562.5	-243
39	DIMI	-9147.5	-243	90	V1	-4812.5	-243	141	D15	-477.5	-243
40	DIMI	-9062.5	-243	91	V1	-4727.5	-243	142	D14	-392.5	-243
41	NBW	-8977.5	-243	92	V2	-4642.5	-243	143	DASHD	-307.5	-243
42	NBW	-8892.5	-243	93	V2	-4557.5	-243	144	D13	-222.5	-243
43	PINCTL	-8807.5	-243	94	V3	-4472.5	-243	145	D12	-137.5	-243
44	PINCTL	-8722.5	-243	95	V3	-4387.5	-243	146	DASHD	-52.5	-243
45	SHIELDING	-8637.5	-243	96	V4	-4302.5	-243	147	D11	32.5	-243
46	DIMO	-8552.5	-243	97	V4	-4217.5	-243	148	D10	117.5	-243
47	DIMO	-8467.5	-243	98	V5	-4132.5	-243	149	DASHD	202.5	-243
48	SHIELDING	-8382.5	-243	99	V5	-4047.5	-243	150	D07	287.5	-243
49	DITHER	-8297.5	-243	100	V6	-3962.5	-243	151	D06	372.5	-243
50	DITHER	-8212.5	-243	101	V6	-3877.5	-243	152	DASHD	457.5	-243
51	HFRC	-8127.5	-243	102	V7	-3792.5	-243	153	D05	542.5	-243

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
154	D04	627.5	-243	205	MASLOC	4962.5	-243	256	GND	9297.5	-243
155	DASHD	712.5	-243	206	CABC_EN[0]	5047.5	-243	257	SHIELDING	9382.5	-243
156	D03	797.5	-243	207	CABC_EN[0]	5132.5	-243	258	AVDD	9467.5	-243
157	D02	882.5	-243	208	CABC_EN[1]	5217.5	-243	259	AVDD	9552.5	-243
158	DASHD	967.5	-243	209	CABC_EN[1]	5302.5	-243	260	AVDD	9637.5	-243
159	D01	1052.5	-243	210	OPDRV	5387.5	-243	261	AVDD	9722.5	-243
160	D00	1137.5	-243	211	OPDRV	5472.5	-243	262	SHIELDING	9807.5	-243
161	DASHD	1222.5	-243	212	MODE	5557.5	-243	263	AGND	9892.5	-243
162	SHIELDING	1307.5	-243	213	MODE	5642.5	-243	264	AGND	9977.5	-243
163	GAML	1392.5	-243	214	IFSEL	5727.5	-243	265	AGND	10062.5	-243
164	GAML	1477.5	-243	215	IFSEL	5812.5	-243	266	AGND	10147.5	-243
165	V8	1562.5	-243	216	BIST	5897.5	-243	267	SHIELDING	10232.5	-243
166	V8	1647.5	-243	217	BIST	5982.5	-243	268	TP	10317.5	-243
167	V9	1732.5	-243	218	RES[0]	6067.5	-243	269	VCOMI	10402.5	-243
168	V9	1817.5	-243	219	RES[0]	6152.5	-243	270	VCOMI	10487.5	-243
169	V10	1902.5	-243	220	RES[1]	6237.5	-243	271	PWR_EN	10572.5	-243
170	V10	1987.5	-243	221	RES[1]	6322.5	-243	272	PWR_EN	10657.5	-243
171	V11	2072.5	-243	222	DCLKPOL	6407.5	-243	273	FBL	10742.5	-243
172	V11	2157.5	-243	223	DCLKPOL	6492.5	-243	274	FBL	10827.5	-243
173	V12	2242.5	-243	224	STBYB	6577.5	-243	275	FBH	10912.5	-243
174	V12	2327.5	-243	225	STBYB	6662.5	-243	276	FBH	10997.5	-243
175	V13	2412.5	-243	226	GRB	6747.5	-243	277	FBA	11082.5	-243
176	V13	2497.5	-243	227	GRB	6832.5	-243	278	FBA	11167.5	-243
177	V14	2582.5	-243	228	SHLR	6917.5	-243	279	AVDDG	11252.5	-243
178	V14	2667.5	-243	229	SHLR	7002.5	-243	280	AVDDG	11337.5	-243
179	SHIELDING	2752.5	-243	230	UPDN	7087.5	-243	281	DRVA	11422.5	-243
180	AGND	2837.5	-243	231	UPDN	7172.5	-243	282	DRVA	11507.5	-243
181	AGND	2922.5	-243	232	RES2	7257.5	-243	283	DRVH	11592.5	-243
182	AGND	3007.5	-243	233	TP	7342.5	-243	284	DRVH	11677.5	-243
183	AGND	3092.5	-243	234	TP	7427.5	-243	285	DRVL	11762.5	-243
184	SHIELDING	3177.5	-243	235	TP	7512.5	-243	286	DRVL	11847.5	-243
185	AVDD	3262.5	-243	236	TP	7597.5	-243	287	DRVL_B	11932.5	-243
186	AVDD	3347.5	-243	237	TP	7682.5	-243	288	DRVL_B	12017.5	-243
187	AVDD	3432.5	-243	238	TP	7767.5	-243	289	VCOMO	12102.5	-243
188	AVDD	3517.5	-243	239	TP	7852.5	-243	290	VCOMO	12187.5	-243
189	SHIELDING	3602.5	-243	240	TP	7937.5	-243	291	COM2_IN	12272.5	-243
190	GND	3687.5	-243	241	TP	8022.5	-243	292	COM2_IN	12357.5	-243
191	GND	3772.5	-243	242	TP	8107.5	-243	293	STBNL	12303	-82
192	GND	3857.5	-243	243	TP	8192.5	-243	294	F_CtrlL	12403	-42
193	GND	3942.5	-243	244	TP	8277.5	-243	295	STV2L	12303	-2
194	SHIELDING	4027.5	-243	245	TP	8362.5	-243	296	STV1L	12403	38
195	VDD	4112.5	-243	246	TP	8447.5	-243	297	CKVL	12303	78
196	VDD	4197.5	-243	247	SHIELDING	8532.5	-243	298	UDL	12403	118
197	VDD	4282.5	-243	248	VDD	8617.5	-243	299	SYNC2L	12303	158
198	VDD	4367.5	-243	249	VDD	8702.5	-243	300	SYNC1L	12403	198
199	SHIELDING	4452.5	-243	250	VDD	8787.5	-243	301	OEVL	12303	238
200	DUAL	4537.5	-243	251	VDD	8872.5	-243	302	F_CtrlL	12403	278
201	DUAL	4622.5	-243	252	SHIELDING	8957.5	-243	303	SHIELDING	12205	258
202	MASL	4707.5	-243	253	GND	9042.5	-243	304	COM2_OUT	12155	258
203	MASL	4792.5	-243	254	GND	9127.5	-243	305	COM2_OUT	12105	258
204	MASLOC	4877.5	-243	255	GND	9212.5	-243	306	SHIELDING	12055	258

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
307	SO1	12012.5	113	358	SO52	11247.5	243	409	SO103	10482.5	113
308	SO2	11997.5	243	359	SO53	11232.5	113	410	SO104	10467.5	243
309	SO3	11982.5	113	360	SO54	11217.5	243	411	SO105	10452.5	113
310	SO4	11967.5	243	361	SO55	11202.5	113	412	SO106	10437.5	243
311	SO5	11952.5	113	362	SO56	11187.5	243	413	SO107	10422.5	113
312	SO6	11937.5	243	363	SO57	11172.5	113	414	SO108	10407.5	243
313	SO7	11922.5	113	364	SO58	11157.5	243	415	SO109	10392.5	113
314	SO8	11907.5	243	365	SO59	11142.5	113	416	SO110	10377.5	243
315	SO9	11892.5	113	366	SO60	11127.5	243	417	SO111	10362.5	113
316	SO10	11877.5	243	367	SO61	11112.5	113	418	SO112	10347.5	243
317	SO11	11862.5	113	368	SO62	11097.5	243	419	SO113	10332.5	113
318	SO12	11847.5	243	369	SO63	11082.5	113	420	SO114	10317.5	243
319	SO13	11832.5	113	370	SO64	11067.5	243	421	SO115	10302.5	113
320	SO14	11817.5	243	371	SO65	11052.5	113	422	SO116	10287.5	243
321	SO15	11802.5	113	372	SO66	11037.5	243	423	SO117	10272.5	113
322	SO16	11787.5	243	373	SO67	11022.5	113	424	SO118	10257.5	243
323	SO17	11772.5	113	374	SO68	11007.5	243	425	SO119	10242.5	113
324	SO18	11757.5	243	375	SO69	10992.5	113	426	SO120	10227.5	243
325	SO19	11742.5	113	376	SO70	10977.5	243	427	SO121	10212.5	113
326	SO20	11727.5	243	377	SO71	10962.5	113	428	SO122	10197.5	243
327	SO21	11712.5	113	378	SO72	10947.5	243	429	SO123	10182.5	113
328	SO22	11697.5	243	379	SO73	10932.5	113	430	SO124	10167.5	243
329	SO23	11682.5	113	380	SO74	10917.5	243	431	SO125	10152.5	113
330	SO24	11667.5	243	381	SO75	10902.5	113	432	SO126	10137.5	243
331	SO25	11652.5	113	382	SO76	10887.5	243	433	SO127	10122.5	113
332	SO26	11637.5	243	383	SO77	10872.5	113	434	SO128	10107.5	243
333	SO27	11622.5	113	384	SO78	10857.5	243	435	SO129	10092.5	113
334	SO28	11607.5	243	385	SO79	10842.5	113	436	SO130	10077.5	243
335	SO29	11592.5	113	386	SO80	10827.5	243	437	SO131	10062.5	113
336	SO30	11577.5	243	387	SO81	10812.5	113	438	SO132	10047.5	243
337	SO31	11562.5	113	388	SO82	10797.5	243	439	SO133	10032.5	113
338	SO32	11547.5	243	389	SO83	10782.5	113	440	SO134	10017.5	243
339	SO33	11532.5	113	390	SO84	10767.5	243	441	SO135	10002.5	113
340	SO34	11517.5	243	391	SO85	10752.5	113	442	SO136	9987.5	243
341	SO35	11502.5	113	392	SO86	10737.5	243	443	SO137	9972.5	113
342	SO36	11487.5	243	393	SO87	10722.5	113	444	SO138	9957.5	243
343	SO37	11472.5	113	394	SO88	10707.5	243	445	SO139	9942.5	113
344	SO38	11457.5	243	395	SO89	10692.5	113	446	SO140	9927.5	243
345	SO39	11442.5	113	396	SO90	10677.5	243	447	SO141	9912.5	113
346	SO40	11427.5	243	397	SO91	10662.5	113	448	SO142	9897.5	243
347	SO41	11412.5	113	398	SO92	10647.5	243	449	SO143	9882.5	113
348	SO42	11397.5	243	399	SO93	10632.5	113	450	SO144	9867.5	243
349	SO43	11382.5	113	400	SO94	10617.5	243	451	SO145	9852.5	113
350	SO44	11367.5	243	401	SO95	10602.5	113	452	SO146	9837.5	243
351	SO45	11352.5	113	402	SO96	10587.5	243	453	SO147	9822.5	113
352	SO46	11337.5	243	403	SO97	10572.5	113	454	SO148	9807.5	243
353	SO47	11322.5	113	404	SO98	10557.5	243	455	SO149	9792.5	113
354	SO48	11307.5	243	405	SO99	10542.5	113	456	SO150	9777.5	243
355	SO49	11292.5	113	406	SO100	10527.5	243	457	SO151	9762.5	113
356	SO50	11277.5	243	407	SO101	10512.5	113	458	SO152	9747.5	243
357	SO51	11262.5	113	408	SO102	10497.5	243	459	SO153	9732.5	113

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
460	SO154	9717.5	243	511	SO205	8952.5	113	562	SO256	8187.5	243
461	SO155	9702.5	113	512	SO206	8937.5	243	563	SO257	8172.5	113
462	SO156	9687.5	243	513	SO207	8922.5	113	564	SO258	8157.5	243
463	SO157	9672.5	113	514	SO208	8907.5	243	565	SO259	8142.5	113
464	SO158	9657.5	243	515	SO209	8892.5	113	566	SO260	8127.5	243
465	SO159	9642.5	113	516	SO210	8877.5	243	567	SO261	8112.5	113
466	SO160	9627.5	243	517	SO211	8862.5	113	568	SO262	8097.5	243
467	SO161	9612.5	113	518	SO212	8847.5	243	569	SO263	8082.5	113
468	SO162	9597.5	243	519	SO213	8832.5	113	570	SO264	8067.5	243
469	SO163	9582.5	113	520	SO214	8817.5	243	571	SO265	8052.5	113
470	SO164	9567.5	243	521	SO215	8802.5	113	572	SO266	8037.5	243
471	SO165	9552.5	113	522	SO216	8787.5	243	573	SO267	8022.5	113
472	SO166	9537.5	243	523	SO217	8772.5	113	574	SO268	8007.5	243
473	SO167	9522.5	113	524	SO218	8757.5	243	575	SO269	7992.5	113
474	SO168	9507.5	243	525	SO219	8742.5	113	576	SO270	7977.5	243
475	SO169	9492.5	113	526	SO220	8727.5	243	577	SO271	7962.5	113
476	SO170	9477.5	243	527	SO221	8712.5	113	578	SO272	7947.5	243
477	SO171	9462.5	113	528	SO222	8697.5	243	579	SO273	7932.5	113
478	SO172	9447.5	243	529	SO223	8682.5	113	580	SO274	7917.5	243
479	SO173	9432.5	113	530	SO224	8667.5	243	581	SO275	7902.5	113
480	SO174	9417.5	243	531	SO225	8652.5	113	582	SO276	7887.5	243
481	SO175	9402.5	113	532	SO226	8637.5	243	583	SO277	7872.5	113
482	SO176	9387.5	243	533	SO227	8622.5	113	584	SO278	7857.5	243
483	SO177	9372.5	113	534	SO228	8607.5	243	585	SO279	7842.5	113
484	SO178	9357.5	243	535	SO229	8592.5	113	586	SO280	7827.5	243
485	SO179	9342.5	113	536	SO230	8577.5	243	587	SO281	7812.5	113
486	SO180	9327.5	243	537	SO231	8562.5	113	588	SO282	7797.5	243
487	SO181	9312.5	113	538	SO232	8547.5	243	589	SO283	7782.5	113
488	SO182	9297.5	243	539	SO233	8532.5	113	590	SO284	7767.5	243
489	SO183	9282.5	113	540	SO234	8517.5	243	591	SO285	7752.5	113
490	SO184	9267.5	243	541	SO235	8502.5	113	592	SO286	7737.5	243
491	SO185	9252.5	113	542	SO236	8487.5	243	593	SO287	7722.5	113
492	SO186	9237.5	243	543	SO237	8472.5	113	594	SO288	7707.5	243
493	SO187	9222.5	113	544	SO238	8457.5	243	595	SO289	7692.5	113
494	SO188	9207.5	243	545	SO239	8442.5	113	596	SO290	7677.5	243
495	SO189	9192.5	113	546	SO240	8427.5	243	597	SO291	7662.5	113
496	SO190	9177.5	243	547	SO241	8412.5	113	598	SO292	7647.5	243
497	SO191	9162.5	113	548	SO242	8397.5	243	599	SO293	7632.5	113
498	SO192	9147.5	243	549	SO243	8382.5	113	600	SO294	7617.5	243
499	SO193	9132.5	113	550	SO244	8367.5	243	601	SO295	7602.5	113
500	SO194	9117.5	243	551	SO245	8352.5	113	602	SO296	7587.5	243
501	SO195	9102.5	113	552	SO246	8337.5	243	603	SO297	7572.5	113
502	SO196	9087.5	243	553	SO247	8322.5	113	604	SO298	7557.5	243
503	SO197	9072.5	113	554	SO248	8307.5	243	605	SO299	7542.5	113
504	SO198	9057.5	243	555	SO249	8292.5	113	606	SO300	7527.5	243
505	SO199	9042.5	113	556	SO250	8277.5	243	607	SO301	7512.5	113
506	SO200	9027.5	243	557	SO251	8262.5	113	608	SO302	7497.5	243
507	SO201	9012.5	113	558	SO252	8247.5	243	609	SO303	7482.5	113
508	SO202	8997.5	243	559	SO253	8232.5	113	610	SO304	7467.5	243
509	SO203	8982.5	113	560	SO254	8217.5	243	611	SO305	7452.5	113
510	SO204	8967.5	243	561	SO255	8202.5	113	612	SO306	7437.5	243

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
613	SO307	7422.5	113	664	SO358	6657.5	243	715	SO409	5892.5	113
614	SO308	7407.5	243	665	SO359	6642.5	113	716	SO410	5877.5	243
615	SO309	7392.5	113	666	SO360	6627.5	243	717	SO411	5862.5	113
616	SO310	7377.5	243	667	SO361	6612.5	113	718	SO412	5847.5	243
617	SO311	7362.5	113	668	SO362	6597.5	243	719	SO413	5832.5	113
618	SO312	7347.5	243	669	SO363	6582.5	113	720	SO414	5817.5	243
619	SO313	7332.5	113	670	SO364	6567.5	243	721	SO415	5802.5	113
620	SO314	7317.5	243	671	SO365	6552.5	113	722	SO416	5787.5	243
621	SO315	7302.5	113	672	SO366	6537.5	243	723	SO417	5772.5	113
622	SO316	7287.5	243	673	SO367	6522.5	113	724	SO418	5757.5	243
623	SO317	7272.5	113	674	SO368	6507.5	243	725	SO419	5742.5	113
624	SO318	7257.5	243	675	SO369	6492.5	113	726	SO420	5727.5	243
625	SO319	7242.5	113	676	SO370	6477.5	243	727	SO421	5712.5	113
626	SO320	7227.5	243	677	SO371	6462.5	113	728	SO422	5697.5	243
627	SO321	7212.5	113	678	SO372	6447.5	243	729	SO423	5682.5	113
628	SO322	7197.5	243	679	SO373	6432.5	113	730	SO424	5667.5	243
629	SO323	7182.5	113	680	SO374	6417.5	243	731	SO425	5652.5	113
630	SO324	7167.5	243	681	SO375	6402.5	113	732	SO426	5637.5	243
631	SO325	7152.5	113	682	SO376	6387.5	243	733	SO427	5622.5	113
632	SO326	7137.5	243	683	SO377	6372.5	113	734	SO428	5607.5	243
633	SO327	7122.5	113	684	SO378	6357.5	243	735	SO429	5592.5	113
634	SO328	7107.5	243	685	SO379	6342.5	113	736	SO430	5577.5	243
635	SO329	7092.5	113	686	SO380	6327.5	243	737	SO431	5562.5	113
636	SO330	7077.5	243	687	SO381	6312.5	113	738	SO432	5547.5	243
637	SO331	7062.5	113	688	SO382	6297.5	243	739	SO433	5532.5	113
638	SO332	7047.5	243	689	SO383	6282.5	113	740	SO434	5517.5	243
639	SO333	7032.5	113	690	SO384	6267.5	243	741	SO435	5502.5	113
640	SO334	7017.5	243	691	SO385	6252.5	113	742	SO436	5487.5	243
641	SO335	7002.5	113	692	SO386	6237.5	243	743	SO437	5472.5	113
642	SO336	6987.5	243	693	SO387	6222.5	113	744	SO438	5457.5	243
643	SO337	6972.5	113	694	SO388	6207.5	243	745	SO439	5442.5	113
644	SO338	6957.5	243	695	SO389	6192.5	113	746	SO440	5427.5	243
645	SO339	6942.5	113	696	SO390	6177.5	243	747	SO441	5412.5	113
646	SO340	6927.5	243	697	SO391	6162.5	113	748	SO442	5397.5	243
647	SO341	6912.5	113	698	SO392	6147.5	243	749	SO443	5382.5	113
648	SO342	6897.5	243	699	SO393	6132.5	113	750	SO444	5367.5	243
649	SO343	6882.5	113	700	SO394	6117.5	243	751	SO445	5352.5	113
650	SO344	6867.5	243	701	SO395	6102.5	113	752	SO446	5337.5	243
651	SO345	6852.5	113	702	SO396	6087.5	243	753	SO447	5322.5	113
652	SO346	6837.5	243	703	SO397	6072.5	113	754	SO448	5307.5	243
653	SO347	6822.5	113	704	SO398	6057.5	243	755	SO449	5292.5	113
654	SO348	6807.5	243	705	SO399	6042.5	113	756	SO450	5277.5	243
655	SO349	6792.5	113	706	SO400	6027.5	243	757	SO451	5262.5	113
656	SO350	6777.5	243	707	SO401	6012.5	113	758	SO452	5247.5	243
657	SO351	6762.5	113	708	SO402	5997.5	243	759	SO453	5232.5	113
658	SO352	6747.5	243	709	SO403	5982.5	113	760	SO454	5217.5	243
659	SO353	6732.5	113	710	SO404	5967.5	243	761	SO455	5202.5	113
660	SO354	6717.5	243	711	SO405	5952.5	113	762	SO456	5187.5	243
661	SO355	6702.5	113	712	SO406	5937.5	243	763	SO457	5172.5	113
662	SO356	6687.5	243	713	SO407	5922.5	113	764	SO458	5157.5	243
663	SO357	6672.5	113	714	SO408	5907.5	243	765	SO459	5142.5	113

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
766	SO460	5127.5	243	817	SO511	4362.5	113	868	SO562	3597.5	243
767	SO461	5112.5	113	818	SO512	4347.5	243	869	SO563	3582.5	113
768	SO462	5097.5	243	819	SO513	4332.5	113	870	SO564	3567.5	243
769	SO463	5082.5	113	820	SO514	4317.5	243	871	SO565	3552.5	113
770	SO464	5067.5	243	821	SO515	4302.5	113	872	SO566	3537.5	243
771	SO465	5052.5	113	822	SO516	4287.5	243	873	SO567	3522.5	113
772	SO466	5037.5	243	823	SO517	4272.5	113	874	SO568	3507.5	243
773	SO467	5022.5	113	824	SO518	4257.5	243	875	SO569	3492.5	113
774	SO468	5007.5	243	825	SO519	4242.5	113	876	SO570	3477.5	243
775	SO469	4992.5	113	826	SO520	4227.5	243	877	SO571	3462.5	113
776	SO470	4977.5	243	827	SO521	4212.5	113	878	SO572	3447.5	243
777	SO471	4962.5	113	828	SO522	4197.5	243	879	SO573	3432.5	113
778	SO472	4947.5	243	829	SO523	4182.5	113	880	SO574	3417.5	243
779	SO473	4932.5	113	830	SO524	4167.5	243	881	SO575	3402.5	113
780	SO474	4917.5	243	831	SO525	4152.5	113	882	SO576	3387.5	243
781	SO475	4902.5	113	832	SO526	4137.5	243	883	SO577	3372.5	113
782	SO476	4887.5	243	833	SO527	4122.5	113	884	SO578	3357.5	243
783	SO477	4872.5	113	834	SO528	4107.5	243	885	SO579	3342.5	113
784	SO478	4857.5	243	835	SO529	4092.5	113	886	SO580	3327.5	243
785	SO479	4842.5	113	836	SO530	4077.5	243	887	SO581	3312.5	113
786	SO480	4827.5	243	837	SO531	4062.5	113	888	SO582	3297.5	243
787	SO481	4812.5	113	838	SO532	4047.5	243	889	SO583	3282.5	113
788	SO482	4797.5	243	839	SO533	4032.5	113	890	SO584	3267.5	243
789	SO483	4782.5	113	840	SO534	4017.5	243	891	SO585	3252.5	113
790	SO484	4767.5	243	841	SO535	4002.5	113	892	SO586	3237.5	243
791	SO485	4752.5	113	842	SO536	3987.5	243	893	SO587	3222.5	113
792	SO486	4737.5	243	843	SO537	3972.5	113	894	SO588	3207.5	243
793	SO487	4722.5	113	844	SO538	3957.5	243	895	SO589	3192.5	113
794	SO488	4707.5	243	845	SO539	3942.5	113	896	SO590	3177.5	243
795	SO489	4692.5	113	846	SO540	3927.5	243	897	SO591	3162.5	113
796	SO490	4677.5	243	847	SO541	3912.5	113	898	SO592	3147.5	243
797	SO491	4662.5	113	848	SO542	3897.5	243	899	SO593	3132.5	113
798	SO492	4647.5	243	849	SO543	3882.5	113	900	SO594	3117.5	243
799	SO493	4632.5	113	850	SO544	3867.5	243	901	SO595	3102.5	113
800	SO494	4617.5	243	851	SO545	3852.5	113	902	SO596	3087.5	243
801	SO495	4602.5	113	852	SO546	3837.5	243	903	SO597	3072.5	113
802	SO496	4587.5	243	853	SO547	3822.5	113	904	SO598	3057.5	243
803	SO497	4572.5	113	854	SO548	3807.5	243	905	SO599	3042.5	113
804	SO498	4557.5	243	855	SO549	3792.5	113	906	SO600	3027.5	243
805	SO499	4542.5	113	856	SO550	3777.5	243	907	SO601	3012.5	113
806	SO500	4527.5	243	857	SO551	3762.5	113	908	SO602	2997.5	243
807	SO501	4512.5	113	858	SO552	3747.5	243	909	SO603	2982.5	113
808	SO502	4497.5	243	859	SO553	3732.5	113	910	SO604	2967.5	243
809	SO503	4482.5	113	860	SO554	3717.5	243	911	SO605	2952.5	113
810	SO504	4467.5	243	861	SO555	3702.5	113	912	SO606	2937.5	243
811	SO505	4452.5	113	862	SO556	3687.5	243	913	SO607	2922.5	113
812	SO506	4437.5	243	863	SO557	3672.5	113	914	SO608	2907.5	243
813	SO507	4422.5	113	864	SO558	3657.5	243	915	SO609	2892.5	113
814	SO508	4407.5	243	865	SO559	3642.5	113	916	SO610	2877.5	243
815	SO509	4392.5	113	866	SO560	3627.5	243	917	SO611	2862.5	113
816	SO510	4377.5	243	867	SO561	3612.5	113	918	SO612	2847.5	243

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
919	SO613	2832.5	113	970	SO664	2067.5	243	1021	SO715	1302.5	113
920	SO614	2817.5	243	971	SO665	2052.5	113	1022	SO716	1287.5	243
921	SO615	2802.5	113	972	SO666	2037.5	243	1023	SO717	1272.5	113
922	SO616	2787.5	243	973	SO667	2022.5	113	1024	SO718	1257.5	243
923	SO617	2772.5	113	974	SO668	2007.5	243	1025	SO719	1242.5	113
924	SO618	2757.5	243	975	SO669	1992.5	113	1026	SO720	1227.5	243
925	SO619	2742.5	113	976	SO670	1977.5	243	1027	SO721	1212.5	113
926	SO620	2727.5	243	977	SO671	1962.5	113	1028	SO722	1197.5	243
927	SO621	2712.5	113	978	SO672	1947.5	243	1029	SO723	1182.5	113
928	SO622	2697.5	243	979	SO673	1932.5	113	1030	SO724	1167.5	243
929	SO623	2682.5	113	980	SO674	1917.5	243	1031	SO725	1152.5	113
930	SO624	2667.5	243	981	SO675	1902.5	113	1032	SO726	1137.5	243
931	SO625	2652.5	113	982	SO676	1887.5	243	1033	SO727	1122.5	113
932	SO626	2637.5	243	983	SO677	1872.5	113	1034	SO728	1107.5	243
933	SO627	2622.5	113	984	SO678	1857.5	243	1035	SO729	1092.5	113
934	SO628	2607.5	243	985	SO679	1842.5	113	1036	SO730	1077.5	243
935	SO629	2592.5	113	986	SO680	1827.5	243	1037	SO731	1062.5	113
936	SO630	2577.5	243	987	SO681	1812.5	113	1038	SO732	1047.5	243
937	SO631	2562.5	113	988	SO682	1797.5	243	1039	SO733	1032.5	113
938	SO632	2547.5	243	989	SO683	1782.5	113	1040	SO734	1017.5	243
939	SO633	2532.5	113	990	SO684	1767.5	243	1041	SO735	1002.5	113
940	SO634	2517.5	243	991	SO685	1752.5	113	1042	SO736	987.5	243
941	SO635	2502.5	113	992	SO686	1737.5	243	1043	SO737	972.5	113
942	SO636	2487.5	243	993	SO687	1722.5	113	1044	SO738	957.5	243
943	SO637	2472.5	113	994	SO688	1707.5	243	1045	SO739	942.5	113
944	SO638	2457.5	243	995	SO689	1692.5	113	1046	SO740	927.5	243
945	SO639	2442.5	113	996	SO690	1677.5	243	1047	SO741	912.5	113
946	SO640	2427.5	243	997	SO691	1662.5	113	1048	SO742	897.5	243
947	SO641	2412.5	113	998	SO692	1647.5	243	1049	SO743	882.5	113
948	SO642	2397.5	243	999	SO693	1632.5	113	1050	SO744	867.5	243
949	SO643	2382.5	113	1000	SO694	1617.5	243	1051	SO745	852.5	113
950	SO644	2367.5	243	1001	SO695	1602.5	113	1052	SO746	837.5	243
951	SO645	2352.5	113	1002	SO696	1587.5	243	1053	SO747	822.5	113
952	SO646	2337.5	243	1003	SO697	1572.5	113	1054	SO748	807.5	243
953	SO647	2322.5	113	1004	SO698	1557.5	243	1055	SO749	792.5	113
954	SO648	2307.5	243	1005	SO699	1542.5	113	1056	SO750	777.5	243
955	SO649	2292.5	113	1006	SO700	1527.5	243	1057	SO751	762.5	113
956	SO650	2277.5	243	1007	SO701	1512.5	113	1058	SO752	747.5	243
957	SO651	2262.5	113	1008	SO702	1497.5	243	1059	SO753	732.5	113
958	SO652	2247.5	243	1009	SO703	1482.5	113	1060	SO754	717.5	243
959	SO653	2232.5	113	1010	SO704	1467.5	243	1061	SO755	702.5	113
960	SO654	2217.5	243	1011	SO705	1452.5	113	1062	SO756	687.5	243
961	SO655	2202.5	113	1012	SO706	1437.5	243	1063	SO757	672.5	113
962	SO656	2187.5	243	1013	SO707	1422.5	113	1064	SO758	657.5	243
963	SO657	2172.5	113	1014	SO708	1407.5	243	1065	SO759	642.5	113
964	SO658	2157.5	243	1015	SO709	1392.5	113	1066	SO760	627.5	243
965	SO659	2142.5	113	1016	SO710	1377.5	243	1067	SO761	612.5	113
966	SO660	2127.5	243	1017	SO711	1362.5	113	1068	SO762	597.5	243
967	SO661	2112.5	113	1018	SO712	1347.5	243	1069	SO763	582.5	113
968	SO662	2097.5	243	1019	SO713	1332.5	113	1070	SO764	567.5	243
969	SO663	2082.5	113	1020	SO714	1317.5	243	1071	SO765	552.5	113

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
1072	SO766	537.5	243	1123	SO808	-1092.5	113	1174	SO859	-1857.5	243
1073	SO767	522.5	113	1124	SO809	-1107.5	243	1175	SO860	-1872.5	113
1074	SO768	507.5	243	1125	SO810	-1122.5	113	1176	SO861	-1887.5	243
1075	SHIELDING	455	258	1126	SO811	-1137.5	243	1177	SO862	-1902.5	113
1076	SHIELDING	405	258	1127	SO812	-1152.5	113	1178	SO863	-1917.5	243
1077	SHIELDING	355	258	1128	SO813	-1167.5	243	1179	SO864	-1932.5	113
1078	SHIELDING	50	258	1129	SO814	-1182.5	113	1180	SO865	-1947.5	243
1079	SHIELDING	0	258	1130	SO815	-1197.5	243	1181	SO866	-1962.5	113
1080	SHIELDING	-50	258	1131	SO816	-1212.5	113	1182	SO867	-1977.5	243
1081	SHIELDING	-355	258	1132	SO817	-1227.5	243	1183	SO868	-1992.5	113
1082	SHIELDING	-405	258	1133	SO818	-1242.5	113	1184	SO869	-2007.5	243
1083	SHIELDING	-455	258	1134	SO819	-1257.5	243	1185	SO870	-2022.5	113
1084	SO769	-507.5	243	1135	SO820	-1272.5	113	1186	SO871	-2037.5	243
1085	SO770	-522.5	113	1136	SO821	-1287.5	243	1187	SO872	-2052.5	113
1086	SO771	-537.5	243	1137	SO822	-1302.5	113	1188	SO873	-2067.5	243
1087	SO772	-552.5	113	1138	SO823	-1317.5	243	1189	SO874	-2082.5	113
1088	SO773	-567.5	243	1139	SO824	-1332.5	113	1190	SO875	-2097.5	243
1089	SO774	-582.5	113	1140	SO825	-1347.5	243	1191	SO876	-2112.5	113
1090	SO775	-597.5	243	1141	SO826	-1362.5	113	1192	SO877	-2127.5	243
1091	SO776	-612.5	113	1142	SO827	-1377.5	243	1193	SO878	-2142.5	113
1092	SO777	-627.5	243	1143	SO828	-1392.5	113	1194	SO879	-2157.5	243
1093	SO778	-642.5	113	1144	SO829	-1407.5	243	1195	SO880	-2172.5	113
1094	SO779	-657.5	243	1145	SO830	-1422.5	113	1196	SO881	-2187.5	243
1095	SO780	-672.5	113	1146	SO831	-1437.5	243	1197	SO882	-2202.5	113
1096	SO781	-687.5	243	1147	SO832	-1452.5	113	1198	SO883	-2217.5	243
1097	SO782	-702.5	113	1148	SO833	-1467.5	243	1199	SO884	-2232.5	113
1098	SO783	-717.5	243	1149	SO834	-1482.5	113	1200	SO885	-2247.5	243
1099	SO784	-732.5	113	1150	SO835	-1497.5	243	1201	SO886	-2262.5	113
1100	SO785	-747.5	243	1151	SO836	-1512.5	113	1202	SO887	-2277.5	243
1101	SO786	-762.5	113	1152	SO837	-1527.5	243	1203	SO888	-2292.5	113
1102	SO787	-777.5	243	1153	SO838	-1542.5	113	1204	SO889	-2307.5	243
1103	SO788	-792.5	113	1154	SO839	-1557.5	243	1205	SO890	-2322.5	113
1104	SO789	-807.5	243	1155	SO840	-1572.5	113	1206	SO891	-2337.5	243
1105	SO790	-822.5	113	1156	SO841	-1587.5	243	1207	SO892	-2352.5	113
1106	SO791	-837.5	243	1157	SO842	-1602.5	113	1208	SO893	-2367.5	243
1107	SO792	-852.5	113	1158	SO843	-1617.5	243	1209	SO894	-2382.5	113
1108	SO793	-867.5	243	1159	SO844	-1632.5	113	1210	SO895	-2397.5	243
1109	SO794	-882.5	113	1160	SO845	-1647.5	243	1211	SO896	-2412.5	113
1110	SO795	-897.5	243	1161	SO846	-1662.5	113	1212	SO897	-2427.5	243
1111	SO796	-912.5	113	1162	SO847	-1677.5	243	1213	SO898	-2442.5	113
1112	SO797	-927.5	243	1163	SO848	-1692.5	113	1214	SO899	-2457.5	243
1113	SO798	-942.5	113	1164	SO849	-1707.5	243	1215	SO900	-2472.5	113
1114	SO799	-957.5	243	1165	SO850	-1722.5	113	1216	SO901	-2487.5	243
1115	SO800	-972.5	113	1166	SO851	-1737.5	243	1217	SO902	-2502.5	113
1116	SO801	-987.5	243	1167	SO852	-1752.5	113	1218	SO903	-2517.5	243
1117	SO802	-1002.5	113	1168	SO853	-1767.5	243	1219	SO904	-2532.5	113
1118	SO803	-1017.5	243	1169	SO854	-1782.5	113	1220	SO905	-2547.5	243
1119	SO804	-1032.5	113	1170	SO855	-1797.5	243	1221	SO906	-2562.5	113
1120	SO805	-1047.5	243	1171	SO856	-1812.5	113	1222	SO907	-2577.5	243
1121	SO806	-1062.5	113	1172	SO857	-1827.5	243	1223	SO908	-2592.5	113
1122	SO807	-1077.5	243	1173	SO858	-1842.5	113	1224	SO909	-2607.5	243

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
1225	SO910	-2622.5	113	1276	SO961	-3387.5	243	1327	SO1012	-4152.5	113
1226	SO911	-2637.5	243	1277	SO962	-3402.5	113	1328	SO1013	-4167.5	243
1227	SO912	-2652.5	113	1278	SO963	-3417.5	243	1329	SO1014	-4182.5	113
1228	SO913	-2667.5	243	1279	SO964	-3432.5	113	1330	SO1015	-4197.5	243
1229	SO914	-2682.5	113	1280	SO965	-3447.5	243	1331	SO1016	-4212.5	113
1230	SO915	-2697.5	243	1281	SO966	-3462.5	113	1332	SO1017	-4227.5	243
1231	SO916	-2712.5	113	1282	SO967	-3477.5	243	1333	SO1018	-4242.5	113
1232	SO917	-2727.5	243	1283	SO968	-3492.5	113	1334	SO1019	-4257.5	243
1233	SO918	-2742.5	113	1284	SO969	-3507.5	243	1335	SO1020	-4272.5	113
1234	SO919	-2757.5	243	1285	SO970	-3522.5	113	1336	SO1021	-4287.5	243
1235	SO920	-2772.5	113	1286	SO971	-3537.5	243	1337	SO1022	-4302.5	113
1236	SO921	-2787.5	243	1287	SO972	-3552.5	113	1338	SO1023	-4317.5	243
1237	SO922	-2802.5	113	1288	SO973	-3567.5	243	1339	SO1024	-4332.5	113
1238	SO923	-2817.5	243	1289	SO974	-3582.5	113	1340	SO1025	-4347.5	243
1239	SO924	-2832.5	113	1290	SO975	-3597.5	243	1341	SO1026	-4362.5	113
1240	SO925	-2847.5	243	1291	SO976	-3612.5	113	1342	SO1027	-4377.5	243
1241	SO926	-2862.5	113	1292	SO977	-3627.5	243	1343	SO1028	-4392.5	113
1242	SO927	-2877.5	243	1293	SO978	-3642.5	113	1344	SO1029	-4407.5	243
1243	SO928	-2892.5	113	1294	SO979	-3657.5	243	1345	SO1030	-4422.5	113
1244	SO929	-2907.5	243	1295	SO980	-3672.5	113	1346	SO1031	-4437.5	243
1245	SO930	-2922.5	113	1296	SO981	-3687.5	243	1347	SO1032	-4452.5	113
1246	SO931	-2937.5	243	1297	SO982	-3702.5	113	1348	SO1033	-4467.5	243
1247	SO932	-2952.5	113	1298	SO983	-3717.5	243	1349	SO1034	-4482.5	113
1248	SO933	-2967.5	243	1299	SO984	-3732.5	113	1350	SO1035	-4497.5	243
1249	SO934	-2982.5	113	1300	SO985	-3747.5	243	1351	SO1036	-4512.5	113
1250	SO935	-2997.5	243	1301	SO986	-3762.5	113	1352	SO1037	-4527.5	243
1251	SO936	-3012.5	113	1302	SO987	-3777.5	243	1353	SO1038	-4542.5	113
1252	SO937	-3027.5	243	1303	SO988	-3792.5	113	1354	SO1039	-4557.5	243
1253	SO938	-3042.5	113	1304	SO989	-3807.5	243	1355	SO1040	-4572.5	113
1254	SO939	-3057.5	243	1305	SO990	-3822.5	113	1356	SO1041	-4587.5	243
1255	SO940	-3072.5	113	1306	SO991	-3837.5	243	1357	SO1042	-4602.5	113
1256	SO941	-3087.5	243	1307	SO992	-3852.5	113	1358	SO1043	-4617.5	243
1257	SO942	-3102.5	113	1308	SO993	-3867.5	243	1359	SO1044	-4632.5	113
1258	SO943	-3117.5	243	1309	SO994	-3882.5	113	1360	SO1045	-4647.5	243
1259	SO944	-3132.5	113	1310	SO995	-3897.5	243	1361	SO1046	-4662.5	113
1260	SO945	-3147.5	243	1311	SO996	-3912.5	113	1362	SO1047	-4677.5	243
1261	SO946	-3162.5	113	1312	SO997	-3927.5	243	1363	SO1048	-4692.5	113
1262	SO947	-3177.5	243	1313	SO998	-3942.5	113	1364	SO1049	-4707.5	243
1263	SO948	-3192.5	113	1314	SO999	-3957.5	243	1365	SO1050	-4722.5	113
1264	SO949	-3207.5	243	1315	SO1000	-3972.5	113	1366	SO1051	-4737.5	243
1265	SO950	-3222.5	113	1316	SO1001	-3987.5	243	1367	SO1052	-4752.5	113
1266	SO951	-3237.5	243	1317	SO1002	-4002.5	113	1368	SO1053	-4767.5	243
1267	SO952	-3252.5	113	1318	SO1003	-4017.5	243	1369	SO1054	-4782.5	113
1268	SO953	-3267.5	243	1319	SO1004	-4032.5	113	1370	SO1055	-4797.5	243
1269	SO954	-3282.5	113	1320	SO1005	-4047.5	243	1371	SO1056	-4812.5	113
1270	SO955	-3297.5	243	1321	SO1006	-4062.5	113	1372	SO1057	-4827.5	243
1271	SO956	-3312.5	113	1322	SO1007	-4077.5	243	1373	SO1058	-4842.5	113
1272	SO957	-3327.5	243	1323	SO1008	-4092.5	113	1374	SO1059	-4857.5	243
1273	SO958	-3342.5	113	1324	SO1009	-4107.5	243	1375	SO1060	-4872.5	113
1274	SO959	-3357.5	243	1325	SO1010	-4122.5	113	1376	SO1061	-4887.5	243
1275	SO960	-3372.5	113	1326	SO1011	-4137.5	243	1377	SO1062	-4902.5	113

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1378	SO1063	-4917.5	243	1429	SO1114	-5682.5	113	1480	SO1165	-6447.5	243
1379	SO1064	-4932.5	113	1430	SO1115	-5697.5	243	1481	SO1166	-6462.5	113
1380	SO1065	-4947.5	243	1431	SO1116	-5712.5	113	1482	SO1167	-6477.5	243
1381	SO1066	-4962.5	113	1432	SO1117	-5727.5	243	1483	SO1168	-6492.5	113
1382	SO1067	-4977.5	243	1433	SO1118	-5742.5	113	1484	SO1169	-6507.5	243
1383	SO1068	-4992.5	113	1434	SO1119	-5757.5	243	1485	SO1170	-6522.5	113
1384	SO1069	-5007.5	243	1435	SO1120	-5772.5	113	1486	SO1171	-6537.5	243
1385	SO1070	-5022.5	113	1436	SO1121	-5787.5	243	1487	SO1172	-6552.5	113
1386	SO1071	-5037.5	243	1437	SO1122	-5802.5	113	1488	SO1173	-6567.5	243
1387	SO1072	-5052.5	113	1438	SO1123	-5817.5	243	1489	SO1174	-6582.5	113
1388	SO1073	-5067.5	243	1439	SO1124	-5832.5	113	1490	SO1175	-6597.5	243
1389	SO1074	-5082.5	113	1440	SO1125	-5847.5	243	1491	SO1176	-6612.5	113
1390	SO1075	-5097.5	243	1441	SO1126	-5862.5	113	1492	SO1177	-6627.5	243
1391	SO1076	-5112.5	113	1442	SO1127	-5877.5	243	1493	SO1178	-6642.5	113
1392	SO1077	-5127.5	243	1443	SO1128	-5892.5	113	1494	SO1179	-6657.5	243
1393	SO1078	-5142.5	113	1444	SO1129	-5907.5	243	1495	SO1180	-6672.5	113
1394	SO1079	-5157.5	243	1445	SO1130	-5922.5	113	1496	SO1181	-6687.5	243
1395	SO1080	-5172.5	113	1446	SO1131	-5937.5	243	1497	SO1182	-6702.5	113
1396	SO1081	-5187.5	243	1447	SO1132	-5952.5	113	1498	SO1183	-6717.5	243
1397	SO1082	-5202.5	113	1448	SO1133	-5967.5	243	1499	SO1184	-6732.5	113
1398	SO1083	-5217.5	243	1449	SO1134	-5982.5	113	1500	SO1185	-6747.5	243
1399	SO1084	-5232.5	113	1450	SO1135	-5997.5	243	1501	SO1186	-6762.5	113
1400	SO1085	-5247.5	243	1451	SO1136	-6012.5	113	1502	SO1187	-6777.5	243
1401	SO1086	-5262.5	113	1452	SO1137	-6027.5	243	1503	SO1188	-6792.5	113
1402	SO1087	-5277.5	243	1453	SO1138	-6042.5	113	1504	SO1189	-6807.5	243
1403	SO1088	-5292.5	113	1454	SO1139	-6057.5	243	1505	SO1190	-6822.5	113
1404	SO1089	-5307.5	243	1455	SO1140	-6072.5	113	1506	SO1191	-6837.5	243
1405	SO1090	-5322.5	113	1456	SO1141	-6087.5	243	1507	SO1192	-6852.5	113
1406	SO1091	-5337.5	243	1457	SO1142	-6102.5	113	1508	SO1193	-6867.5	243
1407	SO1092	-5352.5	113	1458	SO1143	-6117.5	243	1509	SO1194	-6882.5	113
1408	SO1093	-5367.5	243	1459	SO1144	-6132.5	113	1510	SO1195	-6897.5	243
1409	SO1094	-5382.5	113	1460	SO1145	-6147.5	243	1511	SO1196	-6912.5	113
1410	SO1095	-5397.5	243	1461	SO1146	-6162.5	113	1512	SO1197	-6927.5	243
1411	SO1096	-5412.5	113	1462	SO1147	-6177.5	243	1513	SO1198	-6942.5	113
1412	SO1097	-5427.5	243	1463	SO1148	-6192.5	113	1514	SO1199	-6957.5	243
1413	SO1098	-5442.5	113	1464	SO1149	-6207.5	243	1515	SO1200	-6972.5	113
1414	SO1099	-5457.5	243	1465	SO1150	-6222.5	113	1516	SO1201	-6987.5	243
1415	SO1100	-5472.5	113	1466	SO1151	-6237.5	243	1517	SO1202	-7002.5	113
1416	SO1101	-5487.5	243	1467	SO1152	-6252.5	113	1518	SO1203	-7017.5	243
1417	SO1102	-5502.5	113	1468	SO1153	-6267.5	243	1519	SO1204	-7032.5	113
1418	SO1103	-5517.5	243	1469	SO1154	-6282.5	113	1520	SO1205	-7047.5	243
1419	SO1104	-5532.5	113	1470	SO1155	-6297.5	243	1521	SO1206	-7062.5	113
1420	SO1105	-5547.5	243	1471	SO1156	-6312.5	113	1522	SO1207	-7077.5	243
1421	SO1106	-5562.5	113	1472	SO1157	-6327.5	243	1523	SO1208	-7092.5	113
1422	SO1107	-5577.5	243	1473	SO1158	-6342.5	113	1524	SO1209	-7107.5	243
1423	SO1108	-5592.5	113	1474	SO1159	-6357.5	243	1525	SO1210	-7122.5	113
1424	SO1109	-5607.5	243	1475	SO1160	-6372.5	113	1526	SO1211	-7137.5	243
1425	SO1110	-5622.5	113	1476	SO1161	-6387.5	243	1527	SO1212	-7152.5	113
1426	SO1111	-5637.5	243	1477	SO1162	-6402.5	113	1528	SO1213	-7167.5	243
1427	SO1112	-5652.5	113	1478	SO1163	-6417.5	243	1529	SO1214	-7182.5	113
1428	SO1113	-5667.5	243	1479	SO1164	-6432.5	113	1530	SO1215	-7197.5	243

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1531	SO1216	-7212.5	113	1582	SO1267	-7977.5	243	1633	SO1318	-8742.5	113
1532	SO1217	-7227.5	243	1583	SO1268	-7992.5	113	1634	SO1319	-8757.5	243
1533	SO1218	-7242.5	113	1584	SO1269	-8007.5	243	1635	SO1320	-8772.5	113
1534	SO1219	-7257.5	243	1585	SO1270	-8022.5	113	1636	SO1321	-8787.5	243
1535	SO1220	-7272.5	113	1586	SO1271	-8037.5	243	1637	SO1322	-8802.5	113
1536	SO1221	-7287.5	243	1587	SO1272	-8052.5	113	1638	SO1323	-8817.5	243
1537	SO1222	-7302.5	113	1588	SO1273	-8067.5	243	1639	SO1324	-8832.5	113
1538	SO1223	-7317.5	243	1589	SO1274	-8082.5	113	1640	SO1325	-8847.5	243
1539	SO1224	-7332.5	113	1590	SO1275	-8097.5	243	1641	SO1326	-8862.5	113
1540	SO1225	-7347.5	243	1591	SO1276	-8112.5	113	1642	SO1327	-8877.5	243
1541	SO1226	-7362.5	113	1592	SO1277	-8127.5	243	1643	SO1328	-8892.5	113
1542	SO1227	-7377.5	243	1593	SO1278	-8142.5	113	1644	SO1329	-8907.5	243
1543	SO1228	-7392.5	113	1594	SO1279	-8157.5	243	1645	SO1330	-8922.5	113
1544	SO1229	-7407.5	243	1595	SO1280	-8172.5	113	1646	SO1331	-8937.5	243
1545	SO1230	-7422.5	113	1596	SO1281	-8187.5	243	1647	SO1332	-8952.5	113
1546	SO1231	-7437.5	243	1597	SO1282	-8202.5	113	1648	SO1333	-8967.5	243
1547	SO1232	-7452.5	113	1598	SO1283	-8217.5	243	1649	SO1334	-8982.5	113
1548	SO1233	-7467.5	243	1599	SO1284	-8232.5	113	1650	SO1335	-8997.5	243
1549	SO1234	-7482.5	113	1600	SO1285	-8247.5	243	1651	SO1336	-9012.5	113
1550	SO1235	-7497.5	243	1601	SO1286	-8262.5	113	1652	SO1337	-9027.5	243
1551	SO1236	-7512.5	113	1602	SO1287	-8277.5	243	1653	SO1338	-9042.5	113
1552	SO1237	-7527.5	243	1603	SO1288	-8292.5	113	1654	SO1339	-9057.5	243
1553	SO1238	-7542.5	113	1604	SO1289	-8307.5	243	1655	SO1340	-9072.5	113
1554	SO1239	-7557.5	243	1605	SO1290	-8322.5	113	1656	SO1341	-9087.5	243
1555	SO1240	-7572.5	113	1606	SO1291	-8337.5	243	1657	SO1342	-9102.5	113
1556	SO1241	-7587.5	243	1607	SO1292	-8352.5	113	1658	SO1343	-9117.5	243
1557	SO1242	-7602.5	113	1608	SO1293	-8367.5	243	1659	SO1344	-9132.5	113
1558	SO1243	-7617.5	243	1609	SO1294	-8382.5	113	1660	SO1345	-9147.5	243
1559	SO1244	-7632.5	113	1610	SO1295	-8397.5	243	1661	SO1346	-9162.5	113
1560	SO1245	-7647.5	243	1611	SO1296	-8412.5	113	1662	SO1347	-9177.5	243
1561	SO1246	-7662.5	113	1612	SO1297	-8427.5	243	1663	SO1348	-9192.5	113
1562	SO1247	-7677.5	243	1613	SO1298	-8442.5	113	1664	SO1349	-9207.5	243
1563	SO1248	-7692.5	113	1614	SO1299	-8457.5	243	1665	SO1350	-9222.5	113
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1565	SO1250	-7722.5	113	1616	SO1301	-8487.5	243	1667	SO1352	-9252.5	113
1566	SO1251	-7737.5	243	1617	SO1302	-8502.5	113	1668	SO1353	-9267.5	243
1567	SO1252	-7752.5	113	1618	SO1303	-8517.5	243	1669	SO1354	-9282.5	113
1568	SO1253	-7767.5	243	1619	SO1304	-8532.5	113	1670	SO1355	-9297.5	243
1569	SO1254	-7782.5	113	1620	SO1305	-8547.5	243	1671	SO1356	-9312.5	113
1570	SO1255	-7797.5	243	1621	SO1306	-8562.5	113	1672	SO1357	-9327.5	243
1571	SO1256	-7812.5	113	1622	SO1307	-8577.5	243	1673	SO1358	-9342.5	113
1572	SO1257	-7827.5	243	1623	SO1308	-8592.5	113	1674	SO1359	-9357.5	243
1573	SO1258	-7842.5	113	1624	SO1309	-8607.5	243	1675	SO1360	-9372.5	113
1574	SO1259	-7857.5	243	1625	SO1310	-8622.5	113	1676	SO1361	-9387.5	243
1575	SO1260	-7872.5	113	1626	SO1311	-8637.5	243	1677	SO1362	-9402.5	113
1576	SO1261	-7887.5	243	1627	SO1312	-8652.5	113	1678	SO1363	-9417.5	243
1577	SO1262	-7902.5	113	1628	SO1313	-8667.5	243	1679	SO1364	-9432.5	113
1578	SO1263	-7917.5	243	1629	SO1314	-8682.5	113	1680	SO1365	-9447.5	243
1579	SO1264	-7932.5	113	1630	SO1315	-8697.5	243	1681	SO1366	-9462.5	113
1580	SO1265	-7947.5	243	1631	SO1316	-8712.5	113	1682	SO1367	-9477.5	243
1581	SO1266	-7962.5	113	1632	SO1317	-8727.5	243	1683	SO1368	-9492.5	113

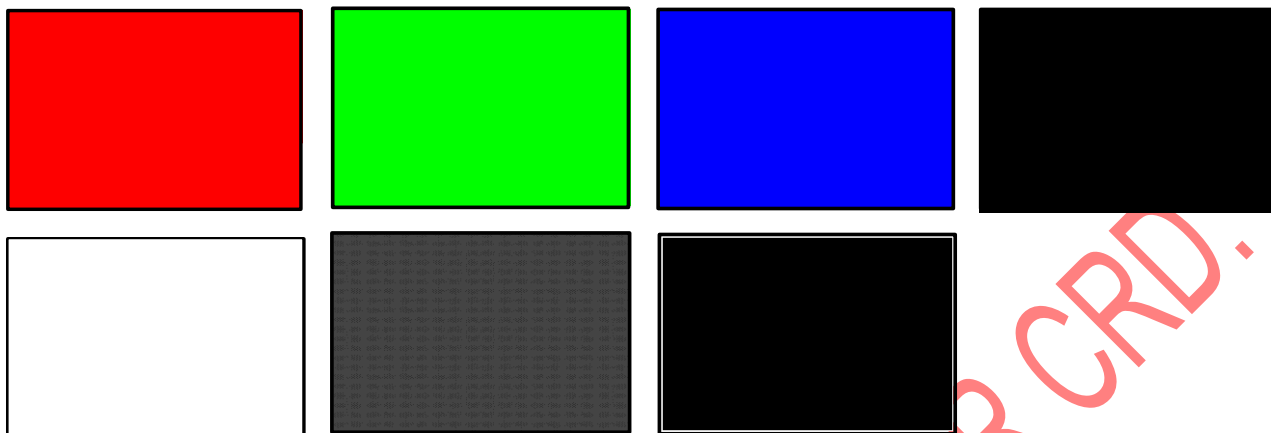
Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
1684	SO1369	-9507.5	243	1735	SO1420	-10272.5	113	1786	SO1471	-11037.5	243
1685	SO1370	-9522.5	113	1736	SO1421	-10287.5	243	1787	SO1472	-11052.5	113
1686	SO1371	-9537.5	243	1737	SO1422	-10302.5	113	1788	SO1473	-11067.5	243
1687	SO1372	-9552.5	113	1738	SO1423	-10317.5	243	1789	SO1474	-11082.5	113
1688	SO1373	-9567.5	243	1739	SO1424	-10332.5	113	1790	SO1475	-11097.5	243
1689	SO1374	-9582.5	113	1740	SO1425	-10347.5	243	1791	SO1476	-11112.5	113
1690	SO1375	-9597.5	243	1741	SO1426	-10362.5	113	1792	SO1477	-11127.5	243
1691	SO1376	-9612.5	113	1742	SO1427	-10377.5	243	1793	SO1478	-11142.5	113
1692	SO1377	-9627.5	243	1743	SO1428	-10392.5	113	1794	SO1479	-11157.5	243
1693	SO1378	-9642.5	113	1744	SO1429	-10407.5	243	1795	SO1480	-11172.5	113
1694	SO1379	-9657.5	243	1745	SO1430	-10422.5	113	1796	SO1481	-11187.5	243
1695	SO1380	-9672.5	113	1746	SO1431	-10437.5	243	1797	SO1482	-11202.5	113
1696	SO1381	-9687.5	243	1747	SO1432	-10452.5	113	1798	SO1483	-11217.5	243
1697	SO1382	-9702.5	113	1748	SO1433	-10467.5	243	1799	SO1484	-11232.5	113
1698	SO1383	-9717.5	243	1749	SO1434	-10482.5	113	1800	SO1485	-11247.5	243
1699	SO1384	-9732.5	113	1750	SO1435	-10497.5	243	1801	SO1486	-11262.5	113
1700	SO1385	-9747.5	243	1751	SO1436	-10512.5	113	1802	SO1487	-11277.5	243
1701	SO1386	-9762.5	113	1752	SO1437	-10527.5	243	1803	SO1488	-11292.5	113
1702	SO1387	-9777.5	243	1753	SO1438	-10542.5	113	1804	SO1489	-11307.5	243
1703	SO1388	-9792.5	113	1754	SO1439	-10557.5	243	1805	SO1490	-11322.5	113
1704	SO1389	-9807.5	243	1755	SO1440	-10572.5	113	1806	SO1491	-11337.5	243
1705	SO1390	-9822.5	113	1756	SO1441	-10587.5	243	1807	SO1492	-11352.5	113
1706	SO1391	-9837.5	243	1757	SO1442	-10602.5	113	1808	SO1493	-11367.5	243
1707	SO1392	-9852.5	113	1758	SO1443	-10617.5	243	1809	SO1494	-11382.5	113
1708	SO1393	-9867.5	243	1759	SO1444	-10632.5	113	1810	SO1495	-11397.5	243
1709	SO1394	-9882.5	113	1760	SO1445	-10647.5	243	1811	SO1496	-11412.5	113
1710	SO1395	-9897.5	243	1761	SO1446	-10662.5	113	1812	SO1497	-11427.5	243
1711	SO1396	-9912.5	113	1762	SO1447	-10677.5	243	1813	SO1498	-11442.5	113
1712	SO1397	-9927.5	243	1763	SO1448	-10692.5	113	1814	SO1499	-11457.5	243
1713	SO1398	-9942.5	113	1764	SO1449	-10707.5	243	1815	SO1500	-11472.5	113
1714	SO1399	-9957.5	243	1765	SO1450	-10722.5	113	1816	SO1501	-11487.5	243
1715	SO1400	-9972.5	113	1766	SO1451	-10737.5	243	1817	SO1502	-11502.5	113
1716	SO1401	-9987.5	243	1767	SO1452	-10752.5	113	1818	SO1503	-11517.5	243
1717	SO1402	-10002.5	113	1768	SO1453	-10767.5	243	1819	SO1504	-11532.5	113
1718	SO1403	-10017.5	243	1769	SO1454	-10782.5	113	1820	SO1505	-11547.5	243
1719	SO1404	-10032.5	113	1770	SO1455	-10797.5	243	1821	SO1506	-11562.5	113
1720	SO1405	-10047.5	243	1771	SO1456	-10812.5	113	1822	SO1507	-11577.5	243
1721	SO1406	-10062.5	113	1772	SO1457	-10827.5	243	1823	SO1508	-11592.5	113
1722	SO1407	-10077.5	243	1773	SO1458	-10842.5	113	1824	SO1509	-11607.5	243
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1725	SO1410	-10122.5	113	1776	SO1461	-10887.5	243	1827	SO1512	-11652.5	113
1726	SO1411	-10137.5	243	1777	SO1462	-10902.5	113	1828	SO1513	-11667.5	243
1727	SO1412	-10152.5	113	1778	SO1463	-10917.5	243	1829	SO1514	-11682.5	113
1728	SO1413	-10167.5	243	1779	SO1464	-10932.5	113	1830	SO1515	-11697.5	243
1729	SO1414	-10182.5	113	1780	SO1465	-10947.5	243	1831	SO1516	-11712.5	113
1730	SO1415	-10197.5	243	1781	SO1466	-10962.5	113	1832	SO1517	-11727.5	243
1731	SO1416	-10212.5	113	1782	SO1467	-10977.5	243	1833	SO1518	-11742.5	113
1732	SO1417	-10227.5	243	1783	SO1468	-10992.5	113	1834	SO1519	-11757.5	243
1733	SO1418	-10242.5	113	1784	SO1469	-11007.5	243	1835	SO1520	-11772.5	113
1734	SO1419	-10257.5	243	1785	SO1470	-11022.5	113	1836	SO1521	-11787.5	243

Pad	Name	X	Y	Pad	Name	X	Y	Pad	Name	X	Y
1837	SO1522	-11802.5	113								
1838	SO1523	-11817.5	243								
1839	SO1524	-11832.5	113								
1840	SO1525	-11847.5	243								
1841	SO1526	-11862.5	113								
1842	SO1527	-11877.5	243								
1843	SO1528	-11892.5	113								
1844	SO1529	-11907.5	243								
1845	SO1530	-11922.5	113								
1846	SO1531	-11937.5	243								
1847	SO1532	-11952.5	113								
1848	SO1533	-11967.5	243								
1849	SO1534	-11982.5	113								
1850	SO1535	-11997.5	243								
1851	SO1536	-12012.5	113								
1852	SHIELDING	-12055	258								
1853	COM1_OUT	-12105	258								
1854	COM1_OUT	-12155	258								
1855	SHIELDING	-12205	258								
1856	F_CtrlR	-12403	278								
1857	OEVR	-12303	238								
1858	SYNC1R	-12403	198								
1859	SYNC2R	-12303	158								
1860	UDR	-12403	118								
1861	CKVR	-12303	78								
1862	STV2R	-12403	38								
1863	STV1R	-12303	-2								
1864	F_CtrlR	-12403	-42								
1865	STBNR	-12303	-82								
	ALIGNMENT_M ARK_L	-12131.5	115.5								
	ALIGNMENT_M ARK_R	12131.5	115.5								

Appendix A: BIST pattern

R→ G→ B→ Black→ White→Flicker pattern→Black background with white out Frame.

Note: Every Pattern stands 2 Seconds



Revision History

Version No.	Date	Page	Description
0.01	2015/10/20	All	New create
0.02	2015/12/22	P37	Updated "DC Electrical Characteristics" LVDS mode tabel