NOVATEK
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Data Sheet

NT39419B

1200CH TFT LCD Source Driver with TCON

V0.6

Preliminary Spec

Innolux only

Revise History

NT39419B Specification Revision History			
Version	**Content**	**Page**	**Date**
0.0	New Spec.	All	2008/05/15
0.1	1. Correct the default value of DCMP_EN	9	2008/06/25
0.2	1. Remove DBGATE. 2. Modify GAMMA table.	14 16~17	2008/06/25
0.3	1. Modify the default setting of DCMP_EN	9	2008/07/21
0.4	1. Correct the general description 2. Modify GAMMA table	4 16~17	2008/10/15
0.5	1. Correct theGamma table	16	2009/03/25
0.6	1. Modify 2-dot inversion → 1+2-dot inversion	9,11	2012/09/25

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Features

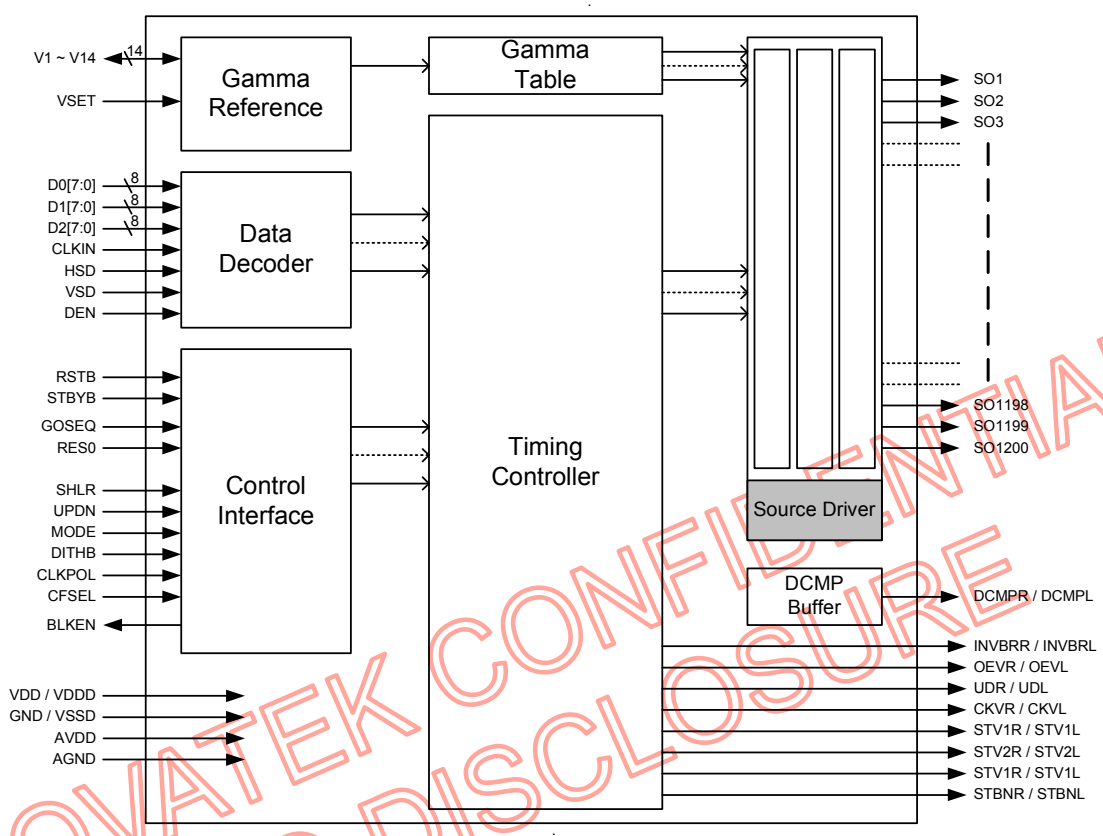
- Special design for small-sized color TFT LCD source drivers with timing controller
- Integrated 1200 channel source driver
- Support dual-gate operation mode
- Support display resolutions : 800(RGB)x480、800(RGB)x600
- Support TTL 24-bit parallel (RGB) input timing
- Source output with 8-bit resolution 256 gray scale (2-bit dithering)
- Support Delta or Stripe color filter configuration
- Support stand-by mode for low power consumption
- Pin controlled UP/DOWN, LEFT/RIGHT, HV/DE mode select function
- Embedded Gamma Table for special custom request
- Support external V1 ~ V14 pad for Gamma adjusting
- Output dynamic range: 0.1 ~ AVDD-0.1V
- Power for source driver voltage AVDD: 6.5V ~ 13.5V
- Power for digital interface circuit VDD: 3.0 ~ 3.6V
- Max. operating frequency: 50 MHz
- COG package

General Description

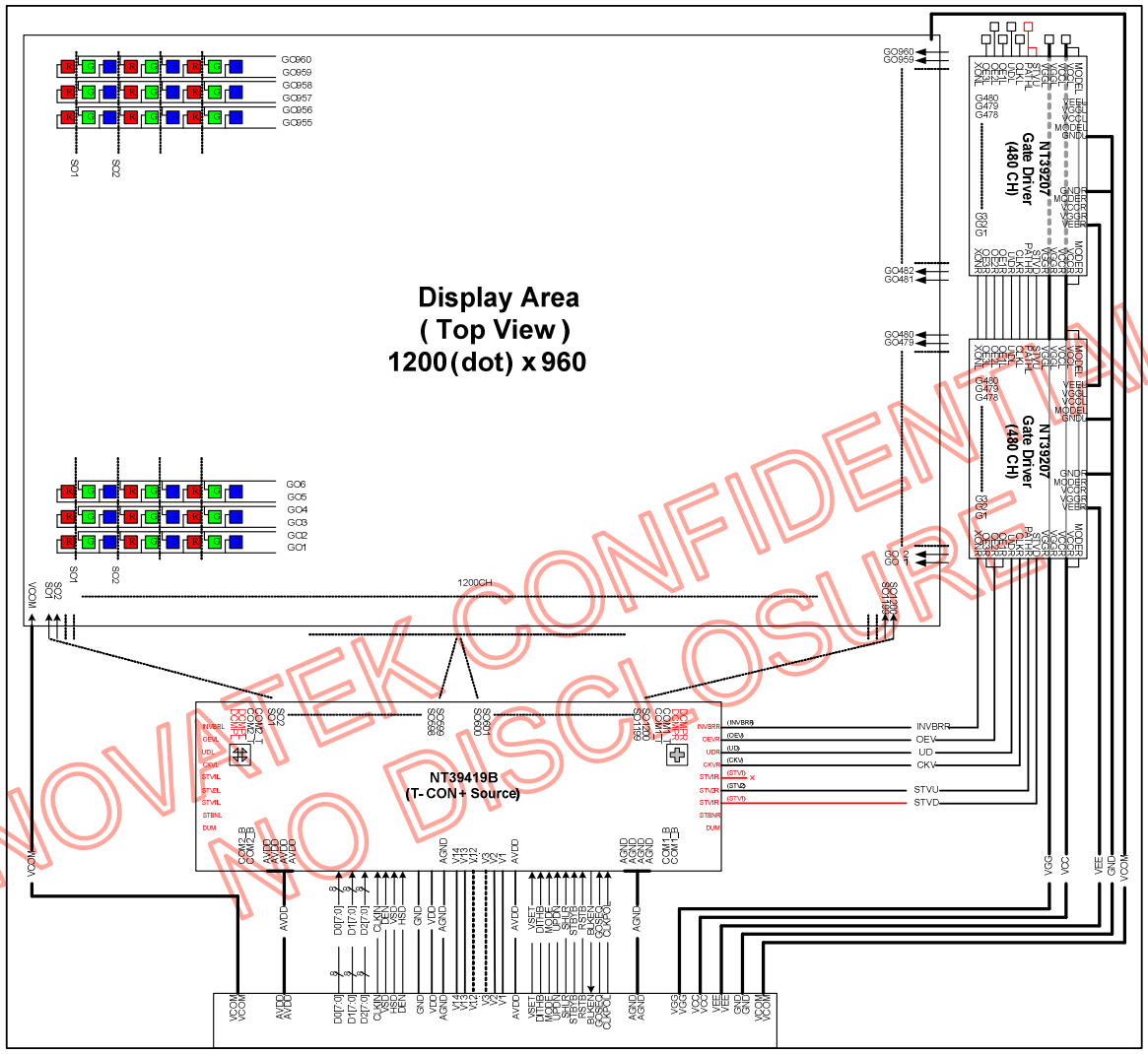
NT39419B is a highly integrated 1200 channel source driver with TTL interface Timing Controller for color TFT-LCD panels. NT39419B is special designed for dual-gate architecture TFT panel. This chip is dedicated for the display resolution of: 800*480 and 800*600 application.

NT39419B input timing support TTL digital 24bit parallel RGB data format, and source output support 8-bit resolution 256 gray scales with dithering feature enabled. Operating parameters can be set via pin control for all control features. Special circuit architecture is designed for lower power dissipation.

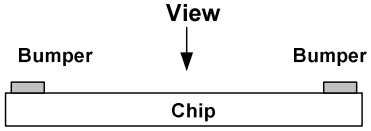
Function Block Diagram



Application Block Diagram – Dual Gate Application



Pad Sequence (Bump Side)



Pad Description

NT39419B Pad Description:

Designation	I/O	Description
D07~D00 D17~D10 D27~D20	I	Parallel data Input. For TTL 24-bit parallel RGB image data input. D[07:00] = R[7:0] data; D[17:10] = G[7:0] data; DIN[27:20] = B[7:0] data. For 18bit RGB interface, connect two LSB bits of all the R/G/B data buses to GND.
CLKIN	I	Clock for Input Data. Data latched at rising/falling edge of this signal. Default falling edge.
HSD	I	Horizontal Sync input. Negative polarity.
VSD	I	Vertical Sync input. Negative polarity.
DEN	I	Data Input Enable. Active High to enable the data input bus under “DE Mode”. Normally pulled low.
MODE	I	DE / SYNC mode select. Normally pulled high H : DE mode. L : HSD/VSD mode.
RES0	I	Display resolution selection. Normally pulled low. RES0 = “0”, for 800(RGB)*480 display resolution RES0 = “1”, for 800(RGB)*600 display resolution
DITHB	I	Dithering function enable control. Normally pulled high DITHB = “1”, Disable internal dithering function DITHB = “0”, Enable internal dithering function
CLKPOL	I	Input clock edge selection. Normally pulled low CLKPOL = “1”, Latch data at CLKIN rising edge. CLKPOL = “0”, Latch data at CLKIN falling edge. (Default)
BLKEN	O	Backlight enable control signal for external controller. BLKEN = “1”, Logical control signal to turn on external backlight controller BLKEN = “0”, Turn off external backlight controller Note: Refer to the Power On/Off Sequence for the detail information.
CFSEL	I	Color Filter type selection. Normally pulled high CFSEL = “1”, Stripe mode. (Default) CFSEL = “0”, Delta mode
V1 ~ V14	I/O	When VSET=”0”, INTERNAL Gamma Table is used. V1~V14 pad are un-used. When VSET=”1”. V1~V14 are the external gamma correction points. The voltage of these pins must be: AGND<V14<V13<V12<V11<V10<V9<V8;V7<V6<V5<V4<V3<V2<V1< AVDD
VSET	I	When VSET=”0”, INTERNAL Gamma Table is used. V1~V14 pad are un-used. When VSET=”1”. V1~V14 are the external gamma correction points. Normally pulled low.
RSTB	I	Global reset pin. Active Low to enter Reset State. Suggest to connecting with an RC reset circuit for stability. Normally pulled high.

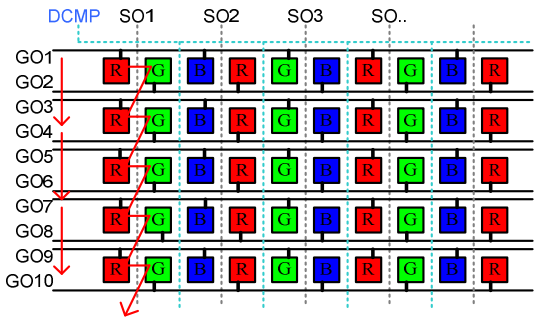
Designation	I/O	Description
STBYB	I	Standby mode, normally pulled high. STBYB = “1”, normal operation STBYB = “0”, timing controller, source driver will turn off, all output are High-Z
SHLR	I	Source Right or Left sequence control. Normally pulled high. SHLR = “L”, shift left: last data = S1←S2←S3.....←S1200 = first data. SHLR = “H”, shift right: first data = S1→S→S3.....→S1200 = last data.
UPDN	I	Gate Up or Down scan control. Normally pulled 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 pulled low BIST = H : BIST(DCLK input is not needed) BIST = L : Normal Operation
GOSEQ	I	Gate on sequence. Normally pulled low. Please refer to Note 1. GOSEQ = H : INVBRR/INVBRL = L Gate on G1→G2→G4→G3→G5→G6→G8→G7…….. GOSEQ = L : INVBRR/INVBRL = H Gate on G1→G2→G3→G4→G5→G6→G7→G8……..
DCMP_EN	I	DCMP enable control signal. Normally pulled high. DCMP_EN=H, the DCMP signal is enable. DCMP_EN=L, the DCMP signal is disable.
TB0	I	One dot or Two dot inversion selection. Normally pulled low. Refer to Note 2. TB0 = H : one dot inversion. TB0 = L : 1+2-dot inversion. (default)
OEVR/OEVL	O	Gate driver control signal.
UDR/UDL	O	Gate driver control signal.
CKVR/CKVL	O	Gate driver control signal.
STV1R/STV1L	O	Gate driver control signal.
STV2R/STV2L	O	Gate driver control signal.
STBNR/STBNL	O	Gate driver control signal.
INVBRR/INVBRL	O	Gate driver control signal (For special Gate on sequence).
DCMPR/DCMPL	O	Data line compensation. When source output in positive polarity, DCMP output data 20H voltage level of negative polarity. When source output in negative polarity, DCMP output data 20H voltage level of positive polarity
AVDD	PI	Power supply for analog circuits
AGND	PI	Ground pins for analog circuits
VDD/VDDD	PI	Power supply for digital circuits
GND/VSSD	PI	Ground pins for digital circuits

Designation	I/O	Description
SO1~SO1200	O	Source Driver Output Signals. All outputs will be of unknown values under stand-by mode.
ALIGN	M	For assembly alignment.
COM1_B COM1_T	S	Internal link together between input side and output side.
COM2_B COM2_T	S	Internal link together between input side and output side.
TP14~0 TB4~1	T	Test pin for Novatek only. Float these pins for normal operation.
SHIELDING	SH	IC Shielding pads. Those pins are internally connected to the AGND. DO NOT connect to any WOA on the panel.
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.
DUM	D	Dummy pads. Those pins are floating pads.

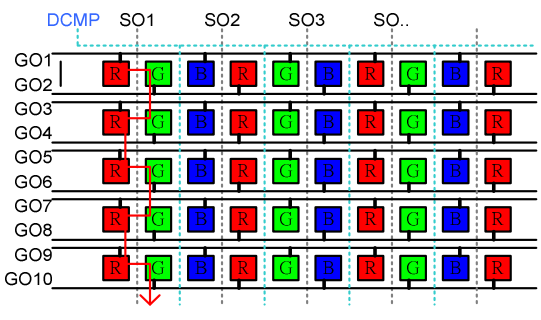
Note:
I: Input, O: Output, P: Power, D: Dummy, S: Shorted line, M: Mark, PI: Power input, PO: Power output,
T: Testing, SH: Shielding, I / O: Input / Output, PS: Power Setting, C: Capacitor pin.

Note 1 :

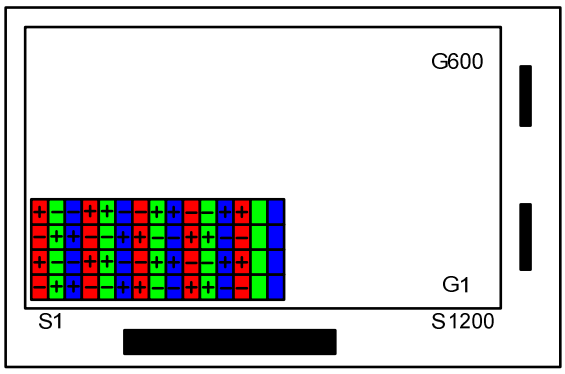
GOSEQ = L , INVBRRINVBRL= H ,
With traditional Gate driver.



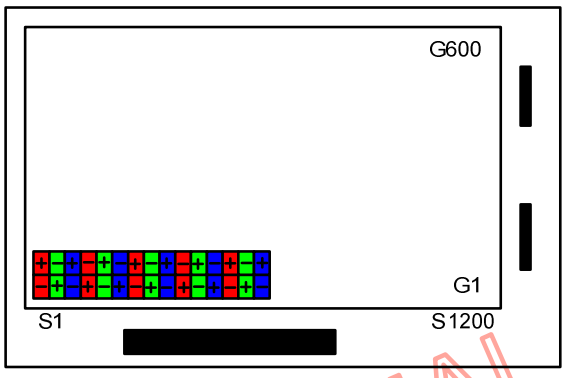
GOSEQ = H , INVBRRINVBRL= L ,
With special design Gate driver



Note 2 :



1+2-dot



1-dot

NT39419B Pass Line Description:

Pass Line No:	Pad Name	
1	COM1_B	COM1_T
2	COM2_B	COM2_T

Value of wiring resistance to each pin

The recommended wiring resistance values are shown below. The wiring resistance values affect the current capacity of the power supply, so be sure to design using values that do not exceed those recommended.

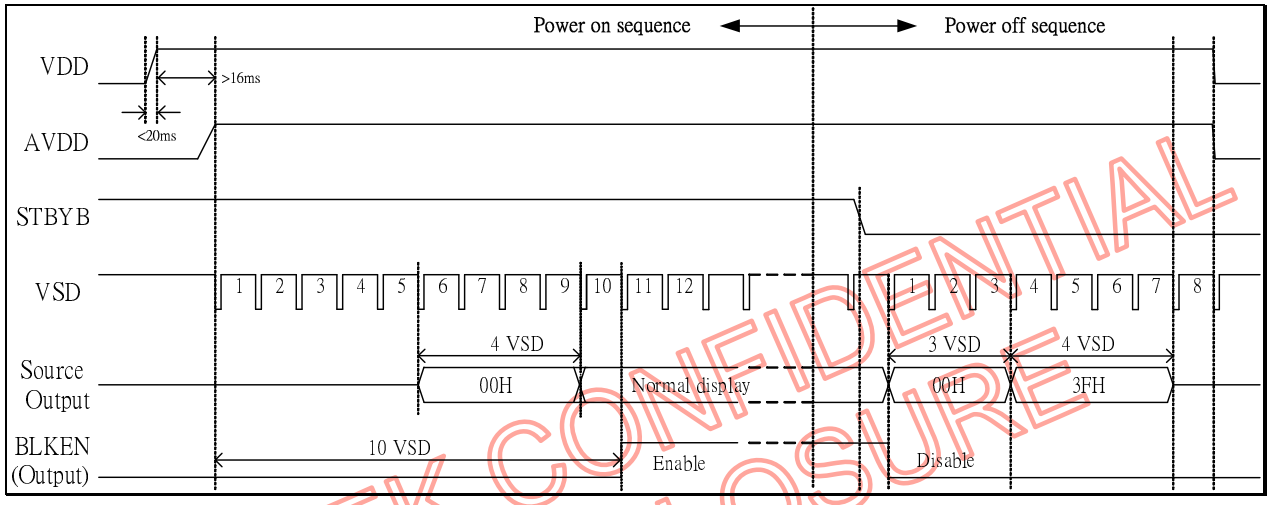
Pin Name	Wiring resistance value(Ω)	Pin Name	Wiring resistance value(Ω)
AVDD	<5	OEVx	<500
AGND	<5	UDx	<500
VDD	<10	CKVx	<500
GND	<10	STV1x	<500
V1~V14	<10	STV2x	<500
D00~D07	<50	STBNx	<500
D10~D17	<50		
D20~D27	<50		
CLKIN	<50		
VSD	<50		
HSD	<50		
DEN	<50		
RSTB	<500		
STBYB	<500		
DITHB	<500		
SHLR	<500		
UPDN	<500		
BIST	<500		
MODE	<500		
RES0	<500		
CLKPOL	<500		
BLKEN	<500		
CFSEL	<500		
VSET	<500		

Function Description

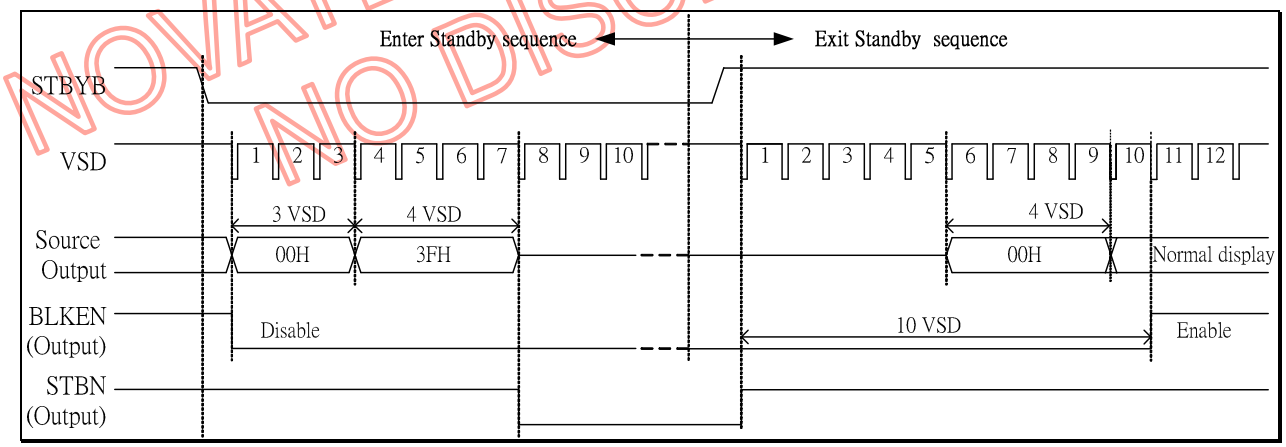
Power On/Off Sequence

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

Power-On/Off Timing Sequence:



Enter and Exit Standby Mode Sequence:



Input Data VS Output Channels

CFSEL="1", Stripe Mode

(1) SHLR="1" , right shift

Output	SO1	SO2	SO3	- - -	SO1198	SO1199	SO1200
Order	First data			→	Last data		
Odd Line /Gn	D07~D00	D27~D20	D17~D10	- - -	D07~D00	D27~D20	D17~D10
Odd Line /Gn+1	D17~D10	D07~D00	D27~D20	- - -	D17~D10	D07~D00	D27~D20
Even Line /Gn	D07~D00	D27~D20	D17~D10	- - -	D07~D00	D27~D20	D17~D10
Even Line /Gn+1	D17~D10	D07~D00	D27~D20	- - -	D17~D10	D07~D00	D27~D20

(2) SHLR="0", left shift

Output	SO1	SO2	SO3	- - -	SO1198	SO1199	SO1200
Order	Last data			←	First data		
Odd Line /Gn	D07~D00	D27~D20	D17~D10	- - -	D07~D00	D27~D20	D17~D10
Odd Line /Gn+1	D17~D10	D07~D00	D27~D20	- - -	D17~D10	D07~D00	D27~D20
Even Line /Gn	D07~D00	D27~D20	D17~D10	- - -	D07~D00	D27~D20	D17~D10
Even Line /Gn+1	D17~D10	D07~D00	D27~D20	- - -	D17~D10	D07~D00	D27~D20

CFSEL="0", Delta Mode

(1) SHLR="1" , right shift

Output	SO1	SO2	SO3	- - -	SO1198	SO1199	SO1200
Order	First data			→	Last data		
Odd Line /Gn	D07~D00	D27~D20	D17~D10	- - -	D07~D00	D27~D20	D17~D10
Odd Line /Gn+1	D17~D10	D07~D00	D27~D20	- - -	D17~D10	D07~D00	D27~D20
Even Line /Gn	D17~D10	D07~D00	D27~D20	- - -	D17~D10	D07~D00	D27~D20
Even Line /Gn+1	D27~D20	D17~D10	D07~D00	- - -	D27~D20	D17~D10	D07~D00

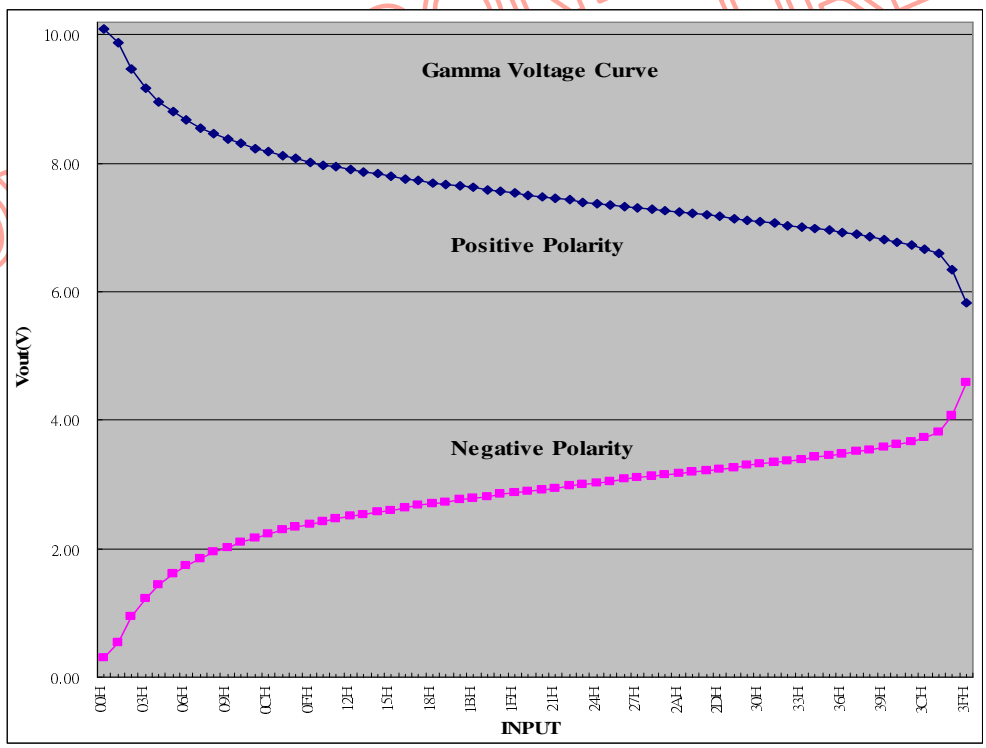
(2) SHLR="0", left shift

Output	SO1	SO2	SO3	- - -	SO1198	SO1199	SO1200
Order	Last data			←	First data		
Odd Line /Gn	D07~D00	D27~D20	D17~D10	- - -	D07~D00	D27~D20	D17~D10
Odd Line /Gn+1	D17~D10	D07~D00	D27~D20	- - -	D17~D10	D07~D00	D27~D20
Even Line /Gn	D17~D10	D07~D00	D27~D20	- - -	D17~D10	D07~D00	D27~D20
Even Line /Gn+1	D27~D20	D17~D10	D07~D00	- - -	D27~D20	D17~D10	D07~D00

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 very for each customer. Contact Novatek for more detail information.



Remark: AVDD-0.1 ≥ V1 ≥ V2≥ V3 ≥ V4 ≥ V5 ≥ V6 ≥ V7;

V8 ≥ V9 ≥ V10 ≥ V11 ≥ V12 ≥ V13 ≥ V14 ≥ AGND+0.1V

Input Data and Output Voltage Reference Table (VSET = "0")

Note: Gamma Tables vary for each custom. Contact Novatek for more detailed information.

@AVDD=10.4V

Chip Version	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	[unit]
	00H	01H	10H	20H	30H	3EH	3FH	3FH	3EH	30H	20H	10H	01H	00H	
NT39419B	10.004	9.755	8.153	7.774	7.511	7.15	6.55	5.35	4.647	3.66	3.11	2.445	0.48	0.204	V

Negative Polarity

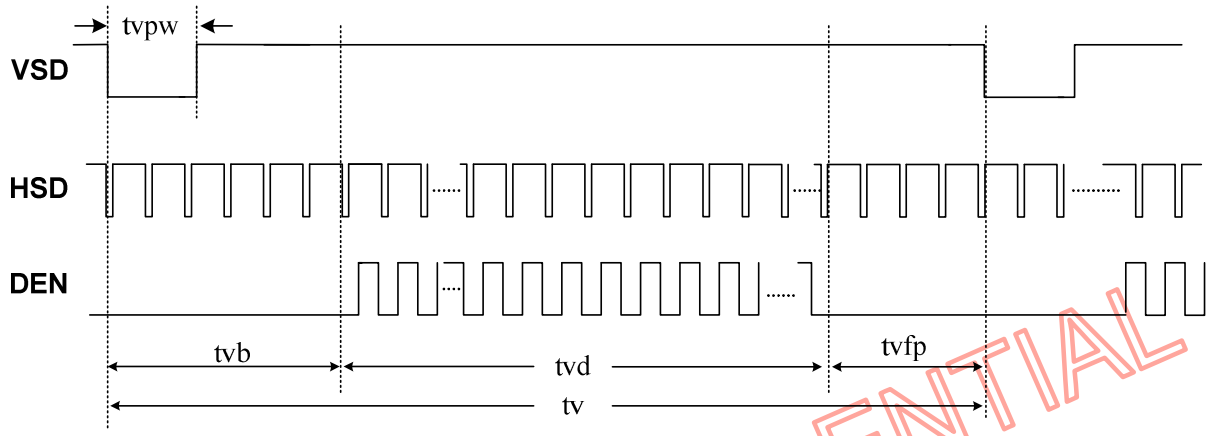
Data	Negative Polarity	Data	Negative Polarity	Data	Negative Polarity
3FH	AVDD X 0.514095	2AH	AVDD X 0.331173	15H	AVDD X 0.258138
3EH	AVDD X 0.446886	29H	AVDD X 0.327767	14H	AVDD X 0.253994
3DH	AVDD X 0.42997	28H	AVDD X 0.324539	13H	AVDD X 0.249372
3CH	AVDD X 0.418345	27H	AVDD X 0.321407	12H	AVDD X 0.245052
3BH	AVDD X 0.40944	26H	AVDD X 0.318369	11H	AVDD X 0.24012
3AH	AVDD X 0.401224	25H	AVDD X 0.315036	10H	AVDD X 0.235175
39H	AVDD X 0.394664	24H	AVDD X 0.311887	0FH	AVDD X 0.230035
38H	AVDD X 0.388237	23H	AVDD X 0.308842	0EH	AVDD X 0.224393
37H	AVDD X 0.38275	22H	AVDD X 0.3059	0DH	AVDD X 0.218658
36H	AVDD X 0.3776	21H	AVDD X 0.302483	0CH	AVDD X 0.212346
35H	AVDD X 0.372563	20H	AVDD X 0.298992	0BH	AVDD X 0.205538
34H	AVDD X 0.368123	1FH	AVDD X 0.295628	0AH	AVDD X 0.198566
33H	AVDD X 0.363864	1EH	AVDD X 0.292303	09H	AVDD X 0.190248
32H	AVDD X 0.359704	1DH	AVDD X 0.288506	08H	AVDD X 0.181228
31H	AVDD X 0.355689	1CH	AVDD X 0.284932	07H	AVDD X 0.171244
30H	AVDD X 0.351912	1BH	AVDD X 0.281507	06H	AVDD X 0.159756
2FH	AVDD X 0.348236	1AH	AVDD X 0.277749	05H	AVDD X 0.146395
2EH	AVDD X 0.344652	19H	AVDD X 0.273866	04H	AVDD X 0.12996
2DH	AVDD X 0.341076	18H	AVDD X 0.270174	03H	AVDD X 0.109285
2CH	AVDD X 0.337684	17H	AVDD X 0.266387	02H	AVDD X 0.083529
2BH	AVDD X 0.334383	16H	AVDD X 0.262134	01H	AVDD X 0.046119
				00H	AVDD X 0.019598

Positive Polarity

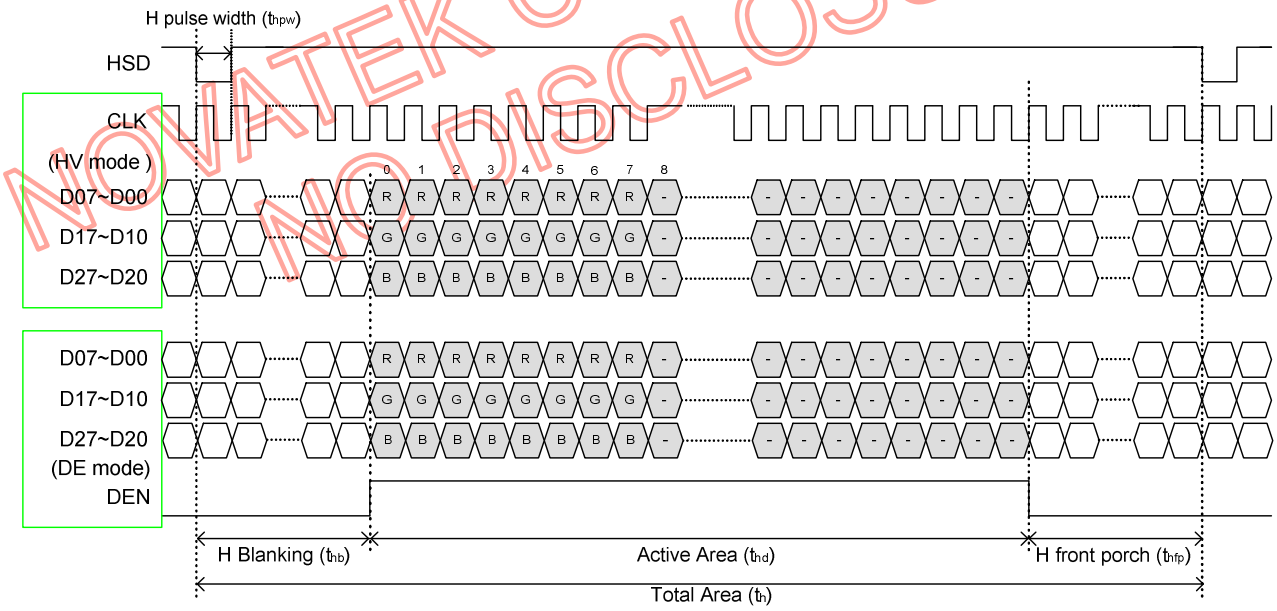
Data	Positive Polarity		Data	Positive Polarity		Data	Positive Polarity	
00H	AVDD X	0.962	15H	AVDD X	0.769	2AH	AVDD X	0.731
01H	AVDD X	0.938	16H	AVDD X	0.767	2BH	AVDD X	0.730
02H	AVDD X	0.905	17H	AVDD X	0.764	2CH	AVDD X	0.728
03H	AVDD X	0.883	18H	AVDD X	0.762	2DH	AVDD X	0.727
04H	AVDD X	0.865	19H	AVDD X	0.760	2EH	AVDD X	0.725
05H	AVDD X	0.851	1AH	AVDD X	0.758	2FH	AVDD X	0.724
06H	AVDD X	0.840	1BH	AVDD X	0.756	30H	AVDD X	0.722
07H	AVDD X	0.831	1CH	AVDD X	0.754	31H	AVDD X	0.721
08H	AVDD X	0.823	1DH	AVDD X	0.753	32H	AVDD X	0.719
09H	AVDD X	0.816	1EH	AVDD X	0.751	33H	AVDD X	0.718
0AH	AVDD X	0.810	1FH	AVDD X	0.749	34H	AVDD X	0.716
0BH	AVDD X	0.805	20H	AVDD X	0.748	35H	AVDD X	0.715
0CH	AVDD X	0.800	21H	AVDD X	0.746	36H	AVDD X	0.713
0DH	AVDD X	0.795	22H	AVDD X	0.744	37H	AVDD X	0.712
0EH	AVDD X	0.791	23H	AVDD X	0.742	38H	AVDD X	0.710
0FH	AVDD X	0.787	24H	AVDD X	0.741	39H	AVDD X	0.708
10H	AVDD X	0.784	25H	AVDD X	0.739	3AH	AVDD X	0.706
11H	AVDD X	0.781	26H	AVDD X	0.737	3BH	AVDD X	0.704
12H	AVDD X	0.777	27H	AVDD X	0.736	3CH	AVDD X	0.701
13H	AVDD X	0.775	28H	AVDD X	0.734	3DH	AVDD X	0.697
14H	AVDD X	0.772	29H	AVDD X	0.733	3EH	AVDD X	0.688
						3FH	AVDD X	0.629

Data Input Format

Vertical input timing



Horizontal input timing



Timing Characteristic

For 800x480 panel

Horizontal input timing

Parameter		Symbol	Value			Unit
Horizontal display area		thd	800			DCLK
DCLK frequency		fclk	Min.	Typ.	Max.	
			-	33.3	50	MHz
1 Horizontal Line		th	862	1056	1200	DCLK
HSD pulse width	Min.	thpw	1			
	Typ.		-			
	Max.		40			
HSD Back Porch (Blanking)		thb	46	46	46	
HSD Front Porch		thfp	16	210	354	

Vertical input timing

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Vertical display area	tvd		480		H
VSD period time	tv	510	525	650	H
VSD pulse width	tvpw	1	-	20	H
VSD Back Porch (Blanking)	tvb	23	23	23	H
VSD Front Porch	tvfp	7	22	147	H

For 800x600 panel

Horizontal input timing

Parameter		Symbol	Value			Unit
Horizontal display area		thd	800			DCLK
DCLK frequency		fclk	Min.	Typ.	Max.	
			-	40	50	MHz
1 Horizontal Line		th	862	1056	1200	DCLK
HSD pulse width	Min.	thpw	1			
	Typ.		-			
	Max.		40			
HSD Back Porch (Blanking)		thb	46	46	46	
HSD Front Porch		thfp	16	210	354	

Vertical input timing

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Vertical display area	tvd		600		H
VSD period time	tv	624	635	700	H
VSD pulse width	tvpw	1	-	20	H
VSD Back Porch (Blanking)	tvb	23	23	23	H
VSD Front Porch	tvfp	1	12	77	H

Absolute Maximum Ratings

VOLTAGE

(GND = AGND = 0V, TA = 25℃)

	MIN.	MAX.	UNIT
Digital Supply Voltage, VDD	-0.5	+5.0	V
Analog Supply Voltage, AVDD, V1~V14	-0.5	+15.0	V

TEMPERATURE

	MIN.	MAX.	UNIT
Operating temperature	-20	+85	℃
Storage temperature	-55	+125	℃

*Comments

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 any other conditions above those indicated in the operational sections of this specification is not implied and exposed to absolute maximum rating conditions for extended periods may affect device reliability.

Recommended Operating Range

(GND = AGND = 0V, TA = -20 to +85℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Digital supply voltage	VDD	3.0	3.3	3.6	V
Analog supply voltage	AVDD	6.5	--	13.5	V
Digital input voltage	VIN	0	-	VDD	V

DC Electrical Characteristics

(VDD= 3.0 to 3.6V, AVDD= 6.5 to 13.5V, GND=AGND= 0V, TA= -20 to +85℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
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	µA	For the digital circuit
High level output voltage	Voh	VDD-0.4	-	-	V	Ioh= -400µA
Low level output voltage	Vol	-	-	GND+0.4	V	Iol= +400µA
Pulled low/high resistor	Ri	150K	250K	350K	ohm	For the digital input pin @ VDD=3.3V
Digital Operation current	Idd	-	8	10	mA	DCLK=40 MHz,800x600, th=26.4us,VDD=3.3V
Digital Stand-by current	Ist1	-	10	50	µA	STBYB=0, Clock & data input pins keep low.
Analog Operating Current	Idda	-	10	12	mA	DCLK=40 MHz,800x600, th=26.4us,@AVDD=10V,V1=8V, V14=0.4V, No load
Analog Stand-by current	Ist2	-	10	50	µA	STBYB=0, Clock & data input pins keep low. No load.
Input level of V1 ~ V7	Vref1	0.4* AVDD	-	AVDD-0.1	V	Gamma correction voltage input
Input level of V8 ~ V14	Vref2	0.1	-	0.6* AVDD	V	Gamma correction voltage input
Output Voltage deviation	Vod1	-	±20	±35	mV	Vo = AGND+0.1V ~ AGND+0.5V & Vo = AVDD-0.5V ~ AVDD-0.1V
Output Voltage deviation	Vod2	-	±15	±20	mV	Vo = AGND+0.5V ~ AVDD-0.5V
Output Voltage Offset between Chips	Voc	-	-	±20	mV	Vo = AGND+0.5V ~ AVDD-0.5V
Dynamic Range of Output	Vdr	0.1	-	AVDD-0.1	V	SO1 ~ SO1200
Sinking Current of Outputs	IOLy	80	-	-	uA	SO1 ~ SO1200; Vo=0.1V v.s 1.0V , AVDD=13.5V
Driving Current of Outputs	IOHy	80	-	-	uA	SO1 ~ SO1200; Vo=13.4V v.s 12.5V , AVDD=13.5V
Resistance of Gamma Table	Rg	0.7*Rn	1.0*Rn	1.3*Rn	ohm	Rn: Internal gamma resistor

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
DCMP Buffer Output Voltage variation	VDvar	-	-	300	mV	AVDD = 10.4 V, Output = 20H, Isink or Isource = 3.5mA

AC Electrical Characteristics

(VDD= 3.0 to 3.6V, AVDD= 6.5 to 13.5V, GND=AGND= 0V, TA= -20 to +85℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
VDD Power On Slew rate	T_{POR}	-	-	20	ms	From 0V to 90% VDD
RSTB pulse width	T_{Rst}	1	-	-	ms	CLKIN = 40MHz
CLKIN cycle time	Tcph	20			ns	
CLKIN pulse duty	Tcwh	40	50	60	%	
VSD setup time	Tvst	8	-	-	ns	
VSD hold time	Tvhd	8	-	-	ns	
HSD setup time	Thst	8	-	-	ns	
HSD hold time	Thhd	8	-	-	ns	
Data set-up time	Tdsu	8	-	-	ns	D0[7:0], D1[7:0], D2[7:0] to CLKIN
Data hold time	Tdhd	8	-	-	ns	D0[7:0], D1[7:0], D2[7:0] to CLKIN
DEN setup time	Tesu	8	-	-	ns	
DEN hold time	Tehd	8	-	-	ns	
Output stable time	Tsst	-	-	6	us	10% to 90% target voltage. CL=120pF, R=10K ohm

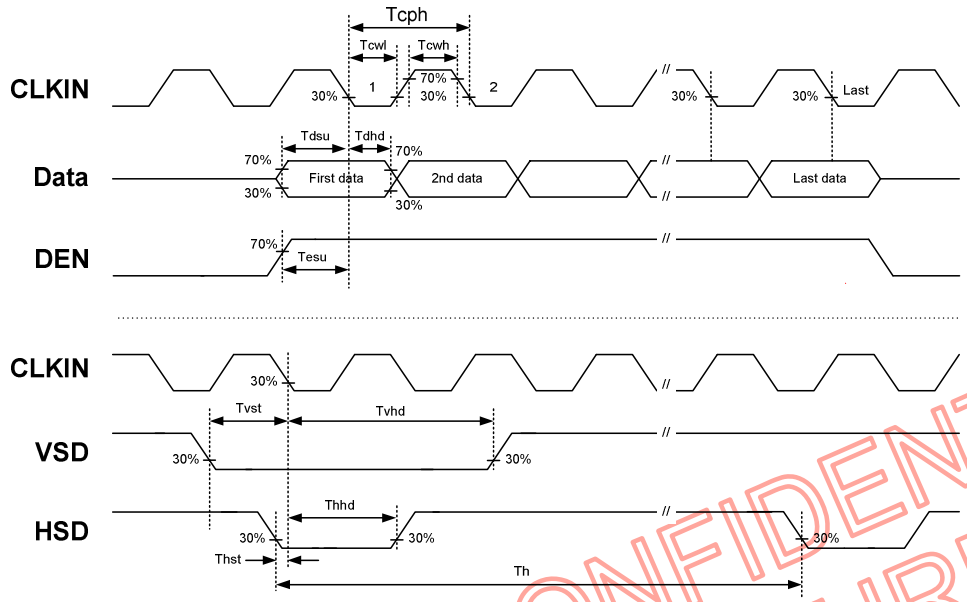
Timing Table

Parallel 24-bit RGB Mode

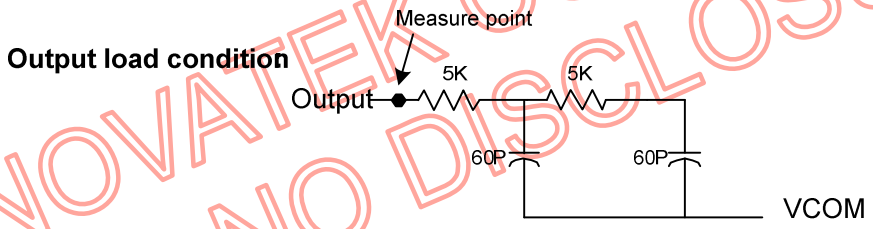
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
CLKIN Frequency	Fclk	-	33.3	50	MHz	VDD = 3.0V ~3.6V
CLKIN Cycle Time	Tclk	20	30	-	ns	
CLKIN Pulse Duty	Tcwh	40	50	60	%	Tclk=Tcwh+cwl
	Tcwl	40	50	60	%	
VSD to STV	Tstv	-	24	-	H	HV mode
DEN to STV	Tstv		4		CLKIN	DE mode
STV pulse width	Twstv	-	0.5	-	H	
STV to CKV	Tckv	-	18	-	CLKIN	
STV to OEV	Toev	-	2	-	CLKIN	
CKV Pulse Width	Twckv	-	66	-	CLKIN	
OEV Pulse Width	Twoev	-	50	-	CLKIN	

Timing Diagram

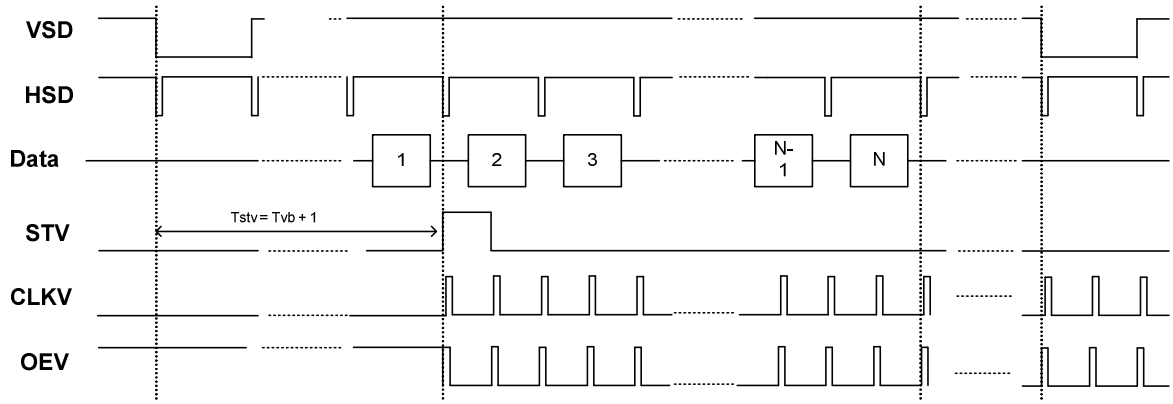
Input Clock and Data Timing Diagram

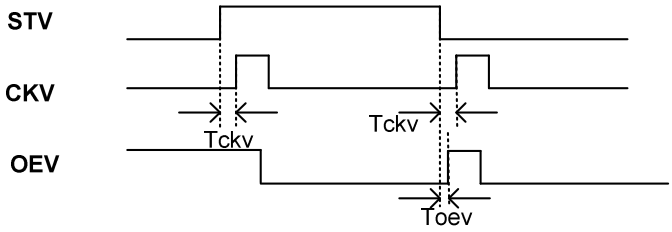


Source Output

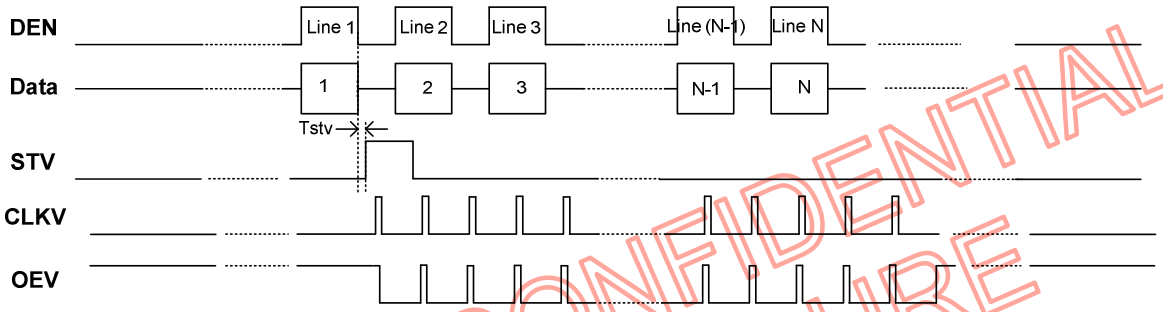


Vertical Timing Diagram (HV mode)

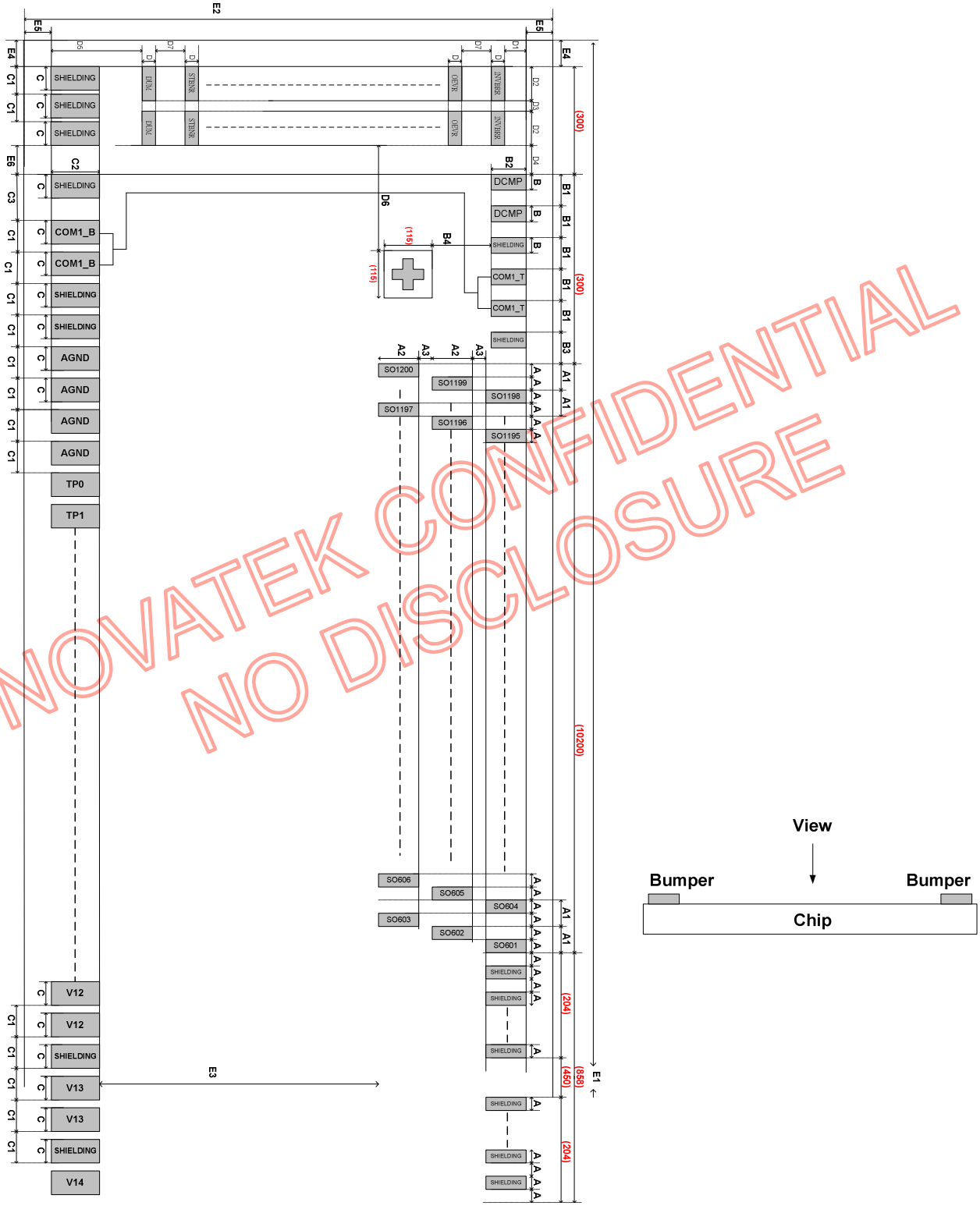




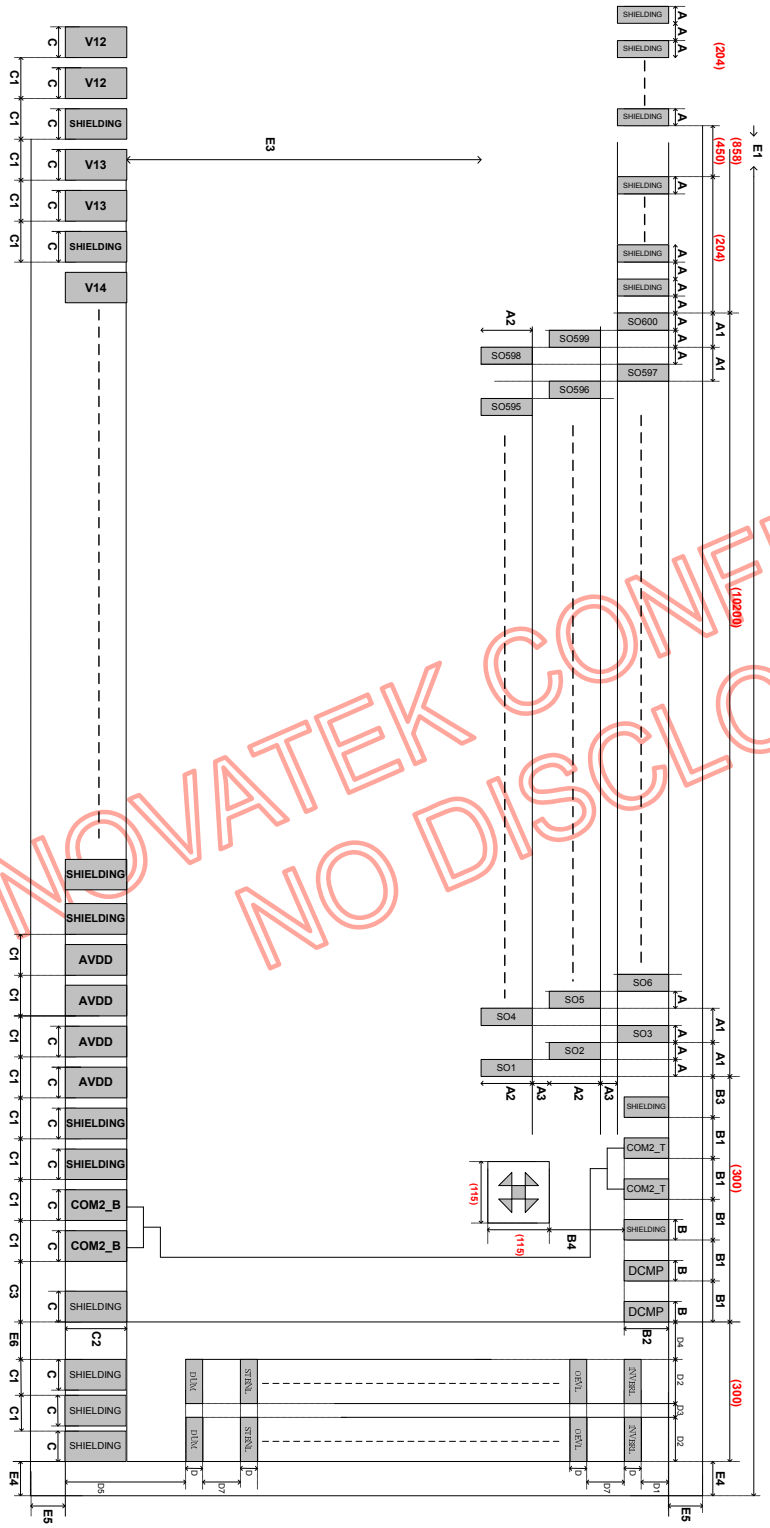
Vertical Timing Diagram (DE mode)

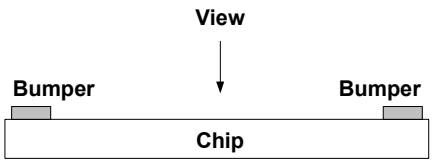


Pad Outline Dimension 1 (Bump Side)

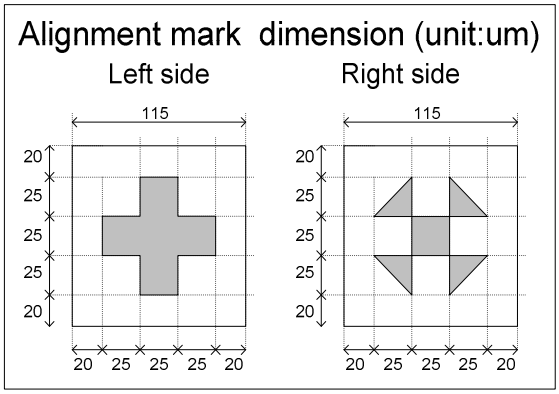


Pad Outline Dimension 2 (Bump Side)





Alignment Mark



Pad Information

Symbol	Dimension (um)
A	17
A1	34
A2	110
A3	30
B	30
B1	50
B2	70
B3	50
B4	191.5
C	65
C1	85
C2	110
C3	115
D	30

Symbol	Dimension (um)
D1	40
D2	100
D3	30
D4	70
D5	266
D6	168.5
D7	50
E1	22572 (max)
E2	1040 (max)
E3	TBD
E4	57(max)
E5	57(max)
E6	136.5

***Note: Chip dimension includes scribe line.**

Appendix A: Pad Coordinates

No.	TextName	CX	CY	No.	TextName	CX	CY	No.	TextName	CX	CY
1	alignment_mark_l	-10773	144	35	SHIELDING[67]	-9690	-408	69	GOSEQ	-6800	-408
2	alignment_mark_r	10773	144	36	SHIELDING[66]	-9605	-408	70	GOSEQ	-6715	-408
3	INVBRR	-11179	408	37	TP0	-9520	-408	71	SHIELDING[21]	-6630	-408
4	OEVR	-11179	328	38	TP0	-9435	-408	72	BIST	-6545	-408
5	UDR	-11179	248	39	TP1	-9350	-408	73	BIST	-6460	-408
6	UDR	-11049	248	40	TP1	-9265	-408	74	SHIELDING[22]	-6375	-408
7	CKVR	-11179	168	41	TP2	-9180	-408	75	RES0	-6290	-408
8	CKVR	-11049	168	42	TP2	-9095	-408	76	RES0	-6205	-408
9	STV1R	-11179	88	43	TP3	-9010	-408	77	SHIELDING[23]	-6120	-408
10	STV1R	-11049	88	44	TP3	-8925	-408	78	CFSEL	-6035	-408
11	STV2R	-11179	8	45	TP4	-8840	-408	79	CFSEL	-5950	-408
12	STV2R	-11049	8	46	TP4	-8755	-408	80	SHIELDING[24]	-5865	-408
13	STV1R	-11179	-72	47	TP5	-8670	-408	81	CLKPOL	-5780	-408
14	STV1R	-11049	-72	48	TP5	-8585	-408	82	CLKPOL	-5695	-408
15	STBNR	-11179	-152	49	SHIELDING[65]	-8500	-408	83	SHIELDING[25]	-5610	-408
16	STBNR	-11049	-152	50	TB0	-8415	-408	84	DITHB	-5525	-408
17	DUMR[1]	-11179	-232	51	TB0	-8330	-408	85	DITHB	-5440	-408
18	DUMR[2]	-11049	-232	52	SHIELDING[64]	-8245	-408	86	SHIELDING[26]	-5355	-408
19	SHIELDING[75]	-11196.5	-408	53	TB1	-8160	-408	87	MODE	-5270	-408
20	SHIELDING[74]	-11111.5	-408	54	TB1	-8075	-408	88	MODE	-5185	-408
21	SHIELDING[73]	-11026.5	-408	55	SHIELDING[13]	-7990	-408	89	SHIELDING[27]	-5100	-408
22	SHIELDING[72]	-10825	-408	56	SHIELDING[14]	-7905	-408	90	SHLR	-5015	-408
23	COM1_B	-10710	-408	57	SHIELDING[15]	-7820	-408	91	SHLR	-4930	-408
24	COM1_B	-10625	-408	58	SHIELDING[16]	-7735	-408	92	SHIELDING[28]	-4845	-408
25	SHIELDING[80]	-10540	-408	59	TB2	-7650	-408	93	UPDN	-4760	-408
26	SHIELDING[79]	-10455	-408	60	TB2	-7565	-408	94	UPDN	-4675	-408
27	AGND	-10370	-408	61	SHIELDING[17]	-7480	-408	95	SHIELDING[29]	-4590	-408
28	AGND	-10285	-408	62	TB3	-7395	-408	96	STBYB	-4505	-408
29	AGND	-10200	-408	63	TB3	-7310	-408	97	STBYB	-4420	-408
30	AGND	-10115	-408	64	SHIELDING[18]	-7225	-408	98	SHIELDING[30]	-4335	-408
31	SHIELDING[71]	-10030	-408	65	TB4	-7140	-408	99	RSTB	-4250	-408
32	SHIELDING[70]	-9945	-408	66	TB4	-7055	-408	100	RSTB	-4165	-408
33	SHIELDING[69]	-9860	-408	67	SHIELDING[19]	-6970	-408	101	SHIELDING[31]	-4080	-408
34	SHIELDING[68]	-9775	-408	68	SHIELDING[20]	-6885	-408	102	BLKEN	-3995	-408

No.	TextName	CX	CY	No.	TextName	CX	CY	No.	TextName	CX	CY
103	BLKEN	-3910	-408	137	SHIELDING[37]	-1020	-408	171	AGND	1870	-408
104	SHIELDING[32]	-3825	-408	138	V4	-935	-408	172	AGND	1955	-408
105	VSET	-3740	-408	139	V4	-850	-408	173	AGND	2040	-408
106	VSET	-3655	-408	140	SHIELDING[38]	-765	-408	174	AGND	2125	-408
107	TP6	-3570	-408	141	V5	-680	-408	175	AGND	2210	-408
108	TP7	-3485	-408	142	V5	-595	-408	176	AGND	2295	-408
109	TP8	-3400	-408	143	SHIELDING[39]	-510	-408	177	AGND	2380	-408
110	TP9	-3315	-408	144	V6	-425	-408	178	AGND	2465	-408
111	TP10	-3230	-408	145	V6	-340	-408	179	SHIELDING[49]	2550	-408
112	TP11	-3145	-408	146	SHIELDING[40]	-255	-408	180	SHIELDING[50]	2635	-408
113	TP12	-3060	-408	147	V7	-170	-408	181	GND	2720	-408
114	TP13	-2975	-408	148	V7	-85	-408	182	GND	2805	-408
115	TP14	-2890	-408	149	SHIELDING[41]	0	-408	183	GND	2890	-408
116	GND	-2805	-408	150	V8	85	-408	184	GND	2975	-408
117	DCMP_EN	-2720	-408	151	V8	170	-408	185	SHIELDING[51]	3060	-408
118	VCC	-2635	-408	152	SHIELDING[42]	255	-408	186	SHIELDING[52]	3145	-408
119	SHIELDING[33]	-2550	-408	153	V9	340	-408	187	VCC	3230	-408
120	AVDD	-2465	-408	154	V9	425	-408	188	VCC	3315	-408
121	AVDD	-2380	-408	155	SHIELDING[43]	510	-408	189	VCC	3400	-408
122	AVDD	-2295	-408	156	V10	595	-408	190	VCC	3485	-408
123	AVDD	-2210	-408	157	V10	680	-408	191	DASHD[1]	3570	-408
124	AVDD	-2125	-408	158	SHIELDING[44]	765	-408	192	VSD	3655	-408
125	AVDD	-2040	-408	159	V11	850	-408	193	VSD	3740	-408
126	AVDD	-1955	-408	160	V11	935	-408	194	DASHD[2]	3825	-408
127	AVDD	-1870	-408	161	SHIELDING[45]	1020	-408	195	HSD	3910	-408
128	SHIELDING[34]	-1785	-408	162	V12	1105	-408	196	HSD	3995	-408
129	V1	-1700	-408	163	V12	1190	-408	197	DASHD[3]	4080	-408
130	V1	-1615	-408	164	SHIELDING[46]	1275	-408	198	DEN	4165	-408
131	SHIELDING[35]	-1530	-408	165	V13	1360	-408	199	DEN	4250	-408
132	V2	-1445	-408	166	V13	1445	-408	200	DASHD[4]	4335	-408
133	V2	-1360	-408	167	SHIELDING[47]	1530	-408	201	CLKIN	4420	-408
134	SHIELDING[36]	-1275	-408	168	V14	1615	-408	202	CLKIN	4505	-408
135	V3	-1190	-408	169	V14	1700	-408	203	DASHD[5]	4590	-408
136	V3	-1105	-408	170	SHIELDING[48]	1785	-408	204	D27	4675	-408

No.	TextName	CX	CY	No.	TextName	CX	CY	No.	TextName	CX	CY
205	D27	4760	-408	239	D11	7650	-408	273	SHIELDING[58]	10540	-408
206	D26	4845	-408	240	D11	7735	-408	274	COM2_B	10625	-408
207	D26	4930	-408	241	D10	7820	-408	275	COM2_B	10710	-408
208	DASHD[6]	5015	-408	242	D10	7905	-408	276	SHIELDING[59]	10825	-408
209	D25	5100	-408	243	DASHD[13]	7990	-408	277	SHIELDING[60]	11026.5	-408
210	D25	5185	-408	244	D07	8075	-408	278	SHIELDING[61]	11111.5	-408
211	D24	5270	-408	245	D07	8160	-408	279	SHIELDING[62]	11196.5	-408
212	D24	5355	-408	246	D06	8245	-408	280	DUML[1]	11049	-232
213	DASHD[7]	5440	-408	247	D06	8330	-408	281	DUML[2]	11179	-232
214	D23	5525	-408	248	DASHD[14]	8415	-408	282	STBNL	11049	-152
215	D23	5610	-408	249	D05	8500	-408	283	STBNL	11179	-152
216	D22	5695	-408	250	D05	8585	-408	284	STV1L	11049	-72
217	D22	5780	-408	251	D04	8670	-408	285	STV1L	11179	-72
218	DASHD[8]	5865	-408	252	D04	8755	-408	286	STV2L	11049	8
219	D21	5950	-408	253	DASHD[15]	8840	-408	287	STV2L	11179	8
220	D21	6035	-408	254	D03	8925	-408	288	STV1L	11049	88
221	D20	6120	-408	255	D03	9010	-408	289	STV1L	11179	88
222	D20	6205	-408	256	D02	9095	-408	290	CKVL	11049	168
223	DASHD[9]	6290	-408	257	D02	9180	-408	291	CKVL	11179	168
224	D17	6375	-408	258	DASHD[16]	9265	-408	292	UDL	11049	248
225	D17	6460	-408	259	D01	9350	-408	293	UDL	11179	248
226	D16	6545	-408	260	D01	9435	-408	294	OEVL	11179	328
227	D16	6630	-408	261	D00	9520	-408	295	INVBRL	11179	408
228	DASHD[10]	6715	-408	262	D00	9605	-408	296	OEVL	11049	328
229	D15	6800	-408	263	DASHD[17]	9690	-408	297	INVBRL	11049	408
230	D15	6885	-408	264	SHIELDING[53]	9775	-408	298	DCMPL	10914	428
231	D14	6970	-408	265	SHIELDING[54]	9860	-408	299	DCMPL	10864	428
232	D14	7055	-408	266	SHIELDING[55]	9945	-408	300	SHIELDING[78]	10814	428
233	DASHD[11]	7140	-408	267	SHIELDING[56]	10030	-408	301	COM2_T	10764	428
234	D13	7225	-408	268	AVDD	10115	-408	302	COM2_T	10714	428
235	D13	7310	-408	269	AVDD	10200	-408	303	SHIELDING[63]	10664	428
236	D12	7395	-408	270	AVDD	10285	-408	304	SO[1]	10620.5	128
237	D12	7480	-408	271	AVDD	10370	-408	305	SO[2]	10603.5	268
238	DASHD[12]	7565	-408	272	SHIELDING[57]	10455	-408	306	SO[3]	10586.5	408

No.	TextName	CX	CY
307	SO[4]	10569.5	128
308	SO[5]	10552.5	268
309	SO[6]	10535.5	408
310	SO[7]	10518.5	128
311	SO[8]	10501.5	268
312	SO[9]	10484.5	408
313	SO[10]	10467.5	128
314	SO[11]	10450.5	268
315	SO[12]	10433.5	408
316	SO[13]	10416.5	128
317	SO[14]	10399.5	268
318	SO[15]	10382.5	408
319	SO[16]	10365.5	128
320	SO[17]	10348.5	268
321	SO[18]	10331.5	408
322	SO[19]	10314.5	128
323	SO[20]	10297.5	268
324	SO[21]	10280.5	408
325	SO[22]	10263.5	128
326	SO[23]	10246.5	268
327	SO[24]	10229.5	408
328	SO[25]	10212.5	128
329	SO[26]	10195.5	268
330	SO[27]	10178.5	408
331	SO[28]	10161.5	128
332	SO[29]	10144.5	268
333	SO[30]	10127.5	408
334	SO[31]	10110.5	128
335	SO[32]	10093.5	268
336	SO[33]	10076.5	408
337	SO[34]	10059.5	128
338	SO[35]	10042.5	268
339	SO[36]	10025.5	408
340	SO[37]	10008.5	128
341	SO[38]	9991.5	268
342	SO[39]	9974.5	408
343	SO[40]	9957.5	128
344	SO[41]	9940.5	268
345	SO[42]	9923.5	408
346	SO[43]	9906.5	128
347	SO[44]	9889.5	268
348	SO[45]	9872.5	408
349	SO[46]	9855.5	128
350	SO[47]	9838.5	268
351	SO[48]	9821.5	408
352	SO[49]	9804.5	128
353	SO[50]	9787.5	268
354	SO[51]	9770.5	408
355	SO[52]	9753.5	128
356	SO[53]	9736.5	268
357	SO[54]	9719.5	408
358	SO[55]	9702.5	128
359	SO[56]	9685.5	268
360	SO[57]	9668.5	408
361	SO[58]	9651.5	128
362	SO[59]	9634.5	268
363	SO[60]	9617.5	408
364	SO[61]	9600.5	128
365	SO[62]	9583.5	268
366	SO[63]	9566.5	408
367	SO[64]	9549.5	128
368	SO[65]	9532.5	268
369	SO[66]	9515.5	408
370	SO[67]	9498.5	128
371	SO[68]	9481.5	268
372	SO[69]	9464.5	408
373	SO[70]	9447.5	128
374	SO[71]	9430.5	268
375	SO[72]	9413.5	408
376	SO[73]	9396.5	128
377	SO[74]	9379.5	268
378	SO[75]	9362.5	408
379	SO[76]	9345.5	128
380	SO[77]	9328.5	268
381	SO[78]	9311.5	408
382	SO[79]	9294.5	128
383	SO[80]	9277.5	268
384	SO[81]	9260.5	408
385	SO[82]	9243.5	128
386	SO[83]	9226.5	268
387	SO[84]	9209.5	408
388	SO[85]	9192.5	128
389	SO[86]	9175.5	268
390	SO[87]	9158.5	408
391	SO[88]	9141.5	128
392	SO[89]	9124.5	268
393	SO[90]	9107.5	408
394	SO[91]	9090.5	128
395	SO[92]	9073.5	268
396	SO[93]	9056.5	408
397	SO[94]	9039.5	128
398	SO[95]	9022.5	268
399	SO[96]	9005.5	408
400	SO[97]	8988.5	128
401	SO[98]	8971.5	268
402	SO[99]	8954.5	408
403	SO[100]	8937.5	128
404	SO[101]	8920.5	268
405	SO[102]	8903.5	408
406	SO[103]	8886.5	128
407	SO[104]	8869.5	268
408	SO[105]	8852.5	408

No.	TextName	CX	CY	No.	TextName	CX	CY	No.	TextName	CX	CY
409	SO[106]	8835.5	128	443	SO[140]	8257.5	268	477	SO[174]	7679.5	408
410	SO[107]	8818.5	268	444	SO[141]	8240.5	408	478	SO[175]	7662.5	128
411	SO[108]	8801.5	408	445	SO[142]	8223.5	128	479	SO[176]	7645.5	268
412	SO[109]	8784.5	128	446	SO[143]	8206.5	268	480	SO[177]	7628.5	408
413	SO[110]	8767.5	268	447	SO[144]	8189.5	408	481	SO[178]	7611.5	128
414	SO[111]	8750.5	408	448	SO[145]	8172.5	128	482	SO[179]	7594.5	268
415	SO[112]	8733.5	128	449	SO[146]	8155.5	268	483	SO[180]	7577.5	408
416	SO[113]	8716.5	268	450	SO[147]	8138.5	408	484	SO[181]	7560.5	128
417	SO[114]	8699.5	408	451	SO[148]	8121.5	128	485	SO[182]	7543.5	268
418	SO[115]	8682.5	128	452	SO[149]	8104.5	268	486	SO[183]	7526.5	408
419	SO[116]	8665.5	268	453	SO[150]	8087.5	408	487	SO[184]	7509.5	128
420	SO[117]	8648.5	408	454	SO[151]	8070.5	128	488	SO[185]	7492.5	268
421	SO[118]	8631.5	128	455	SO[152]	8053.5	268	489	SO[186]	7475.5	408
422	SO[119]	8614.5	268	456	SO[153]	8036.5	408	490	SO[187]	7458.5	128
423	SO[120]	8597.5	408	457	SO[154]	8019.5	128	491	SO[188]	7441.5	268
424	SO[121]	8580.5	128	458	SO[155]	8002.5	268	492	SO[189]	7424.5	408
425	SO[122]	8563.5	268	459	SO[156]	7985.5	408	493	SO[190]	7407.5	128
426	SO[123]	8546.5	408	460	SO[157]	7968.5	128	494	SO[191]	7390.5	268
427	SO[124]	8529.5	128	461	SO[158]	7951.5	268	495	SO[192]	7373.5	408
428	SO[125]	8512.5	268	462	SO[159]	7934.5	408	496	SO[193]	7356.5	128
429	SO[126]	8495.5	408	463	SO[160]	7917.5	128	497	SO[194]	7339.5	268
430	SO[127]	8478.5	128	464	SO[161]	7900.5	268	498	SO[195]	7322.5	408
431	SO[128]	8461.5	268	465	SO[162]	7883.5	408	499	SO[196]	7305.5	128
432	SO[129]	8444.5	408	466	SO[163]	7866.5	128	500	SO[197]	7288.5	268
433	SO[130]	8427.5	128	467	SO[164]	7849.5	268	501	SO[198]	7271.5	408
434	SO[131]	8410.5	268	468	SO[165]	7832.5	408	502	SO[199]	7254.5	128
435	SO[132]	8393.5	408	469	SO[166]	7815.5	128	503	SO[200]	7237.5	268
436	SO[133]	8376.5	128	470	SO[167]	7798.5	268	504	SO[201]	7220.5	408
437	SO[134]	8359.5	268	471	SO[168]	7781.5	408	505	SO[202]	7203.5	128
438	SO[135]	8342.5	408	472	SO[169]	7764.5	128	506	SO[203]	7186.5	268
439	SO[136]	8325.5	128	473	SO[170]	7747.5	268	507	SO[204]	7169.5	408
440	SO[137]	8308.5	268	474	SO[171]	7730.5	408	508	SO[205]	7152.5	128
441	SO[138]	8291.5	408	475	SO[172]	7713.5	128	509	SO[206]	7135.5	268
442	SO[139]	8274.5	128	476	SO[173]	7696.5	268	510	SO[207]	7118.5	408

No.	TextName	CX	CY
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513	SO[210]	7067.5	408
514	SO[211]	7050.5	128
515	SO[212]	7033.5	268
516	SO[213]	7016.5	408
517	SO[214]	6999.5	128
518	SO[215]	6982.5	268
519	SO[216]	6965.5	408
520	SO[217]	6948.5	128
521	SO[218]	6931.5	268
522	SO[219]	6914.5	408
523	SO[220]	6897.5	128
524	SO[221]	6880.5	268
525	SO[222]	6863.5	408
526	SO[223]	6846.5	128
527	SO[224]	6829.5	268
528	SO[225]	6812.5	408
529	SO[226]	6795.5	128
530	SO[227]	6778.5	268
531	SO[228]	6761.5	408
532	SO[229]	6744.5	128
533	SO[230]	6727.5	268
534	SO[231]	6710.5	408
535	SO[232]	6693.5	128
536	SO[233]	6676.5	268
537	SO[234]	6659.5	408
538	SO[235]	6642.5	128
539	SO[236]	6625.5	268
540	SO[237]	6608.5	408
541	SO[238]	6591.5	128
542	SO[239]	6574.5	268
543	SO[240]	6557.5	408
544	SO[241]	6540.5	128
545	SO[242]	6523.5	268
546	SO[243]	6506.5	408
547	SO[244]	6489.5	128
548	SO[245]	6472.5	268
549	SO[246]	6455.5	408
550	SO[247]	6438.5	128
551	SO[248]	6421.5	268
552	SO[249]	6404.5	408
553	SO[250]	6387.5	128
554	SO[251]	6370.5	268
555	SO[252]	6353.5	408
556	SO[253]	6336.5	128
557	SO[254]	6319.5	268
558	SO[255]	6302.5	408
559	SO[256]	6285.5	128
560	SO[257]	6268.5	268
561	SO[258]	6251.5	408
562	SO[259]	6234.5	128
563	SO[260]	6217.5	268
564	SO[261]	6200.5	408
565	SO[262]	6183.5	128
566	SO[263]	6166.5	268
567	SO[264]	6149.5	408
568	SO[265]	6132.5	128
569	SO[266]	6115.5	268
570	SO[267]	6098.5	408
571	SO[268]	6081.5	128
572	SO[269]	6064.5	268
573	SO[270]	6047.5	408
574	SO[271]	6030.5	128
575	SO[272]	6013.5	268
576	SO[273]	5996.5	408
577	SO[274]	5979.5	128
578	SO[275]	5962.5	268
579	SO[276]	5945.5	408
580	SO[277]	5928.5	128
581	SO[278]	5911.5	268
582	SO[279]	5894.5	408
583	SO[280]	5877.5	128
584	SO[281]	5860.5	268
585	SO[282]	5843.5	408
586	SO[283]	5826.5	128
587	SO[284]	5809.5	268
588	SO[285]	5792.5	408
589	SO[286]	5775.5	128
590	SO[287]	5758.5	268
591	SO[288]	5741.5	408
592	SO[289]	5724.5	128
593	SO[290]	5707.5	268
594	SO[291]	5690.5	408
595	SO[292]	5673.5	128
596	SO[293]	5656.5	268
597	SO[294]	5639.5	408
598	SO[295]	5622.5	128
599	SO[296]	5605.5	268
600	SO[297]	5588.5	408
601	SO[298]	5571.5	128
602	SO[299]	5554.5	268
603	SO[300]	5537.5	408
604	SO[301]	5520.5	128
605	SO[302]	5503.5	268
606	SO[303]	5486.5	408
607	SO[304]	5469.5	128
608	SO[305]	5452.5	268
609	SO[306]	5435.5	408
610	SO[307]	5418.5	128
611	SO[308]	5401.5	268
612	SO[309]	5384.5	408

No.	TextName	CX	CY	No.	TextName	CX	CY	No.	TextName	CX	CY
613	SO[310]	5367.5	128	647	SO[344]	4789.5	268	681	SO[378]	4211.5	408
614	SO[311]	5350.5	268	648	SO[345]	4772.5	408	682	SO[379]	4194.5	128
615	SO[312]	5333.5	408	649	SO[346]	4755.5	128	683	SO[380]	4177.5	268
616	SO[313]	5316.5	128	650	SO[347]	4738.5	268	684	SO[381]	4160.5	408
617	SO[314]	5299.5	268	651	SO[348]	4721.5	408	685	SO[382]	4143.5	128
618	SO[315]	5282.5	408	652	SO[349]	4704.5	128	686	SO[383]	4126.5	268
619	SO[316]	5265.5	128	653	SO[350]	4687.5	268	687	SO[384]	4109.5	408
620	SO[317]	5248.5	268	654	SO[351]	4670.5	408	688	SO[385]	4092.5	128
621	SO[318]	5231.5	408	655	SO[352]	4653.5	128	689	SO[386]	4075.5	268
622	SO[319]	5214.5	128	656	SO[353]	4636.5	268	690	SO[387]	4058.5	408
623	SO[320]	5197.5	268	657	SO[354]	4619.5	408	691	SO[388]	4041.5	128
624	SO[321]	5180.5	408	658	SO[355]	4602.5	128	692	SO[389]	4024.5	268
625	SO[322]	5163.5	128	659	SO[356]	4585.5	268	693	SO[390]	4007.5	408
626	SO[323]	5146.5	268	660	SO[357]	4568.5	408	694	SO[391]	3990.5	128
627	SO[324]	5129.5	408	661	SO[358]	4551.5	128	695	SO[392]	3973.5	268
628	SO[325]	5112.5	128	662	SO[359]	4534.5	268	696	SO[393]	3956.5	408
629	SO[326]	5095.5	268	663	SO[360]	4517.5	408	697	SO[394]	3939.5	128
630	SO[327]	5078.5	408	664	SO[361]	4500.5	128	698	SO[395]	3922.5	268
631	SO[328]	5061.5	128	665	SO[362]	4483.5	268	699	SO[396]	3905.5	408
632	SO[329]	5044.5	268	666	SO[363]	4466.5	408	700	SO[397]	3888.5	128
633	SO[330]	5027.5	408	667	SO[364]	4449.5	128	701	SO[398]	3871.5	268
634	SO[331]	5010.5	128	668	SO[365]	4432.5	268	702	SO[399]	3854.5	408
635	SO[332]	4993.5	268	669	SO[366]	4415.5	408	703	SO[400]	3837.5	128
636	SO[333]	4976.5	408	670	SO[367]	4398.5	128	704	SO[401]	3820.5	268
637	SO[334]	4959.5	128	671	SO[368]	4381.5	268	705	SO[402]	3803.5	408
638	SO[335]	4942.5	268	672	SO[369]	4364.5	408	706	SO[403]	3786.5	128
639	SO[336]	4925.5	408	673	SO[370]	4347.5	128	707	SO[404]	3769.5	268
640	SO[337]	4908.5	128	674	SO[371]	4330.5	268	708	SO[405]	3752.5	408
641	SO[338]	4891.5	268	675	SO[372]	4313.5	408	709	SO[406]	3735.5	128
642	SO[339]	4874.5	408	676	SO[373]	4296.5	128	710	SO[407]	3718.5	268
643	SO[340]	4857.5	128	677	SO[374]	4279.5	268	711	SO[408]	3701.5	408
644	SO[341]	4840.5	268	678	SO[375]	4262.5	408	712	SO[409]	3684.5	128
645	SO[342]	4823.5	408	679	SO[376]	4245.5	128	713	SO[410]	3667.5	268
646	SO[343]	4806.5	128	680	SO[377]	4228.5	268	714	SO[411]	3650.5	408

No.	TextName	CX	CY
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717	SO[414]	3599.5	408
718	SO[415]	3582.5	128
719	SO[416]	3565.5	268
720	SO[417]	3548.5	408
721	SO[418]	3531.5	128
722	SO[419]	3514.5	268
723	SO[420]	3497.5	408
724	SO[421]	3480.5	128
725	SO[422]	3463.5	268
726	SO[423]	3446.5	408
727	SO[424]	3429.5	128
728	SO[425]	3412.5	268
729	SO[426]	3395.5	408
730	SO[427]	3378.5	128
731	SO[428]	3361.5	268
732	SO[429]	3344.5	408
733	SO[430]	3327.5	128
734	SO[431]	3310.5	268
735	SO[432]	3293.5	408
736	SO[433]	3276.5	128
737	SO[434]	3259.5	268
738	SO[435]	3242.5	408
739	SO[436]	3225.5	128
740	SO[437]	3208.5	268
741	SO[438]	3191.5	408
742	SO[439]	3174.5	128
743	SO[440]	3157.5	268
744	SO[441]	3140.5	408
745	SO[442]	3123.5	128
746	SO[443]	3106.5	268
747	SO[444]	3089.5	408
748	SO[445]	3072.5	128
749	SO[446]	3055.5	268
750	SO[447]	3038.5	408
751	SO[448]	3021.5	128
752	SO[449]	3004.5	268
753	SO[450]	2987.5	408
754	SO[451]	2970.5	128
755	SO[452]	2953.5	268
756	SO[453]	2936.5	408
757	SO[454]	2919.5	128
758	SO[455]	2902.5	268
759	SO[456]	2885.5	408
760	SO[457]	2868.5	128
761	SO[458]	2851.5	268
762	SO[459]	2834.5	408
763	SO[460]	2817.5	128
764	SO[461]	2800.5	268
765	SO[462]	2783.5	408
766	SO[463]	2766.5	128
767	SO[464]	2749.5	268
768	SO[465]	2732.5	408
769	SO[466]	2715.5	128
770	SO[467]	2698.5	268
771	SO[468]	2681.5	408
772	SO[469]	2664.5	128
773	SO[470]	2647.5	268
774	SO[471]	2630.5	408
775	SO[472]	2613.5	128
776	SO[473]	2596.5	268
777	SO[474]	2579.5	408
778	SO[475]	2562.5	128
779	SO[476]	2545.5	268
780	SO[477]	2528.5	408
781	SO[478]	2511.5	128
782	SO[479]	2494.5	268
783	SO[480]	2477.5	408
784	SO[481]	2460.5	128
785	SO[482]	2443.5	268
786	SO[483]	2426.5	408
787	SO[484]	2409.5	128
788	SO[485]	2392.5	268
789	SO[486]	2375.5	408
790	SO[487]	2358.5	128
791	SO[488]	2341.5	268
792	SO[489]	2324.5	408
793	SO[490]	2307.5	128
794	SO[491]	2290.5	268
795	SO[492]	2273.5	408
796	SO[493]	2256.5	128
797	SO[494]	2239.5	268
798	SO[495]	2222.5	408
799	SO[496]	2205.5	128
800	SO[497]	2188.5	268
801	SO[498]	2171.5	408
802	SO[499]	2154.5	128
803	SO[500]	2137.5	268
804	SO[501]	2120.5	408
805	SO[502]	2103.5	128
806	SO[503]	2086.5	268
807	SO[504]	2069.5	408
808	SO[505]	2052.5	128
809	SO[506]	2035.5	268
810	SO[507]	2018.5	408
811	SO[508]	2001.5	128
812	SO[509]	1984.5	268
813	SO[510]	1967.5	408
814	SO[511]	1950.5	128
815	SO[512]	1933.5	268
816	SO[513]	1916.5	408

No.	TextName	CX	CY
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821	SO[518]	1831.5	268
822	SO[519]	1814.5	408
823	SO[520]	1797.5	128
824	SO[521]	1780.5	268
825	SO[522]	1763.5	408
826	SO[523]	1746.5	128
827	SO[524]	1729.5	268
828	SO[525]	1712.5	408
829	SO[526]	1695.5	128
830	SO[527]	1678.5	268
831	SO[528]	1661.5	408
832	SO[529]	1644.5	128
833	SO[530]	1627.5	268
834	SO[531]	1610.5	408
835	SO[532]	1593.5	128
836	SO[533]	1576.5	268
837	SO[534]	1559.5	408
838	SO[535]	1542.5	128
839	SO[536]	1525.5	268
840	SO[537]	1508.5	408
841	SO[538]	1491.5	128
842	SO[539]	1474.5	268
843	SO[540]	1457.5	408
844	SO[541]	1440.5	128
845	SO[542]	1423.5	268
846	SO[543]	1406.5	408
847	SO[544]	1389.5	128
848	SO[545]	1372.5	268
849	SO[546]	1355.5	408
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852	SO[549]	1304.5	408
853	SO[550]	1287.5	128
854	SO[551]	1270.5	268
855	SO[552]	1253.5	408
856	SO[553]	1236.5	128
857	SO[554]	1219.5	268
858	SO[555]	1202.5	408
859	SO[556]	1185.5	128
860	SO[557]	1168.5	268
861	SO[558]	1151.5	408
862	SO[559]	1134.5	128
863	SO[560]	1117.5	268
864	SO[561]	1100.5	408
865	SO[562]	1083.5	128
866	SO[563]	1066.5	268
867	SO[564]	1049.5	408
868	SO[565]	1032.5	128
869	SO[566]	1015.5	268
870	SO[567]	998.5	408
871	SO[568]	981.5	128
872	SO[569]	964.5	268
873	SO[570]	947.5	408
874	SO[571]	930.5	128
875	SO[572]	913.5	268
876	SO[573]	896.5	408
877	SO[574]	879.5	128
878	SO[575]	862.5	268
879	SO[576]	845.5	408
880	SO[577]	828.5	128
881	SO[578]	811.5	268
882	SO[579]	794.5	408
883	SO[580]	777.5	128
884	SO[581]	760.5	268
885	SO[582]	743.5	408
886	SO[583]	726.5	128
887	SO[584]	709.5	268
888	SO[585]	692.5	408
889	SO[586]	675.5	128
890	SO[587]	658.5	268
891	SO[588]	641.5	408
892	SO[589]	624.5	128
893	SO[590]	607.5	268
894	SO[591]	590.5	408
895	SO[592]	573.5	128
896	SO[593]	556.5	268
897	SO[594]	539.5	408
898	SO[595]	522.5	128
899	SO[596]	505.5	268
900	SO[597]	488.5	408
901	SO[598]	471.5	128
902	SO[599]	454.5	268
903	SO[600]	437.5	408
904	SHIELDING[1]	403.5	408
905	SHIELDING[2]	369.5	408
906	SHIELDING[3]	335.5	408
907	SHIELDING[4]	301.5	408
908	SHIELDING[5]	267.5	408
909	SHIELDING[6]	233.5	408
910	SHIELDING[7]	-233.5	408
911	SHIELDING[8]	-267.5	408
912	SHIELDING[9]	-301.5	408
913	SHIELDING[10]	-335.5	408
914	SHIELDING[11]	-369.5	408
915	SHIELDING[12]	-403.5	408
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917	SO[602]	-454.5	268
918	SO[603]	-471.5	128

No.	TextName	CX	CY
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921	SO[606]	-522.5	128
922	SO[607]	-539.5	408
923	SO[608]	-556.5	268
924	SO[609]	-573.5	128
925	SO[610]	-590.5	408
926	SO[611]	-607.5	268
927	SO[612]	-624.5	128
928	SO[613]	-641.5	408
929	SO[614]	-658.5	268
930	SO[615]	-675.5	128
931	SO[616]	-692.5	408
932	SO[617]	-709.5	268
933	SO[618]	-726.5	128
934	SO[619]	-743.5	408
935	SO[620]	-760.5	268
936	SO[621]	-777.5	128
937	SO[622]	-794.5	408
938	SO[623]	-811.5	268
939	SO[624]	-828.5	128
940	SO[625]	-845.5	408
941	SO[626]	-862.5	268
942	SO[627]	-879.5	128
943	SO[628]	-896.5	408
944	SO[629]	-913.5	268
945	SO[630]	-930.5	128
946	SO[631]	-947.5	408
947	SO[632]	-964.5	268
948	SO[633]	-981.5	128
949	SO[634]	-998.5	408
950	SO[635]	-1015.5	268
951	SO[636]	-1032.5	128
952	SO[637]	-1049.5	408
953	SO[638]	-1066.5	268
954	SO[639]	-1083.5	128
955	SO[640]	-1100.5	408
956	SO[641]	-1117.5	268
957	SO[642]	-1134.5	128
958	SO[643]	-1151.5	408
959	SO[644]	-1168.5	268
960	SO[645]	-1185.5	128
961	SO[646]	-1202.5	408
962	SO[647]	-1219.5	268
963	SO[648]	-1236.5	128
964	SO[649]	-1253.5	408
965	SO[650]	-1270.5	268
966	SO[651]	-1287.5	128
967	SO[652]	-1304.5	408
968	SO[653]	-1321.5	268
969	SO[654]	-1338.5	128
970	SO[655]	-1355.5	408
971	SO[656]	-1372.5	268
972	SO[657]	-1389.5	128
973	SO[658]	-1406.5	408
974	SO[659]	-1423.5	268
975	SO[660]	-1440.5	128
976	SO[661]	-1457.5	408
977	SO[662]	-1474.5	268
978	SO[663]	-1491.5	128
979	SO[664]	-1508.5	408
980	SO[665]	-1525.5	268
981	SO[666]	-1542.5	128
982	SO[667]	-1559.5	408
983	SO[668]	-1576.5	268
984	SO[669]	-1593.5	128
985	SO[670]	-1610.5	408
986	SO[671]	-1627.5	268
987	SO[672]	-1644.5	128
988	SO[673]	-1661.5	408
989	SO[674]	-1678.5	268
990	SO[675]	-1695.5	128
991	SO[676]	-1712.5	408
992	SO[677]	-1729.5	268
993	SO[678]	-1746.5	128
994	SO[679]	-1763.5	408
995	SO[680]	-1780.5	268
996	SO[681]	-1797.5	128
997	SO[682]	-1814.5	408
998	SO[683]	-1831.5	268
999	SO[684]	-1848.5	128
1000	SO[685]	-1865.5	408
1001	SO[686]	-1882.5	268
1002	SO[687]	-1899.5	128
1003	SO[688]	-1916.5	408
1004	SO[689]	-1933.5	268
1005	SO[690]	-1950.5	128
1006	SO[691]	-1967.5	408
1007	SO[692]	-1984.5	268
1008	SO[693]	-2001.5	128
1009	SO[694]	-2018.5	408
1010	SO[695]	-2035.5	268
1011	SO[696]	-2052.5	128
1012	SO[697]	-2069.5	408
1013	SO[698]	-2086.5	268
1014	SO[699]	-2103.5	128
1015	SO[700]	-2120.5	408
1016	SO[701]	-2137.5	268
1017	SO[702]	-2154.5	128
1018	SO[703]	-2171.5	408
1019	SO[704]	-2188.5	268
1020	SO[705]	-2205.5	128

No.	TextName	CX	CY	No.	TextName	CX	CY	No.	TextName	CX	CY
1021	SO[706]	-2222.5	408	1055	SO[740]	-2800.5	268	1089	SO[774]	-3378.5	128
1022	SO[707]	-2239.5	268	1056	SO[741]	-2817.5	128	1090	SO[775]	-3395.5	408
1023	SO[708]	-2256.5	128	1057	SO[742]	-2834.5	408	1091	SO[776]	-3412.5	268
1024	SO[709]	-2273.5	408	1058	SO[743]	-2851.5	268	1092	SO[777]	-3429.5	128
1025	SO[710]	-2290.5	268	1059	SO[744]	-2868.5	128	1093	SO[778]	-3446.5	408
1026	SO[711]	-2307.5	128	1060	SO[745]	-2885.5	408	1094	SO[779]	-3463.5	268
1027	SO[712]	-2324.5	408	1061	SO[746]	-2902.5	268	1095	SO[780]	-3480.5	128
1028	SO[713]	-2341.5	268	1062	SO[747]	-2919.5	128	1096	SO[781]	-3497.5	408
1029	SO[714]	-2358.5	128	1063	SO[748]	-2936.5	408	1097	SO[782]	-3514.5	268
1030	SO[715]	-2375.5	408	1064	SO[749]	-2953.5	268	1098	SO[783]	-3531.5	128
1031	SO[716]	-2392.5	268	1065	SO[750]	-2970.5	128	1099	SO[784]	-3548.5	408
1032	SO[717]	-2409.5	128	1066	SO[751]	-2987.5	408	1100	SO[785]	-3565.5	268
1033	SO[718]	-2426.5	408	1067	SO[752]	-3004.5	268	1101	SO[786]	-3582.5	128
1034	SO[719]	-2443.5	268	1068	SO[753]	-3021.5	128	1102	SO[787]	-3599.5	408
1035	SO[720]	-2460.5	128	1069	SO[754]	-3038.5	408	1103	SO[788]	-3616.5	268
1036	SO[721]	-2477.5	408	1070	SO[755]	-3055.5	268	1104	SO[789]	-3633.5	128
1037	SO[722]	-2494.5	268	1071	SO[756]	-3072.5	128	1105	SO[790]	-3650.5	408
1038	SO[723]	-2511.5	128	1072	SO[757]	-3089.5	408	1106	SO[791]	-3667.5	268
1039	SO[724]	-2528.5	408	1073	SO[758]	-3106.5	268	1107	SO[792]	-3684.5	128
1040	SO[725]	-2545.5	268	1074	SO[759]	-3123.5	128	1108	SO[793]	-3701.5	408
1041	SO[726]	-2562.5	128	1075	SO[760]	-3140.5	408	1109	SO[794]	-3718.5	268
1042	SO[727]	-2579.5	408	1076	SO[761]	-3157.5	268	1110	SO[795]	-3735.5	128
1043	SO[728]	-2596.5	268	1077	SO[762]	-3174.5	128	1111	SO[796]	-3752.5	408
1044	SO[729]	-2613.5	128	1078	SO[763]	-3191.5	408	1112	SO[797]	-3769.5	268
1045	SO[730]	-2630.5	408	1079	SO[764]	-3208.5	268	1113	SO[798]	-3786.5	128
1046	SO[731]	-2647.5	268	1080	SO[765]	-3225.5	128	1114	SO[799]	-3803.5	408
1047	SO[732]	-2664.5	128	1081	SO[766]	-3242.5	408	1115	SO[800]	-3820.5	268
1048	SO[733]	-2681.5	408	1082	SO[767]	-3259.5	268	1116	SO[801]	-3837.5	128
1049	SO[734]	-2698.5	268	1083	SO[768]	-3276.5	128	1117	SO[802]	-3854.5	408
1050	SO[735]	-2715.5	128	1084	SO[769]	-3293.5	408	1118	SO[803]	-3871.5	268
1051	SO[736]	-2732.5	408	1085	SO[770]	-3310.5	268	1119	SO[804]	-3888.5	128
1052	SO[737]	-2749.5	268	1086	SO[771]	-3327.5	128	1120	SO[805]	-3905.5	408
1053	SO[738]	-2766.5	128	1087	SO[772]	-3344.5	408	1121	SO[806]	-3922.5	268
1054	SO[739]	-2783.5	408	1088	SO[773]	-3361.5	268	1122	SO[807]	-3939.5	128

No.	TextName	CX	CY
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1125	SO[810]	-3990.5	128
1126	SO[811]	-4007.5	408
1127	SO[812]	-4024.5	268
1128	SO[813]	-4041.5	128
1129	SO[814]	-4058.5	408
1130	SO[815]	-4075.5	268
1131	SO[816]	-4092.5	128
1132	SO[817]	-4109.5	408
1133	SO[818]	-4126.5	268
1134	SO[819]	-4143.5	128
1135	SO[820]	-4160.5	408
1136	SO[821]	-4177.5	268
1137	SO[822]	-4194.5	128
1138	SO[823]	-4211.5	408
1139	SO[824]	-4228.5	268
1140	SO[825]	-4245.5	128
1141	SO[826]	-4262.5	408
1142	SO[827]	-4279.5	268
1143	SO[828]	-4296.5	128
1144	SO[829]	-4313.5	408
1145	SO[830]	-4330.5	268
1146	SO[831]	-4347.5	128
1147	SO[832]	-4364.5	408
1148	SO[833]	-4381.5	268
1149	SO[834]	-4398.5	128
1150	SO[835]	-4415.5	408
1151	SO[836]	-4432.5	268
1152	SO[837]	-4449.5	128
1153	SO[838]	-4466.5	408
1154	SO[839]	-4483.5	268
1155	SO[840]	-4500.5	128
1156	SO[841]	-4517.5	408
1157	SO[842]	-4534.5	268
1158	SO[843]	-4551.5	128
1159	SO[844]	-4568.5	408
1160	SO[845]	-4585.5	268
1161	SO[846]	-4602.5	128
1162	SO[847]	-4619.5	408
1163	SO[848]	-4636.5	268
1164	SO[849]	-4653.5	128
1165	SO[850]	-4670.5	408
1166	SO[851]	-4687.5	268
1167	SO[852]	-4704.5	128
1168	SO[853]	-4721.5	408
1169	SO[854]	-4738.5	268
1170	SO[855]	-4755.5	128
1171	SO[856]	-4772.5	408
1172	SO[857]	-4789.5	268
1173	SO[858]	-4806.5	128
1174	SO[859]	-4823.5	408
1175	SO[860]	-4840.5	268
1176	SO[861]	-4857.5	128
1177	SO[862]	-4874.5	408
1178	SO[863]	-4891.5	268
1179	SO[864]	-4908.5	128
1180	SO[865]	-4925.5	408
1181	SO[866]	-4942.5	268
1182	SO[867]	-4959.5	128
1183	SO[868]	-4976.5	408
1184	SO[869]	-4993.5	268
1185	SO[870]	-5010.5	128
1186	SO[871]	-5027.5	408
1187	SO[872]	-5044.5	268
1188	SO[873]	-5061.5	128
1189	SO[874]	-5078.5	408
1190	SO[875]	-5095.5	268
1191	SO[876]	-5112.5	128
1192	SO[877]	-5129.5	408
1193	SO[878]	-5146.5	268
1194	SO[879]	-5163.5	128
1195	SO[880]	-5180.5	408
1196	SO[881]	-5197.5	268
1197	SO[882]	-5214.5	128
1198	SO[883]	-5231.5	408
1199	SO[884]	-5248.5	268
1200	SO[885]	-5265.5	128
1201	SO[886]	-5282.5	408
1202	SO[887]	-5299.5	268
1203	SO[888]	-5316.5	128
1204	SO[889]	-5333.5	408
1205	SO[890]	-5350.5	268
1206	SO[891]	-5367.5	128
1207	SO[892]	-5384.5	408
1208	SO[893]	-5401.5	268
1209	SO[894]	-5418.5	128
1210	SO[895]	-5435.5	408
1211	SO[896]	-5452.5	268
1212	SO[897]	-5469.5	128
1213	SO[898]	-5486.5	408
1214	SO[899]	-5503.5	268
1215	SO[900]	-5520.5	128
1216	SO[901]	-5537.5	408
1217	SO[902]	-5554.5	268
1218	SO[903]	-5571.5	128
1219	SO[904]	-5588.5	408
1220	SO[905]	-5605.5	268
1221	SO[906]	-5622.5	128
1222	SO[907]	-5639.5	408
1223	SO[908]	-5656.5	268
1224	SO[909]	-5673.5	128

No.	TextName	CX	CY
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1227	SO[912]	-5724.5	128
1228	SO[913]	-5741.5	408
1229	SO[914]	-5758.5	268
1230	SO[915]	-5775.5	128
1231	SO[916]	-5792.5	408
1232	SO[917]	-5809.5	268
1233	SO[918]	-5826.5	128
1234	SO[919]	-5843.5	408
1235	SO[920]	-5860.5	268
1236	SO[921]	-5877.5	128
1237	SO[922]	-5894.5	408
1238	SO[923]	-5911.5	268
1239	SO[924]	-5928.5	128
1240	SO[925]	-5945.5	408
1241	SO[926]	-5962.5	268
1242	SO[927]	-5979.5	128
1243	SO[928]	-5996.5	408
1244	SO[929]	-6013.5	268
1245	SO[930]	-6030.5	128
1246	SO[931]	-6047.5	408
1247	SO[932]	-6064.5	268
1248	SO[933]	-6081.5	128
1249	SO[934]	-6098.5	408
1250	SO[935]	-6115.5	268
1251	SO[936]	-6132.5	128
1252	SO[937]	-6149.5	408
1253	SO[938]	-6166.5	268
1254	SO[939]	-6183.5	128
1255	SO[940]	-6200.5	408
1256	SO[941]	-6217.5	268
1257	SO[942]	-6234.5	128
1258	SO[943]	-6251.5	408
1259	SO[944]	-6268.5	268
1260	SO[945]	-6285.5	128
1261	SO[946]	-6302.5	408
1262	SO[947]	-6319.5	268
1263	SO[948]	-6336.5	128
1264	SO[949]	-6353.5	408
1265	SO[950]	-6370.5	268
1266	SO[951]	-6387.5	128
1267	SO[952]	-6404.5	408
1268	SO[953]	-6421.5	268
1269	SO[954]	-6438.5	128
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1271	SO[956]	-6472.5	268
1272	SO[957]	-6489.5	128
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1274	SO[959]	-6523.5	268
1275	SO[960]	-6540.5	128
1276	SO[961]	-6557.5	408
1277	SO[962]	-6574.5	268
1278	SO[963]	-6591.5	128
1279	SO[964]	-6608.5	408
1280	SO[965]	-6625.5	268
1281	SO[966]	-6642.5	128
1282	SO[967]	-6659.5	408
1283	SO[968]	-6676.5	268
1284	SO[969]	-6693.5	128
1285	SO[970]	-6710.5	408
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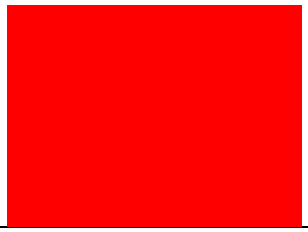
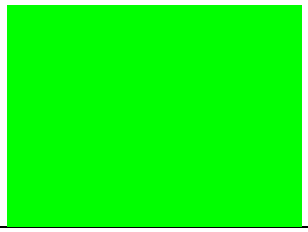
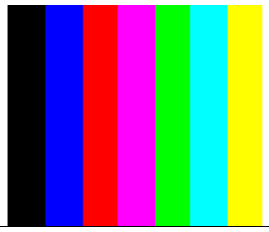
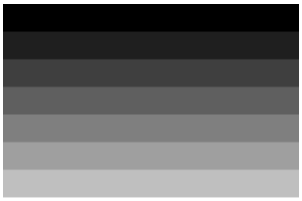
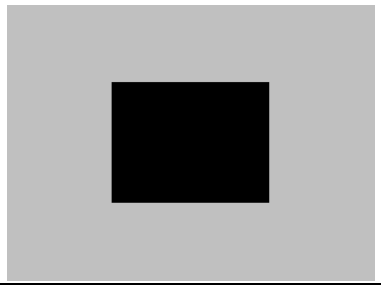
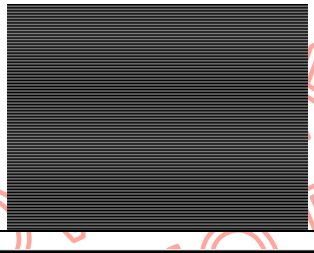
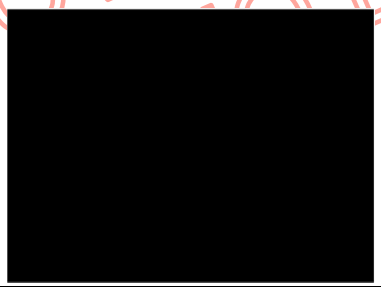
1287	SO[972]	-6744.5	128
1288	SO[973]	-6761.5	408
1289	SO[974]	-6778.5	268
1290	SO[975]	-6795.5	128
1291	SO[976]	-6812.5	408
1292	SO[977]	-6829.5	268
1293	SO[978]	-6846.5	128
1294	SO[979]	-6863.5	408
1295	SO[980]	-6880.5	268
1296	SO[981]	-6897.5	128
1297	SO[982]	-6914.5	408
1298	SO[983]	-6931.5	268
1299	SO[984]	-6948.5	128
1300	SO[985]	-6965.5	408
1301	SO[986]	-6982.5	268
1302	SO[987]	-6999.5	128
1303	SO[988]	-7016.5	408
1304	SO[989]	-7033.5	268
1305	SO[990]	-7050.5	128
1306	SO[991]	-7067.5	408
1307	SO[992]	-7084.5	268
1308	SO[993]	-7101.5	128
1309	SO[994]	-7118.5	408
1310	SO[995]	-7135.5	268
1311	SO[996]	-7152.5	128
1312	SO[997]	-7169.5	408
1313	SO[998]	-7186.5	268
1314	SO[999]	-7203.5	128
1315	SO[1000]	-7220.5	408
1316	SO[1001]	-7237.5	268
1317	SO[1002]	-7254.5	128
1318	SO[1003]	-7271.5	408
1319	SO[1004]	-7288.5	268
1320	SO[1005]	-7305.5	128
1321	SO[1006]	-7322.5	408
1322	SO[1007]	-7339.5	268
1323	SO[1008]	-7356.5	128
1324	SO[1009]	-7373.5	408
1325	SO[1010]	-7390.5	268
1326	SO[1011]	-7407.5	128

No.	TextName	CX	CY	No.	TextName	CX	CY	No.	TextName	CX	CY
1327	SO[1012]	-7424.5	408	1361	SO[1046]	-8002.5	268	1395	SO[1080]	-8580.5	128
1328	SO[1013]	-7441.5	268	1362	SO[1047]	-8019.5	128	1396	SO[1081]	-8597.5	408
1329	SO[1014]	-7458.5	128	1363	SO[1048]	-8036.5	408	1397	SO[1082]	-8614.5	268
1330	SO[1015]	-7475.5	408	1364	SO[1049]	-8053.5	268	1398	SO[1083]	-8631.5	128
1331	SO[1016]	-7492.5	268	1365	SO[1050]	-8070.5	128	1399	SO[1084]	-8648.5	408
1332	SO[1017]	-7509.5	128	1366	SO[1051]	-8087.5	408	1400	SO[1085]	-8665.5	268
1333	SO[1018]	-7526.5	408	1367	SO[1052]	-8104.5	268	1401	SO[1086]	-8682.5	128
1334	SO[1019]	-7543.5	268	1368	SO[1053]	-8121.5	128	1402	SO[1087]	-8699.5	408
1335	SO[1020]	-7560.5	128	1369	SO[1054]	-8138.5	408	1403	SO[1088]	-8716.5	268
1336	SO[1021]	-7577.5	408	1370	SO[1055]	-8155.5	268	1404	SO[1089]	-8733.5	128
1337	SO[1022]	-7594.5	268	1371	SO[1056]	-8172.5	128	1405	SO[1090]	-8750.5	408
1338	SO[1023]	-7611.5	128	1372	SO[1057]	-8189.5	408	1406	SO[1091]	-8767.5	268
1339	SO[1024]	-7628.5	408	1373	SO[1058]	-8206.5	268	1407	SO[1092]	-8784.5	128
1340	SO[1025]	-7645.5	268	1374	SO[1059]	-8223.5	128	1408	SO[1093]	-8801.5	408
1341	SO[1026]	-7662.5	128	1375	SO[1060]	-8240.5	408	1409	SO[1094]	-8818.5	268
1342	SO[1027]	-7679.5	408	1376	SO[1061]	-8257.5	268	1410	SO[1095]	-8835.5	128
1343	SO[1028]	-7696.5	268	1377	SO[1062]	-8274.5	128	1411	SO[1096]	-8852.5	408
1344	SO[1029]	-7713.5	128	1378	SO[1063]	-8291.5	408	1412	SO[1097]	-8869.5	268
1345	SO[1030]	-7730.5	408	1379	SO[1064]	-8308.5	268	1413	SO[1098]	-8886.5	128
1346	SO[1031]	-7747.5	268	1380	SO[1065]	-8325.5	128	1414	SO[1099]	-8903.5	408
1347	SO[1032]	-7764.5	128	1381	SO[1066]	-8342.5	408	1415	SO[1100]	-8920.5	268
1348	SO[1033]	-7781.5	408	1382	SO[1067]	-8359.5	268	1416	SO[1101]	-8937.5	128
1349	SO[1034]	-7798.5	268	1383	SO[1068]	-8376.5	128	1417	SO[1102]	-8954.5	408
1350	SO[1035]	-7815.5	128	1384	SO[1069]	-8393.5	408	1418	SO[1103]	-8971.5	268
1351	SO[1036]	-7832.5	408	1385	SO[1070]	-8410.5	268	1419	SO[1104]	-8988.5	128
1352	SO[1037]	-7849.5	268	1386	SO[1071]	-8427.5	128	1420	SO[1105]	-9005.5	408
1353	SO[1038]	-7866.5	128	1387	SO[1072]	-8444.5	408	1421	SO[1106]	-9022.5	268
1354	SO[1039]	-7883.5	408	1388	SO[1073]	-8461.5	268	1422	SO[1107]	-9039.5	128
1355	SO[1040]	-7900.5	268	1389	SO[1074]	-8478.5	128	1423	SO[1108]	-9056.5	408
1356	SO[1041]	-7917.5	128	1390	SO[1075]	-8495.5	408	1424	SO[1109]	-9073.5	268
1357	SO[1042]	-7934.5	408	1391	SO[1076]	-8512.5	268	1425	SO[1110]	-9090.5	128
1358	SO[1043]	-7951.5	268	1392	SO[1077]	-8529.5	128	1426	SO[1111]	-9107.5	408
1359	SO[1044]	-7968.5	128	1393	SO[1078]	-8546.5	408	1427	SO[1112]	-9124.5	268
1360	SO[1045]	-7985.5	408	1394	SO[1079]	-8563.5	268	1428	SO[1113]	-9141.5	128

No.	TextName	CX	CY
1429	SO[1114]	-9158.5	408
1430	SO[1115]	-9175.5	268
1431	SO[1116]	-9192.5	128
1432	SO[1117]	-9209.5	408
1433	SO[1118]	-9226.5	268
1434	SO[1119]	-9243.5	128
1435	SO[1120]	-9260.5	408
1436	SO[1121]	-9277.5	268
1437	SO[1122]	-9294.5	128
1438	SO[1123]	-9311.5	408
1439	SO[1124]	-9328.5	268
1440	SO[1125]	-9345.5	128
1441	SO[1126]	-9362.5	408
1442	SO[1127]	-9379.5	268
1443	SO[1128]	-9396.5	128
1444	SO[1129]	-9413.5	408
1445	SO[1130]	-9430.5	268
1446	SO[1131]	-9447.5	128
1447	SO[1132]	-9464.5	408
1448	SO[1133]	-9481.5	268
1449	SO[1134]	-9498.5	128
1450	SO[1135]	-9515.5	408
1451	SO[1136]	-9532.5	268
1452	SO[1137]	-9549.5	128
1453	SO[1138]	-9566.5	408
1454	SO[1139]	-9583.5	268
1455	SO[1140]	-9600.5	128
1456	SO[1141]	-9617.5	408
1457	SO[1142]	-9634.5	268
1458	SO[1143]	-9651.5	128
1459	SO[1144]	-9668.5	408
1460	SO[1145]	-9685.5	268
1461	SO[1146]	-9702.5	128
1462	SO[1147]	-9719.5	408
1463	SO[1148]	-9736.5	268
1464	SO[1149]	-9753.5	128
1465	SO[1150]	-9770.5	408
1466	SO[1151]	-9787.5	268
1467	SO[1152]	-9804.5	128
1468	SO[1153]	-9821.5	408
1469	SO[1154]	-9838.5	268
1470	SO[1155]	-9855.5	128
1471	SO[1156]	-9872.5	408
1472	SO[1157]	-9889.5	268
1473	SO[1158]	-9906.5	128
1474	SO[1159]	-9923.5	408
1475	SO[1160]	-9940.5	268
1476	SO[1161]	-9957.5	128
1477	SO[1162]	-9974.5	408
1478	SO[1163]	-9991.5	268
1479	SO[1164]	-10008.5	128
1480	SO[1165]	-10025.5	408
1481	SO[1166]	-10042.5	268
1482	SO[1167]	-10059.5	128
1483	SO[1168]	-10076.5	408
1484	SO[1169]	-10093.5	268
1485	SO[1170]	-10110.5	128
1486	SO[1171]	-10127.5	408
1487	SO[1172]	-10144.5	268
1488	SO[1173]	-10161.5	128
1489	SO[1174]	-10178.5	408
1490	SO[1175]	-10195.5	268
1491	SO[1176]	-10212.5	128
1492	SO[1177]	-10229.5	408
1493	SO[1178]	-10246.5	268
1494	SO[1179]	-10263.5	128
1495	SO[1180]	-10280.5	408
1496	SO[1181]	-10297.5	268
1497	SO[1182]	-10314.5	128
1498	SO[1183]	-10331.5	408
1499	SO[1184]	-10348.5	268
1500	SO[1185]	-10365.5	128
1501	SO[1186]	-10382.5	408
1502	SO[1187]	-10399.5	268
1503	SO[1188]	-10416.5	128
1504	SO[1189]	-10433.5	408
1505	SO[1190]	-10450.5	268
1506	SO[1191]	-10467.5	128
1507	SO[1192]	-10484.5	408
1508	SO[1193]	-10501.5	268
1509	SO[1194]	-10518.5	128
1510	SO[1195]	-10535.5	408
1511	SO[1196]	-10552.5	268
1512	SO[1197]	-10569.5	128
1513	SO[1198]	-10586.5	408
1514	SO[1199]	-10603.5	268
1515	SO[1200]	-10620.5	128
1516	SHIELDING[76]	-10664	428
1517	COM1_T	-10714	428
1518	COM1_T	-10764	428
1519	SHIELDING[77]	-10814	428
1520	DCMPR	-10864	428
1521	DCMPR	-10914	428
1522	OEVR	-11049	328
1523	INVBRR	-11049	408

Appendix B: BIST Pattern

No.	Pattern	Test function Description	Notice
1		1. Color alignment with color filter.	
2		1. Color alignment with color filter.	
3		1. Color alignment with color filter.	
4	Black		
5	White		
6		1. Customer standard test pattern. 2. Color alignment with color filter. 3. Driver scan direction.	
7		1. Customer standard test pattern.	

No.	Pattern	Test function Description	Notice
8		1. Customer standard test pattern.	
9		1. Cross talk	
10		1. Chessboard pattern.	
11		1. Black-Gray(128) flicker pattern	
12		Black background and White circle	