



CUSTOMER APPROVAL SHEET

Company Name	
MODEL	C080VW04 V0
CUSTOMER APPROVED	Title : Name :

- ☐ APPROVAL FOR SPECIFICATIONS ONLY (Spec. Ver. ____)
- ☐ APPROVAL FOR SPECIFICATIONS AND ES SAMPLE (Spec. Ver. ____)
- ☒ APPROVAL FOR SPECIFICATIONS AND CS SAMPLE (Spec. Ver. 1.4)
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Product Specification

8.0" COLOR TFT-LCD MODULE

MODEL NAME: C080VW04 V0

< >Preliminary Specification

< ◆ >Final Specification

Note: The content of this specification is subject to change.

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Record of Revision

Version	Revise Date	Page	Content
0.0	2009/08/04		First draft.
0.1	2009/08/05	5	Update module weight
		9	Update FPC connector
		15	Update electrical characteristics
		17	Update power on/off sequence
		21	Update white chromaticity
		21	Update optical specifications
0.2	2009/10/28	5	Update physical specifications
		7	Update outline dimension
		10	Update note b and note c for TFT LCD panel pin assignment
		12	Update touch sensor FPC pin assignment
		17	Modify power on/off sequence
		21	Update note 2 of optical specifications
		23	Update note 10 & note 13 of optical specifications
0.3	2009/12/15	5	Update physical specifications
		23	Update note 13 of optical specifications
		26	Update packing and marking
0.4	2010/02/11	17, 18, 19	Modify power on/off sequence
0.5	2010/08/17	6	Change the writing of AGLR film
	2010/08/17	7, 8	Update outline dimension
	2010/08/17	15	Modify electrical characteristics
	2010/08/17	16	Modify backlight driving conditions
	2010/08/17	17	Modify power on off sequence
	2010/08/17	21, 23	Modify optical specifications
0.6	2010/09/06	6	Update the thickness of TP
	2010/10/19	7, 8	Update the drawing (BL connector)
	2010/10/19	17, 18	Update the power on off sequence
0.7	2010/11/01	4	Modify LCD features
	2010/11/01	5, 6	Change Physical Specifications
	2010/11/01	21, 23	Modify optical specifications

0.8	2011/01/21	9	Update the drawing
0.9	2011/07/22	16 、 20	Modify VGH / VCOM / DCLK data
		22	Modify color chromaticity
1.0	2011/08/05	22	Modify color chromaticity
1.1	2011/08/26	22 、 23	Modify color chromaticity
1.2	2011/12/27	28	Add Gamma Voltage
1.3	2012/03/21	23	Add warm up 30min 、 SR3 and 70mA
1.4	2012/03/27	23	Revise BLU IL 70mA to 80mA

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A. General Description

C080VW04 V0 is an a-Si type Thin Film Transistor Liquid crystal Display (TFT-LCD) with AMVA-Mobile (Advanced MVA) technology. This model is composed of a TFT-LCD, driver ICs, an FPC (flexible printed circuit), and a backlight unit. TCON (timing controller) is also embedded in source driver.

B. Features

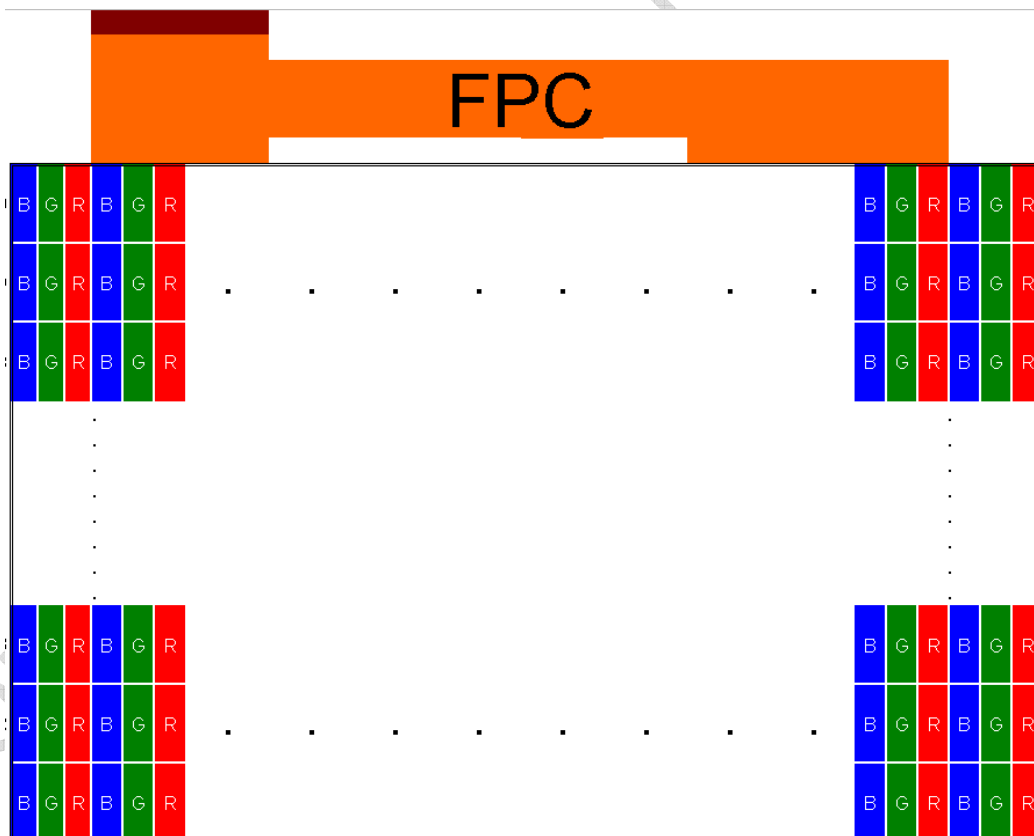
- 8-inch (15:9) display
- 800RGB x 480 resolution in RGB stripe dot arrangement
- High brightness
- Interfaces: parallel RGB 24-bit (6+2bit FRC)
- Advanced MVA -- wide view technology
- RoHs compliance

C. Physical Specifications

1. TFT LCD Panel

NO.	Item	Unit	Specification	Remark
1	Display Resolution	dot	800 RGB (H)×480(V)	
2	Active Area	mm	174(H)×104.4(V)	
3	Screen Size	inch	8 (Diagonal)	
4	Dot Pitch	mm	0.2175(H)× 0.2175(V)	
5	Color Configuration	--	R. G. B. Stripe	Note 1
6	Color Depth	--	16.2M Colors	
7	Overall Dimension	mm	188.5(H) × 123(V) ×8.25(T)	Note 2
8	Weight	g	320	
9	Display Mode	--	Normally Black	
10	Surface Treatment		AG, 3H	

Note 1: Below figure shows dot stripe arrangement.



Note 2: Not include backlight cable and FPC. Please refer to the drawing in page 7 for further information.

2. Touch Sensor

NO.	Item	Unit	Specification	Remark
1	Screen size	inch	8"	
2	TP Active Area	mm	176(H)×106.4(V)	
3	Channel (Resolution)	--	26(H)×16(V)	
4	Sensor Pitch	mm	6.77(H)× 6.65(V)	
5	Sensor Mode	--	Capacitance sensor	
6	TP Dimension	mm	182(H) × 111.6(V) ×1.1(T)	Exclude PF film

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[illegible]

E. Electrical Specifications

1. TFT LCD Panel Pin Assignment

Recommended Connector: MOLEX, 02790-6491

No.	Pin Name	I/O	Description	Remarks
1	VCOM	I	Common electrode driving voltage	
2	GND	P	Ground	
3	VGL	P	Negative power supply voltage for Gate driver	
4	VDDIO	P	Digital power supply voltage	
5	VGH	P	Positive power supply voltage for Gate driver	
6	VCOM	I	Common electrode driving voltage	
7	GND	P	Ground	
8	VDDIO	P	Positive power supply voltage	
9	DE	I	Data enable input (High active)	
10	GND	P	Ground	
11	DCLK	I	Data clock input	
12	GND	P	Ground	
13	DB7	I	Blue data(MSB)	
14	DB6	I	Blue data	
15	DB5	I	Blue data	
16	DB4	I	Blue data	
17	GND	P	Ground	
18	DB3	I	Blue data	
19	DB2	I	Blue data	
20	DB1	I	Blue data	
21	DB0	I	Blue data(LSB)	
22	GND	P	Ground	
23	DG7	I	Green data(MSB)	
24	DG6	I	Green data	
25	DG5	I	Green data	
26	DG4	I	Green data	
27	GND	P	Ground	
28	DG3	I	Green data	
29	DG2	I	Green data	
30	DG1	I	Green data	
31	DG0	I	Green data(LSB)	
32	GND	P	Ground	
33	DR7	I	Red data(MSB)	
34	DR6	I	Red data	

35	DR5	I	Red data	
36	DR4	I	Red data	
37	GND	P	Ground	
38	DR3	I	Red data	
39	DR2	I	Red data	
40	DR1	I	Red data	
41	DR0	I	Red data(LSB)	
42	GND	P	Ground	
43	L/R	I	Left/Right selection	Note2
44	U/D	I	Up/Down selection	Note2
45	RST	I	Reset	Note1
46	GND	P	Ground	
47	V14	I	Gamma correction voltage reference	
48	V13	I	Gamma correction voltage reference	
49	V12	I	Gamma correction voltage reference	
50	V11	I	Gamma correction voltage reference	
51	V10	I	Gamma correction voltage reference	
52	V9	I	Gamma correction voltage reference	
53	V8	I	Gamma correction voltage reference	
54	V7	I	Gamma correction voltage reference	
55	V6	I	Gamma correction voltage reference	
56	V5	I	Gamma correction voltage reference	
57	V4	I	Gamma correction voltage reference	
58	V3	I	Gamma correction voltage reference	
59	V2	I	Gamma correction voltage reference	
60	V1	I	Gamma correction voltage reference	
61	AVDD	P	Analog power supply voltage	
62	AVDD	P	Analog power supply voltage	
63	GND	P	Ground	
64	VCOM	P	Common electrode driving voltage	

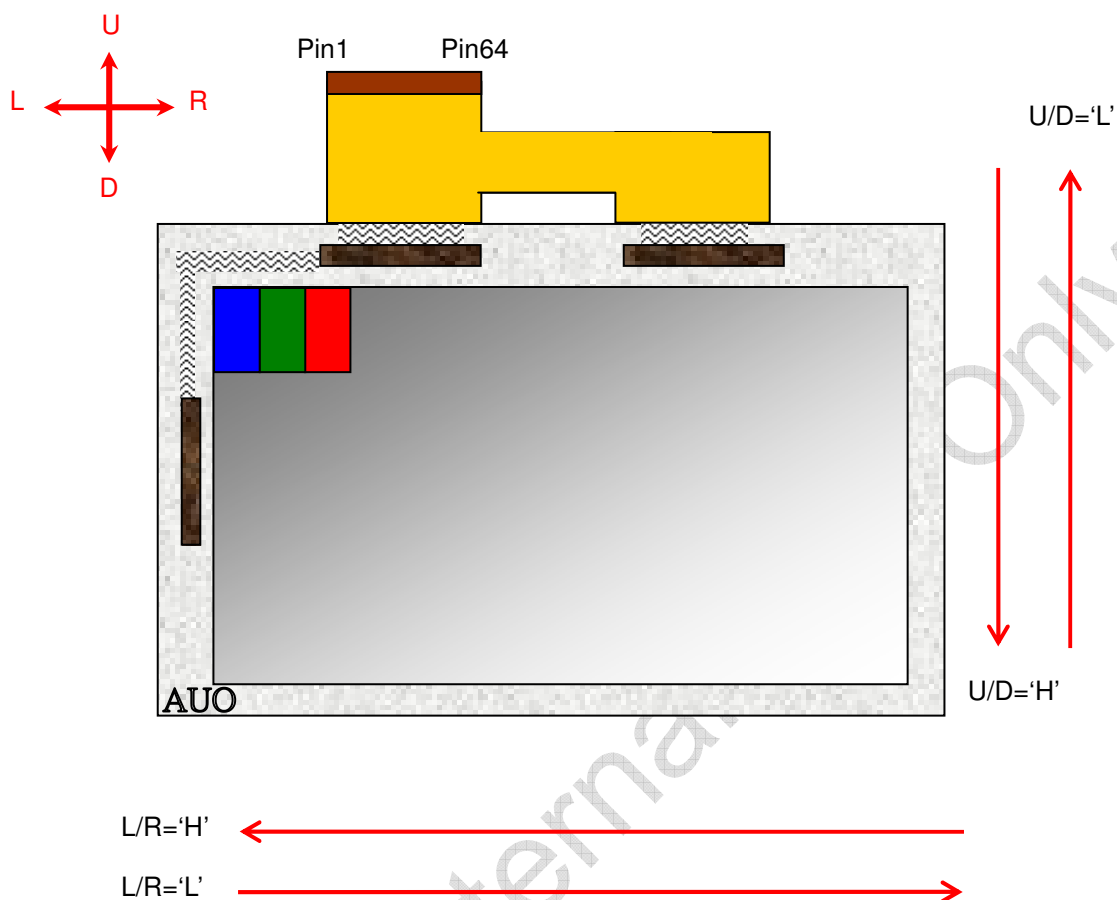
I: Digital signal input, P: Power input

Note a: Global reset, normally pulled high. Suggest to connecting with an RC (R=10K ohm, C=1uF) reset circuit for stability. Normally pull high.

Note b:

U/D	Direction	L/R	Direction
H	U → D	H	R → L
L	D → U	L	L → R

Note c:

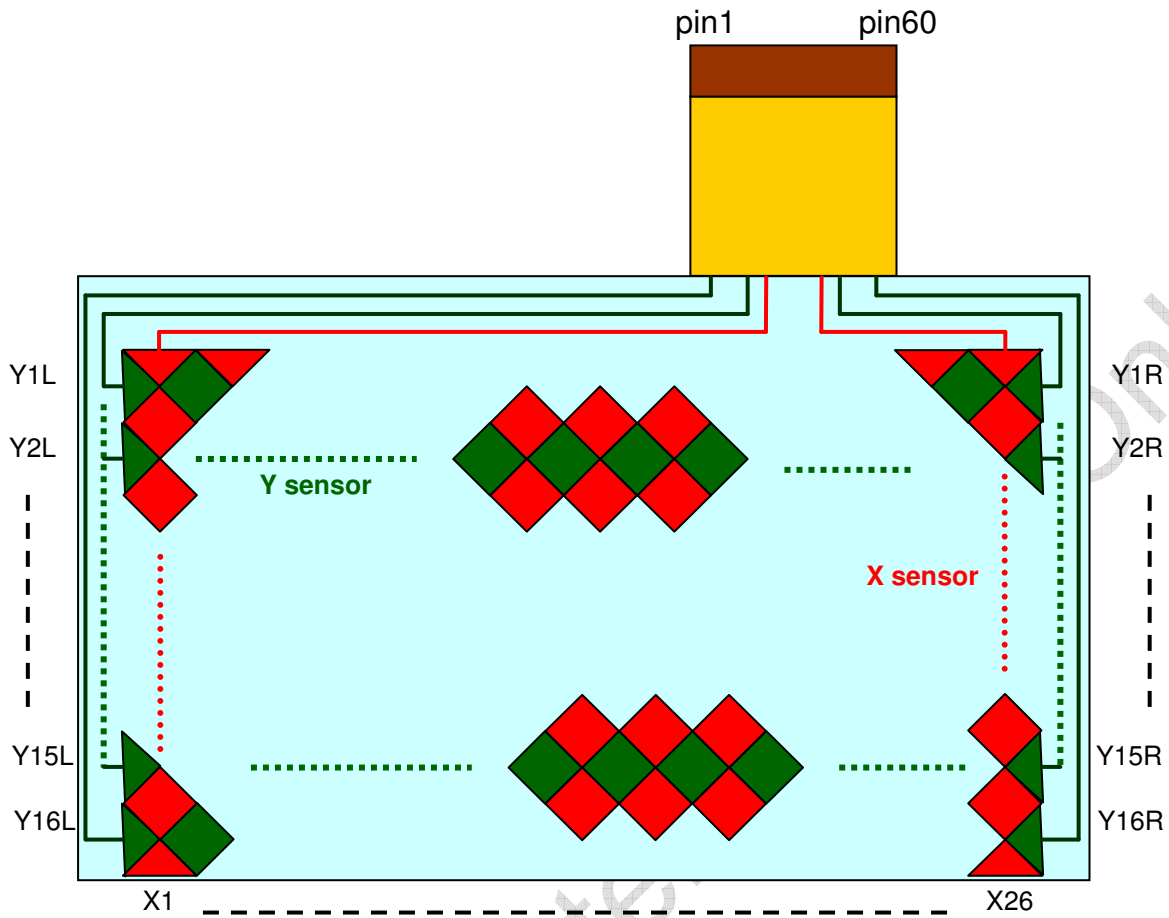


2. Touch Sensor FPC Pin Assignment

Recommended Connector: MOLEX, 02790-60491

No.	Pin Name	Description	Remarks
1	Y16L	16th Left Y Channel	
2	Y15L	15th Left Y Channel	
3	Y14L	14th Left Y Channel	
4	Y13L	13th Left Y Channel	
5	Y12L	12th Left Y Channel	
6	Y11L	11th Left Y Channel	
7	Y10L	10th Left Y Channel	
8	Y9L	9th Left Y Channel	
9	Y8L	8th Left Y Channel	
10	Y7L	7th Left Y Channel	
11	Y6L	6th Left Y Channel	
12	Y5L	5th Left Y Channel	
13	Y4L	4th Left Y Channel	
14	Y3L	3rd Left Y Channel	
15	Y2L	2nd Left Y Channel	
16	Y1L	1st Left Y Channel	
17	NC		
18	X1	1st X Channel	
19	X2	2nd X Channel	
20	X3	3rd X Channel	
21	X4	4th X Channel	
22	X5	5th X Channel	
23	X6	6th X Channel	
24	X7	7th X Channel	
25	X8	8th X Channel	
26	X9	9th X Channel	
27	X10	10th X Channel	
28	X11	11th X Channel	
29	X12	12th X Channel	
30	X13	13th X Channel	
31	X14	14th X Channel	
32	X15	15th X Channel	
33	X16	16th X Channel	
34	X17	17th X Channel	
35	X18	18th X Channel	

36	X19	19th X Channel	
37	X20	20th X Channel	
38	X21	21st X Channel	
39	X22	22nd X Channel	
40	X23	23rd X Channel	
41	X24	24th X Channel	
42	X25	25th X Channel	
43	X26	26th X Channel	
44	NC		
45	Y1R	1st Right Y Channel	
46	Y2R	2nd Right Y Channel	
47	Y3R	3rd Right Y Channel	
48	Y4R	4th Right Y Channel	
49	Y5R	5th Right Y Channel	
50	Y6R	6th Right Y Channel	
51	Y7R	7th Right Y Channel	
52	Y8R	8th Right Y Channel	
53	Y9R	9th Right Y Channel	
54	Y10R	10th Right Y Channel	
55	Y11R	11th Right Y Channel	
56	Y12R	12th Right Y Channel	
57	Y13R	13th Right Y Channel	
58	Y14R	14th Right Y Channel	
59	Y15R	15th Right Y Channel	
60	Y16R	16th Right Y Channel	



3. Absolute Maximum Ratings (Note d, e)

Items	Symbol	Values		Unit	Condition
		Min.	Max.		
Power Voltage	VDDIO	-0.5	5	V	GND = 0
	AVDD	-0.5	15	V	GND = 0
	VGH	-0.3	VGL + 40	V	GND = 0
	VGL	-20	0.3	V	GND = 0
	VGH-VGL	-0.3	40	V	GND = 0
Input Signal Voltage	Vi	-0.3	VDDIO + 0.3	V	GND = 0
	VCOM	0	7.5	V	GND = 0
Operation Temperature	Topa	-30	+85	°C	Ambient
Storage Temperature	Tstg	-40	+95	°C	Ambient

Note d: Functional operation should be restricted under normal ambient temperature.

Note e: Short time operation between -40°C ~ -30°C doesn't provide complete performance but a Correct Image on the LCD. The LCD is guaranteed to suffer no permanent damage.

4. Electrical Characteristics

The following items are measured under stable condition and suggested application circuit.

a. TFT- LCD Panel

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Power Supply	VDDIO	3.0	3.3	3.6	V	
	IVDDIO	—	10	15	mA	
	AVDD	12.7	13	13.3	V	
	IAVDD	—	18	27	mA	
	VGH	14	15	16	V	
	IVGH	—	0.16	0.21	mA	
	VGL	-10.5	-10	-9.5	V	
	IVGL	—	0.16	0.21	mA	
	VCOM	--	5.3	--	V	
	IVCOM	—	0.01	0.015	mA	
Input Signal Voltage	Vi	0	--	VDDIO	V	
	Vn (V1~V7)	0.4xAVDD	--	AVDD-0.3	V	
	Vn (V8~V14)	0.3	--	0.6xAVDD	V	
Input high level voltage	Vih	0.7xVDDIO	--	VDDIO	V	
Input low level voltage	Vil	0	--	0.3xVDDIO	V	

b. Backlight Driving Conditions (Note g, j)

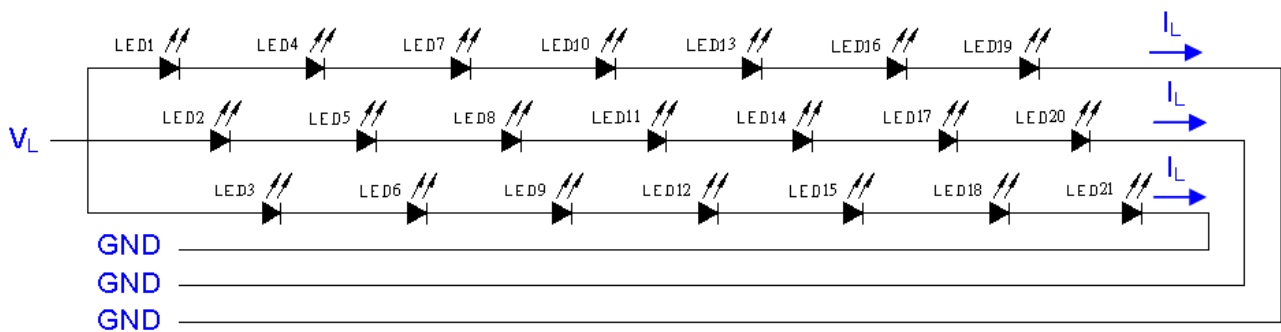
Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED Supply Current	I_L	-	80	85	mA	single serial (Note i)
LED Supply Voltage	V_L	-	(24.5)	28	V	Note i
LED Life Time	L_L	10000	---	---	Hr	Note h

Note g: LED backlight is 21 LEDs (3 strings, 7pcs for each string).

Note h: The LED lifetime 10000hrs means , after normal use at 80mA, under +25 ° C, the brightness decreases to 50% of original level.

Note i: The LED supply power is for 3 string of LED

Note j: Be sure your system can provide enough voltage driving capability (larger than 28V is recommended) to provide 80mA for each LED or the brightness is possible to be below spec.



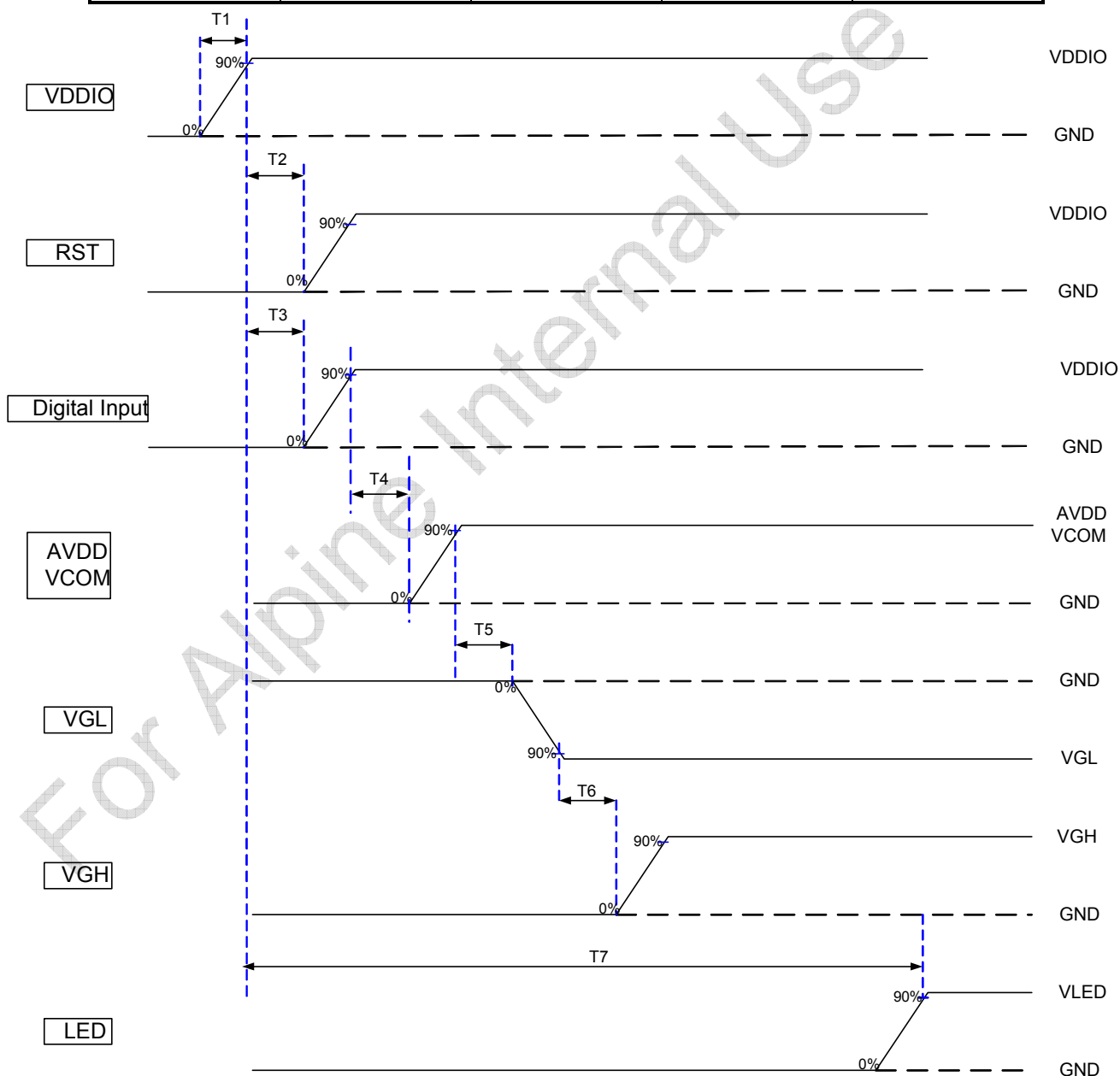
5. AC Timing

a. Power on/off sequence

The LCD adopts high voltage driver IC, so it could be permanently damaged under a wrong power on/off sequence. The suggested LCD power sequence is below:

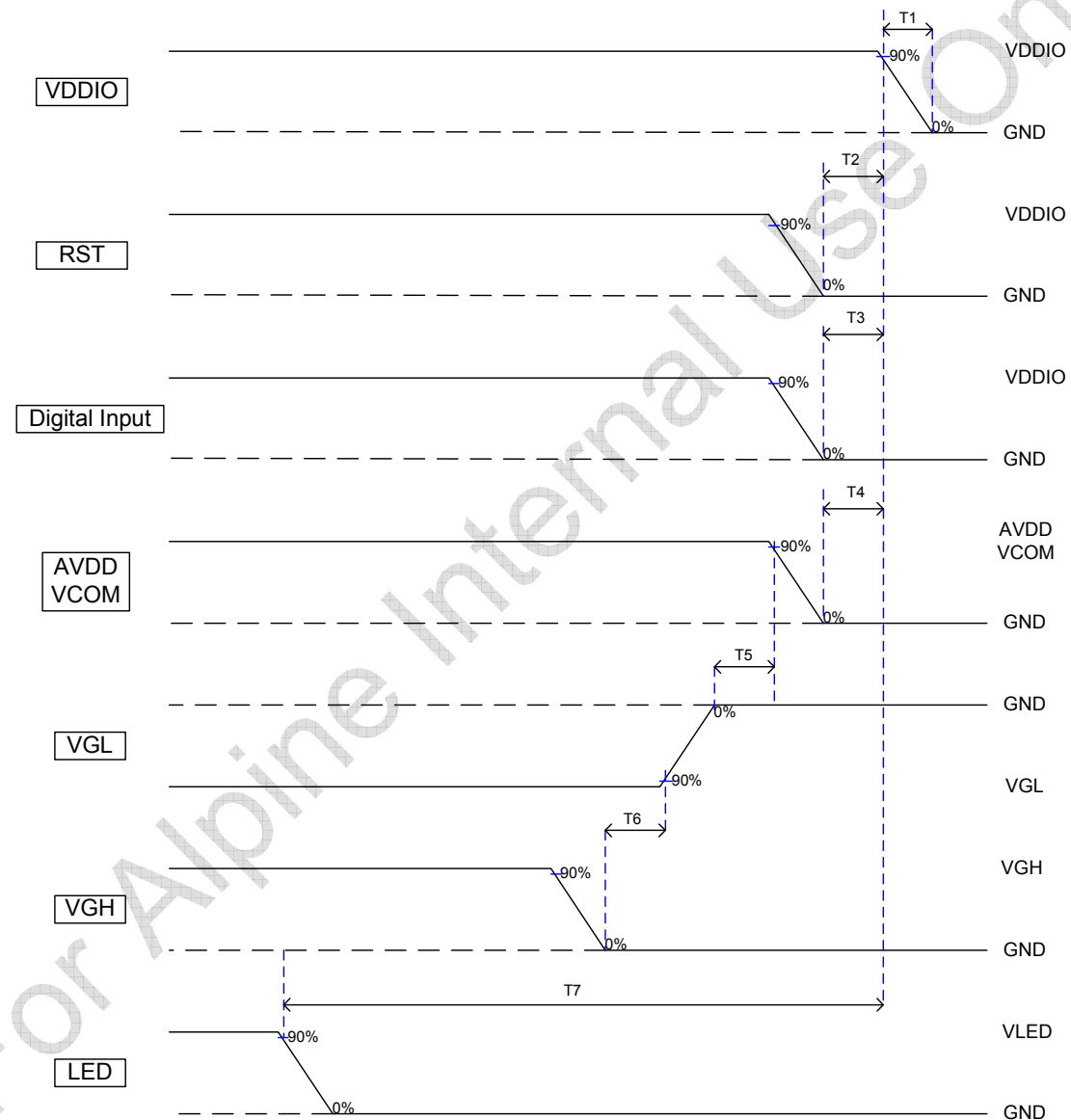
Power on sequence:

Parameter	Value			Unit
	Min.	Typ.	Max.	
T1	0	--	20	ms
T2	0	--	32	ms
T3	0	--	32	ms
T4	167	--	200	ms
T5	0	--	20	ms
T6	0	--	10	ms
T7	--	1000	--	ms



Power off sequence:

Parameter	Value			Unit
	Min.	Typ.	Max.	
T1	--	--	20	ms
T2	0	--	32	ms
T3	0	--	32	ms
T4	0	--	32	ms
T5	0	--	20	ms
T6	0	--	10	ms
T7	100	--	--	ms

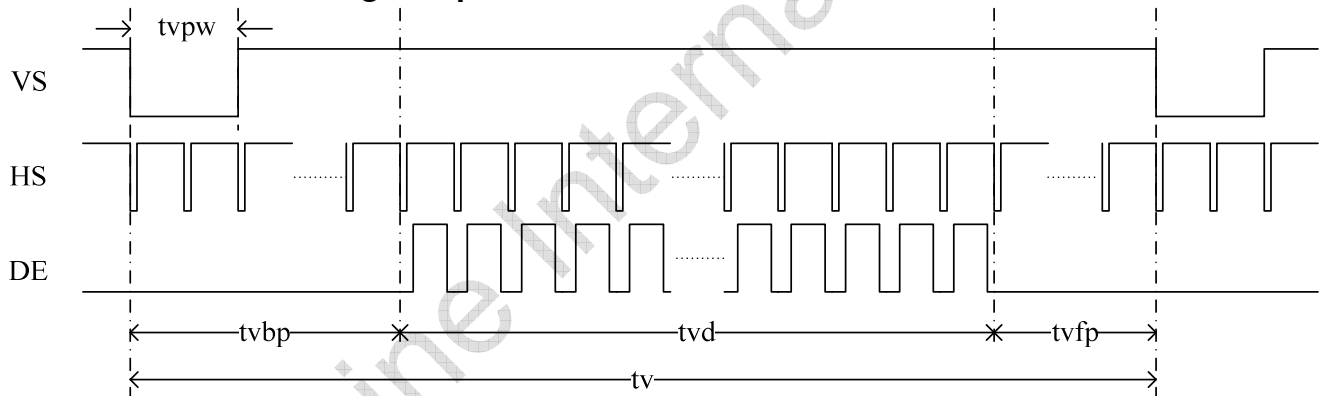


b. Timing Condition

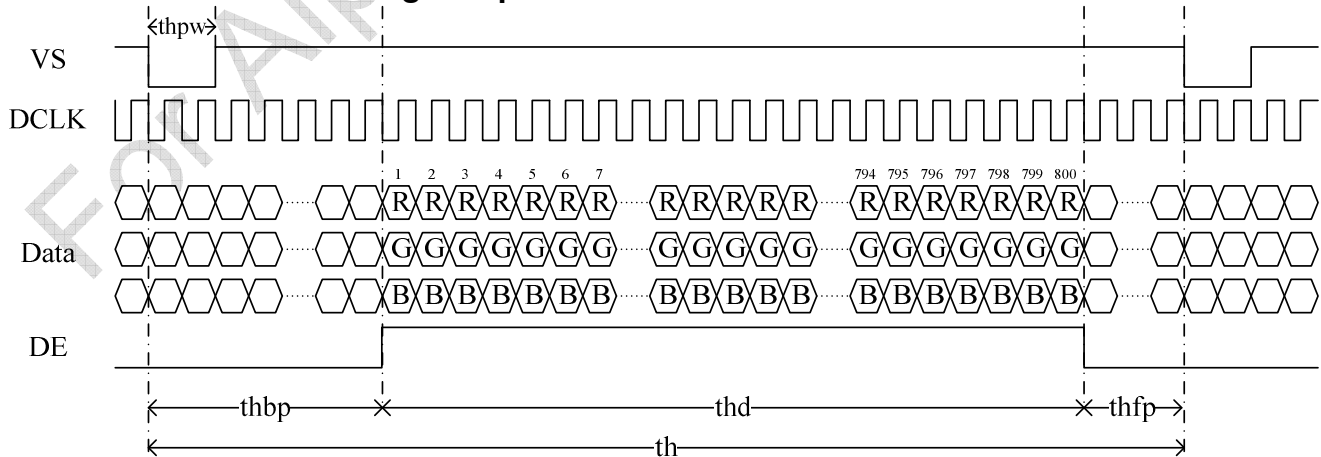
Item	Symbol	Min	Typ	Max	Unit	Remark
Clock frequency	dclk	--	33.26	50	MHZ	
DCLK cycle time	tdclk	25	30	--	ns	
DCLK pulse duty	tcwh	8	15	--	ns	
Vertical display area	tvd	480	480	480	H	
Vertical period area	tv	520	525	762	H	
Vertical blanking area	tvb	40	45	282	H	$tvb = tvbp + tvfp$
Horizontal display area	thd	800	800	800	dclk	
Horizontal period area	th	910	1056	1138	dclk	
Horizontal blanking area	thb	110	256	338	dclk	$thd = thbp + thfp$
Data setup time	tdsu	8	--	--	ns	
Data hold time	tdhd	8	--	--	ns	
DE setup time	tesu	8	--	--	ns	

c. Timing Diagram

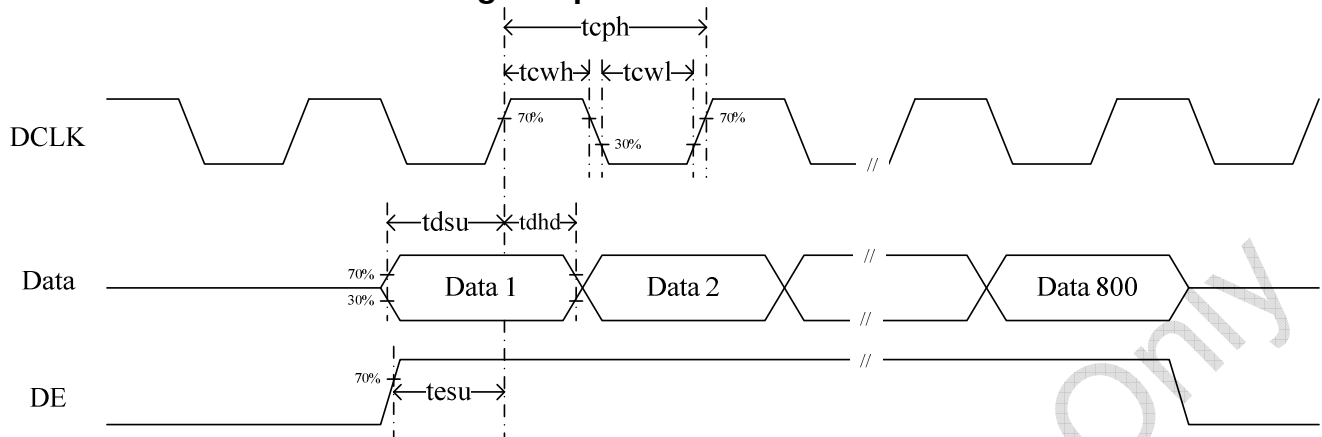
Vertical Timing of Input



Horizontal Timing of Input



Clock and Data Timing of Input



F. Optical specifications (Note 1, 2)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Response Time		$\theta = 0^\circ$	-	35	45	ms	Note 3, 12
Viewing Angle		ID129 Area via measuring specific points	100	-	-	-	Note 4, 5, 6, 11
Brightness	Y_L	$\theta = 0^\circ$	400	(500)	-	cd/m ²	Note 7, 8, 9
		ID150 Area	300	-	-	cd/m ²	Note 7, 8, 9, 11
		ID129 Area	200	-	-	cd/m ²	Note 7, 8, 11
White Chromaticity	X	$\theta = 0^\circ$	0.288	0.318	0.348		Note 8, 11
	Y	$\theta = 0^\circ$	0.288	0.318	0.348		
Red Chromaticity	X	$\theta = 0^\circ$	0.550	0.590	0.630		
	Y	$\theta = 0^\circ$	0.290	0.330	0.370		
Green Chromaticity	X	$\theta = 0^\circ$	0.280	0.320	0.360		
	Y	$\theta = 0^\circ$	0.530	0.570	0.610		
Blue Chromaticity	X	$\theta = 0^\circ$	0.105	0.145	0.185		
	Y	$\theta = 0^\circ$	0.070	0.110	0.150		
NTSC Ratio			- -	50	-	%	
Uniformity		-	80	-	-	%	Note 10

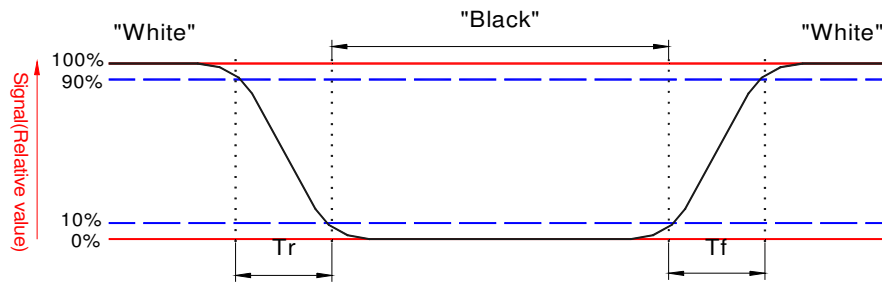
Note 1: Measurement should be performed in the dark room, optical ambient temperature =25°C, and backlight current $I_L=80\text{ mA}$

Note 2: To be measured on the center area of panel with a field angle of 1° by Topcon luminance meter SR3, after 10 minutes operation and warm up 30min.

Note 3: Definition of response time:

The output signals of photo detector are measured when the input signals are changed from “black”

to "white"(falling time) and from "white" to "black"(rising time), respectively.



Note 4. From liquid crystal characteristics, response time will become slower and the color of panel will become darker when ambient temperature is below 25°C .

Note 5. Contrast ratio is calculated with the following formula.

$$\text{Contrast ratio} = \frac{\text{Photo detector output when LCD is at "White" state}}{\text{Photo detector output when LCD is at "Black" state}}$$

Note 6. White $V_i = V_{i50} \pm 1.5V$

Black $V_i = V_{i50} \pm 2.0V$

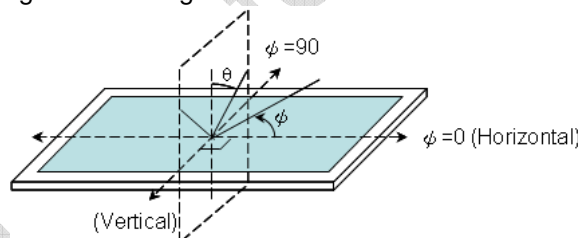
"±" means that the analog input signal swings in phase with COM signal.

"∓" means that the analog input signal swings out of phase with COM signal.

V_{i50} :The analog input voltage when transmission is 50%

The 100% transmission is defined as the transmission of LCD panel when all the input terminals of module are electrically opened.

Note 7. Definition of viewing angle: refer to figure as below.

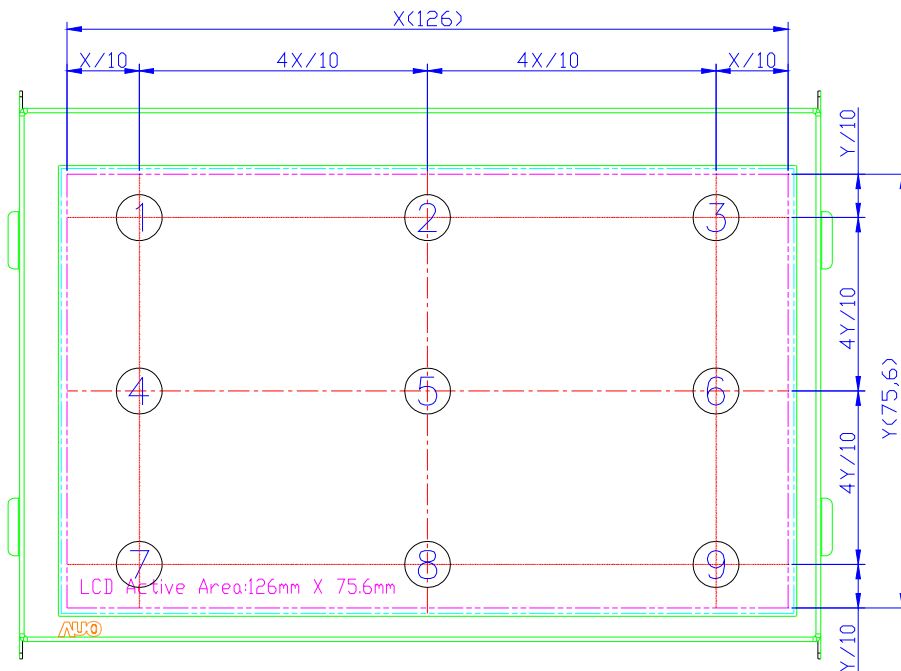


Note 8. The viewing angles are measured at the center area of the panel when all the input terminals of LCD panel are electrically opened.

If user find panel that is out of color range, AUO will proceed to RMA(Return Material Authorisation) process to exange panel piece by piece and not include to failure rate.

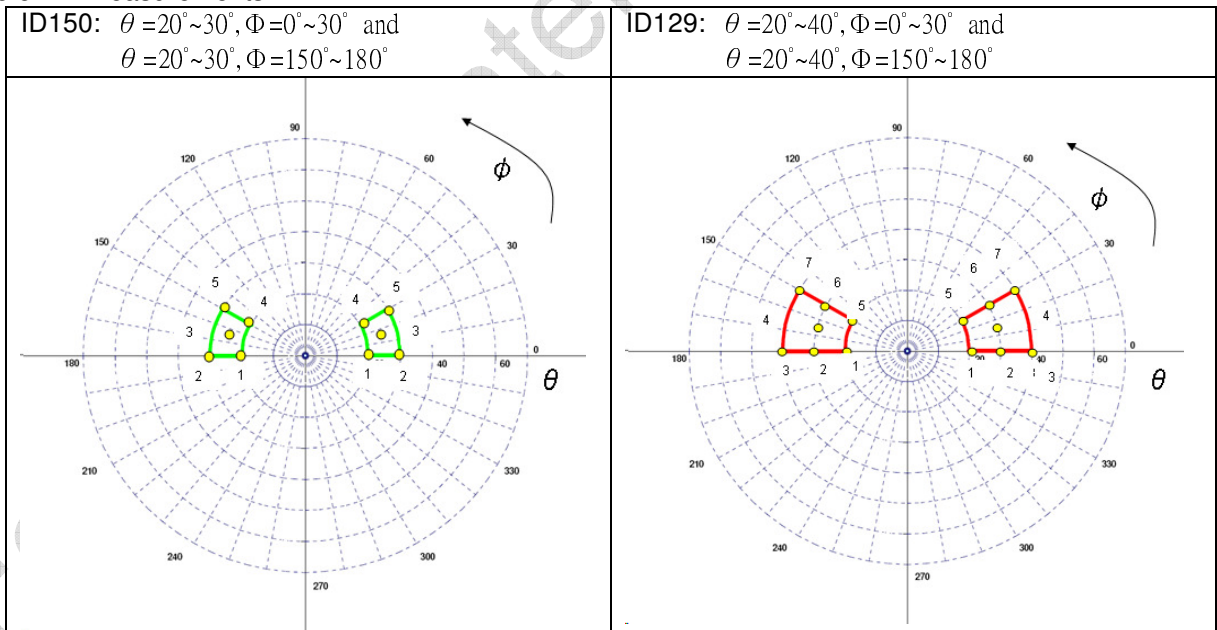
Note 9. Brightness is measured at the center of the display.

Note 10. Luminance Uniformity is defined as following within the 9 measurements (L1~L9),
Luminance Uniformity(%) = Minimum luminance(brightness)/Maximum luminance(brightness)



(Not including FPC. Please refer to the drawing in page 6 for further information.)

Note 11. Definition of ID129 area and ID150 area. Viewing angle at ID129 is defined as following within the average of 14 measurements.



Note 12.

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Response Time -20℃ -30℃		$\theta = 0^\circ$	- -	300 1000	400 1200	ms ms	

G. Reliability Test Items (Note 2,4)

No.	Test items	Conditions		Remark
1	High temperature storage	Ta= 95℃	240Hrs	Note1
2	Low temperature storage	Ta= -40℃	240Hrs	
3	High temperature operation	Ta= 85℃	240Hrs	
4	Low temperature operation	Ta= -30℃	240Hrs	Note1, 3
5	High temperature and high humidity	Ta= 60℃, 90% RH	240Hrs	Operation
6	Heat shock	-30℃~85℃/100 cycles 1Hrs/cycle		Non-operation
7	Electrostatic Discharge	Contact = ± 4 kV, class B Air = ± 8 kV, class B		IEC61000-4-2
8	Vibration	Frequency range	8~33.3Hz	JIS D1601,A10 Condition A
		Stoke	1.3mm	
		Sweep	2.9G, 33.3~400Hz	
		Cycle	15min.	
		2 hours for each direction of X, Z 4 hours for Y direction		
9	Mechanical shock	100G, 6ms, ±X,±Y,±Z 3 times for each direction		
10	Vibration (with carton)	Random vibration: 0.015G ² /Hz from 5~200Hz -6dB/Octave from 200~500Hz		IEC 68-34
11	Drop (with carton)	Height: 60cm 1 corner, 3 edges, 6 surfaces		

Note 1: Ta: Ambient temperature.

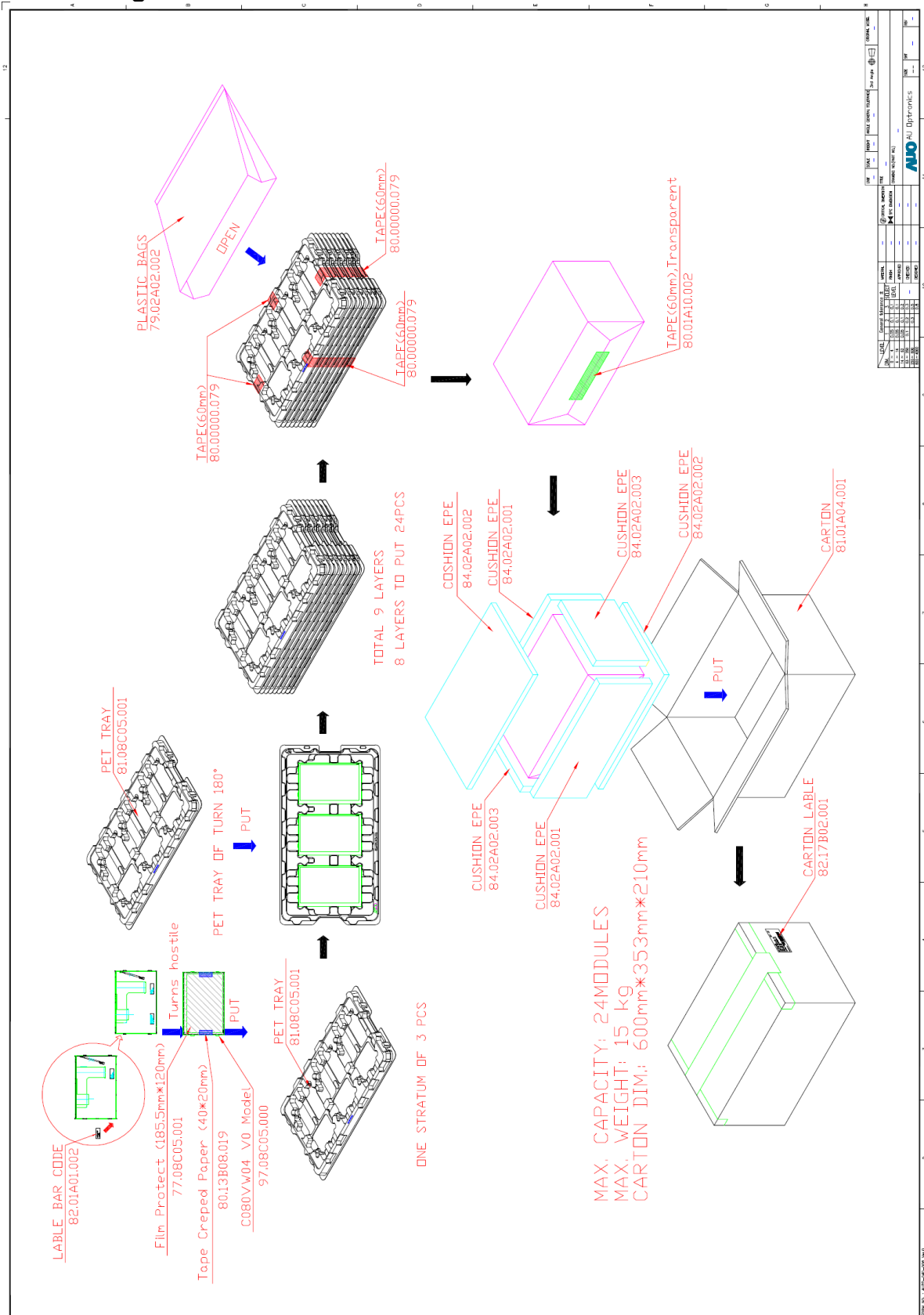
Note 2: In the standard condition, there is not display function NG issue occurred. All the cosmetic specification is judged before the reliability stress.

Note 3: Short time operation between -40℃~-30℃ doesn't provide full performance but a correct image on the LCD. The LCD is guaranteed to suffer no permanent damage.

Note 4: I_L=70mA

H. Packing and Marking

1. Packing Form



2. Module/Panel Label Information

The module/panel (collectively called as the "Product") will be attached with a label of Shipping Number which represents the identification of the Product at a specific location. Refer to the Product outline drawing for detailed location and size of the label. The label is composed of a 22-digit serial number with the following definition:

ABCDEFGHIJKLMNQRSTU

- For internal system usage and production serial numbers.
- AUO Module or Panel factory code, represents the final production factory to complete the Product
- Product version code, ranging from 0~9 or A~Z (for Version after 9)
- Week Code, the production week when the product is finished at its production process

Example:

501M06ZL06123456781Z05:

Product Manufacturing Week Code: WK50

Product Version: Version 1

Product Manufacturing Factory: M06

3. Carton Label Information

The packing carton will be attached with a carton label where packing Q'ty, AUO Model Name, AUO Part Number, Customer Part Number (Optional) and a series of Carton Number in 13 or 14 digits are printed. The Carton Number is appearing in the following format:

ABC-DEFG-HIJK-LMN

- DEFG appear after first "-" represents the packing date of the carton
- Date from 01 to 31
- Month, ranging from 1~9, A~C. A for Oct, B for Nov and C for Dec.
- A.D. year, ranging from 1~9 and 0. The single digit code represents the last number of the year

Refer to the drawing of packing format for the location and size of the carton label.

I. Appendix

1. Gamma Voltage

Symbol	Data	Voltage (V)
AVDD	--	13
V1	255	12.2
V2	248	11.9
V3	188	10.4
V4	124	9.85
V5	60	9.35
V6	4	8.00
V7	0	7.10
V8	0	5.90
V9	4	5.00
V10	60	3.65
V11	124	3.25
V12	188	2.55
V13	248	0.9
V14	255	0.6

Note. This gamma voltage is reference value of gamma 2.2 and AUO recommended at perpendicular.