

PRODUCT SPECIFICATION

6.0" EPD MODULE MODEL: YDP EI 600 I



- < ◇ > Preliminary Specification
< ◆ > Finally Specification

CUSTOMER'S APPROVAL	
CUSTOMER :	
SIGNATURE:	DATE:

APPROVED BY	PM REVIEWED	PD REVIEWED	PREPARED BY
TFT S. G. H 20220929	_____	_____	TFT L. Q 20220929



Revision History

Revision	Date	Originator	Detail	Remarks
1.0	2022.09.29	LQ	Initial Release	

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1. General Description

The Product is an Active Matrix Electrophoretic Display(AM EPD), High-Resolution AM TFT Black/White display module which can be used in portable electronic devices, such as E-book Reader. The module is a TFT-array driving electrophoretic display, with integrated circuits including source and gate drivers. The resolution of the module is 1024×758 (XGA) , and the active area is 6 inch diagonal.

2. Module Parameter

Features	Details	Unit
Display Size(Diagonal)	6.0"	
Resolution	1024 X 758	Dots
Module Outline	101.8(H) x 138.4(V) x 1.34(T) (Note1)	mm
Active Area	90.581 (H) x 122.368(V)	mm
Pixel Pitch	119.5(H) x 119.5(V)	um
Pixel configuration	Square	
Operating Temperature	0~50	°C
Storage Temperature	-25~70	°C
Weight	(45)	g

Note 1: Exclusive hooks, posts, FFC/FPC tail etc.

3. DC Characteristics

V_{SS}=0V, Ta=25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Signal ground	VSS		-	0	-	V
Logic Voltage supply	VDD		3.0	3.3	3.6	V
	IVDD	VDD=3.3V	-	2.0	-	mA
Gate Positive supply	VGH		21	22	23	V
	IVGH	VGH=22V	-	0.6	-	mA
Gate Negative supply	VGL		-21	-20	-19	V
	IVGL	VGL=-20V	-	-3.0	-	mA
Source Positive supply	VPOS		14.6	15	15.4	V
	IPOS	VPOS=15V	-	30	-	mA
Source Negative supply	VNEG		-15.4	-15	-14.6	V
	INEG	VNEG=-15V	-	-30	-	mA
Asymmetry source	VASYM	VPOS+VNEG	-80	0	80	mV
Common voltage	VCOM		-2.5	Adjusted	-1.5	V
	ICOM		-	-2.0	-	mA
Standby power module	PSTBY			-	0.4	mW
Typical power module	PTYP		-	600	1200	mW
Operating temperature			0		50	°C
Operating relative humidity	RHop		0		70	%
Storage temperature			-20	-	70	°C
Storage relative humidity	RHst		30		60	%
Maximum image update time at 25°C				960	1200	ms

Notes:

- 1.The maximum power and maximum current are specified for the worst case power consumption.
- 2.The typical power is measured when “typical images” are displayed.
3. The standby power is the consumed power when the module controller is in standby mode.
4. The listed electrical/optical characteristics are only guaranteed under the controller & waveform provided by OED.

4. Optical Characteristics

Parameter	Conditions	Values			Units	Notes
		Min.	Typ.	Max		
White Reflectivity	0 minute	35			%	
Contrast Ratio (CR)	0 minute	8:1	-	-		1
Image Update Time:	GC16(T=0°C)	-	1500	1600	ms	
	GC16(T=25°C)	-	960	1200		
	GC16(T≥35°C)	-	760	960		
	DU (T=0°C)	-	500	540		
	DU(T≥20°C)	-	300	360		

(Tamb=25°C, fv=50Hz. Measurements are made with Eye-One Pro Spectrophotometer.)

Notes:

1. CR=Surface Reflectance with all white pixel/Surface Reflectance with all black pixels;

5. Interface Pins Definition

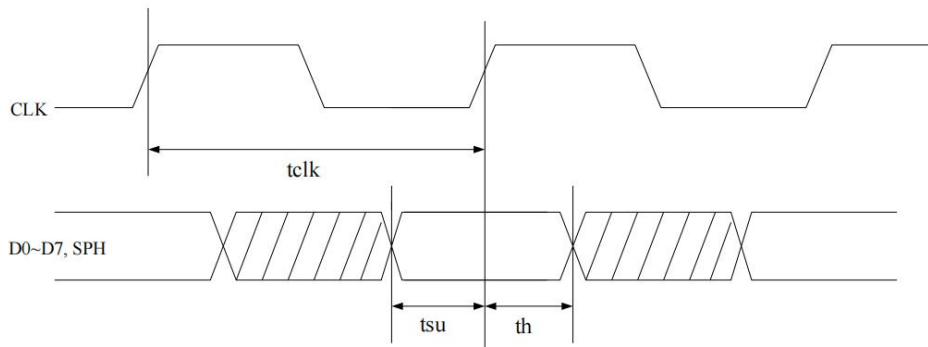
No.	Symbol	Function	Remark
1	VNEG	Negative power supply source driver	
2	VGL	Negative power supply gate driver	
3	VSS	Ground	
4	NC	No connection	
5	NC	No connection	
6	VDD	Digital power supply drivers	
7	VSS	Ground	
8	CLK	Clock source driver	
9	VSS	Ground	
10	LE	Latch enable source driver	
11	OE	Output enable source driver	
12	SPH	Start pulse source driver	
13	D0	Data signal source driver	
14	D1	Data signal source driver	
15	D2	Data signal source driver	
16	D3	Data signal source driver	
17	D4	Data signal source driver	
18	D5	Data signal source driver	
19	D6	Data signal source driver	
20	D7	Data signal source driver	
21	VCOM	Common connection	
22	NC	No connection	
23	NC	No connection	
24	NC	No connection	
25	NC	No connection	
26	VSS	Ground	
27	GMODE1	Output mode selection gate driver	
28	CPV	Shift clock input	
29	STV	Start pulse gate driver	
30	NC	No connection	
31	VBORDER	Border connection	
32	VSS	Ground	
33	VPOS	Positive power supply source driver	
34	VGH	Positive power supply gate driver	

6. AC Characteristics

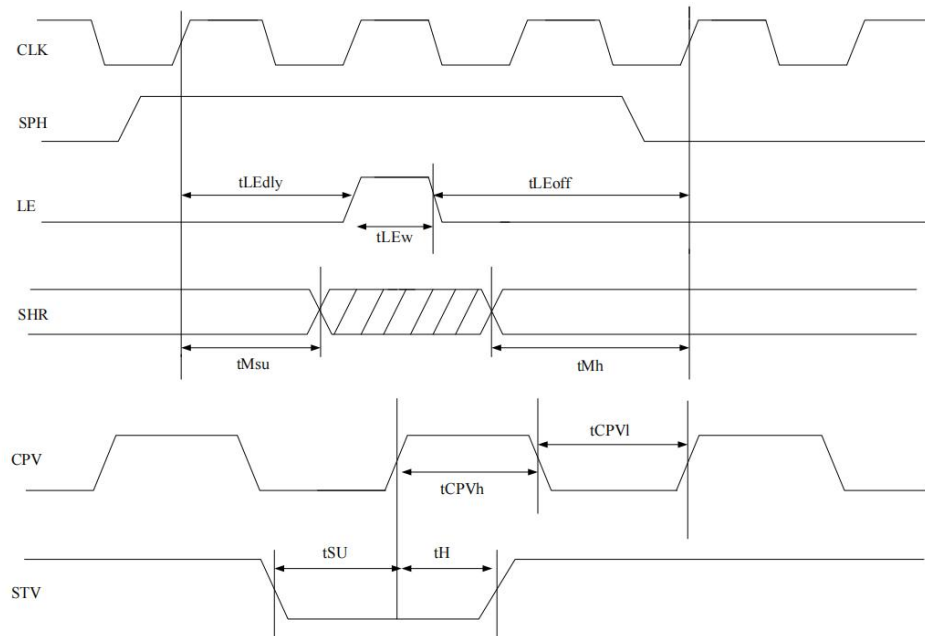
Note: VDD=3.0V to 3.6V, unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	App Pin
Clock frequency	fcpv			200	kHz	CPV
Clock CPV high time	tCPVh	0.5	–	–	us	
Clock CPV low time	tCPVl	0.5	–	–	us	
Data setup time	tSU	100	–	–	ns	CPV STV
Data hold time	tH	300	–	–	ns	
Clock CLK cycle time	tclk	40	–	–	ns	Below table
D0 .. D7, SPH setup time	tsu	8	–	–	ns	
D0 .. D7, SPH hold time	th	8	–	–	ns	
LE on delay time	tLEdly	40	–	–	ns	
LE high-level pulse width	tLEw	40	–	–	ns	
LE off delay time	tLEoff	40	–	–	ns	
SHR setup time	tMsu	100	–	–	ns	
SHR hold time	tMh	10	–	–	ns	

Clock & Data Timing



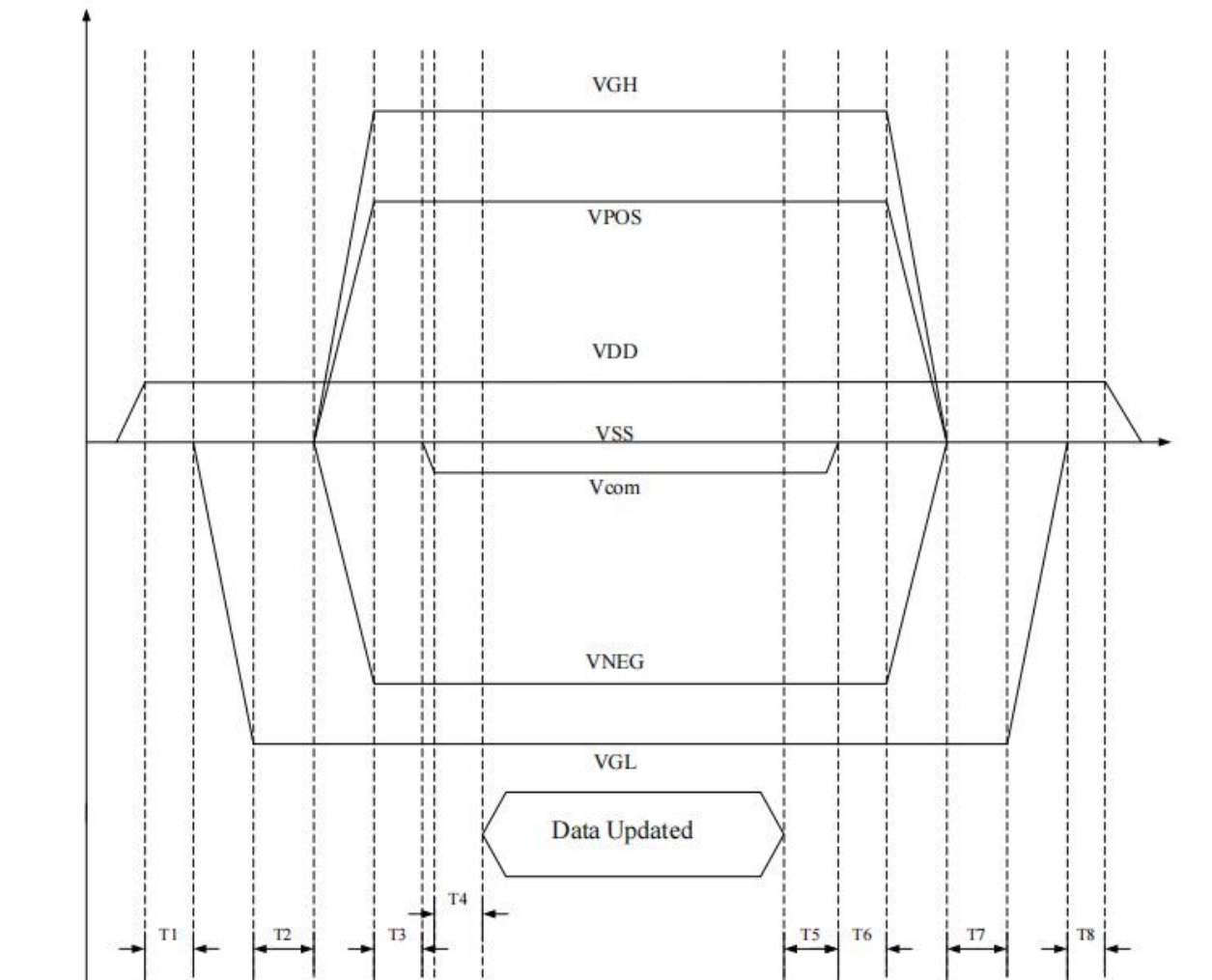
Output Latch/Control Signals



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

When power on: VDD -> VGL -> VNEG/VGH/VPOS -> Vcom

When power off: Vcom -> VNEG/VGH/VPOS -> VGL -> VDD



	Min	Max
T1	1 ms	-
T2	1 ms	-
T3	1 ms	-
T4	1 ms	20ms
T5	1 ms	20ms
T6	0ms	-
T7	0ms	-
T8	1 ms	-

7. Handling, Safety, and Environment Requirements

7.1. Warning

The display glass may break when it is dropped or bumped on a hard surface. Handle with care. Should the display break, do not touch the electrophoretic material. In case of contact with electrophoretic material, wash with water and soap.

7.2. Caution

The display module should not be exposed to harmful gases, such as acid and alkali gases, which corrode electronic components.

Disassembling the display module can cause permanent damage and invalidates the warranty agreements.

Observe general precautions that are common to handling delicate electronic components. The glass can break and front surfaces can easily be damaged. Moreover the display is sensitive to static electricity and other rough environmental conditions.

8. Reliability Specification

No	Item	Condition	Quantity	METHOD
1	High Temperature Operating	+50°C, RH = 30% ,168Hrs	2	IEC 60 068-2-2Bp
2	Low Temperature Operating	0°C, 168Hrs	2	IEC 60 068-2-2Ab
3	High Humidity Storage	60°C, 80%RH, 168Hrs	2	IEC 60 068-2-3CA
4	High Temperature Storage	+70°C,RH = 23% ,168Hrs	2	IEC 60 068-2-2Bp
5	Low Temperature Storage	-25°C, 168Hrs	2	IEC 60 068-2-1Ab
6	Thermal Cycling Test Storage	-25°C, 30min~70°C, 30min, 50 cycles.	2	IEC 60 068-2-14
7	Packing vibration	Frequency range:10~500Hz Acceleration of gravity:1.04G X,Y,Z 60 min for each direction.	-	Full packed for shipment
8	Electrical Static Discharge	Machine model +/- 250V, 0Ω , 200pF	2	IEC 62179, IEC 62180
9	Drop Test (Packaged)	Height:122 cm,1 corner, 3 edges, 6 surfaces.	-	full packed for shipment

Note1. No defection cosmetic and operational function allowable.

Note2. Total current Consumption should be below double of initial value

9. Packaging

TBD

10. Outline Drawing

