



LCM FULL SPEC

PRODUCT NO. : PV01310F0124K-CO

CUSTOMER NO. : _____

CUSTOMER P/N : _____

DRAWING VERSION : A

SAMPLE NO. : _____

SPEC VERSION : V1.0

CUSTOMER APPROVED	
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Preliminary specification

Formal specification

APPROVED BY	CHECKED BY	PRERARED BY
OWEN	HOWLIN	YGL



CONTENT

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**REVISION RECORD**

Version	Revision Items	Page	Name	Date
1.0	First release			20221111



1.General Spec

Item	Standard values	Unit 单位
Diagonal Inch	1.3	inch
Dot arrangement	360 (W) x RGB x 360(H)	dots
Pixel pitch	0.0915 (W)X 0.0915(H)	mm
Display mode	AMOLED	/
Driver IC	SH8601	/
Module size	41.4(V) x41.4(W) x 2.6(T)	mm
Active area	φ 32.94	mm
Interface	MIPI-1 LANE	-
Operating temperature	-10~60	°C
Storage temperature	-20~70	°C



2.Mechanical drawing

客户(customer): _____

客户确认签名: _____

Customer signature: _____

正视图 侧视图 背视图

REV. DESCRIPTION DATE

A	New	2022-09-21
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弯折参考图

展开出货

NOTES:

- OPERATING TEMPERATURE: -10° C TO 60° C
- STORAGE TEMPERATURE: -20° C TO 70° C
- DELYING IC: S18801
- (CHANN) SELECT: S1-S90, S151-S240)
- DISPLAY MODE: 1: TFS-A, M, L, D
- GENERAL TOLERANCE: ±0.20mm
- MEANS DIMENSION FOR REFERENCE
- SPECIAL REQUIRE: NO
- WITH * MARK DIMENSIONS ARE IMPORTANT DIMENSIONS.
- WITH () MARK DIMENSIONS ARE REFERENCE DIMENSIONS.
- REQUIREMENTS ON ENVIRONMENTAL PROTECTION: ROHS.

NO.	Symbol	LOAD EX
1	RESET	
2	NC	
3	TE	
4	TP-UD-218	
5	TP-RESSET	
6	TP-INT	
7	TP-SCL	
8	TP-SDA	
9	TP-GND	
10	NC	
11	VBAT	
12	VBAT	
13	VBAT	
14	VBIT	
15	VDDIO(1.8V)	
16	VDDIO(1.8V)	
17	GND	
18	DS1-CLEP	
19	DS1-CLAN	
20	GND	
21	DS1DOP	
22	DS1DOW	
23	GND	
24	VCI-EN	

APPROVALS	DATE	SCALE 1:1	TITLE
DRAWN:		UNIT	MODULE
CHECK:		MM	
APPROVAL:		MODEL	
		PV01310F0124K-CO	
		DWG NO	PAGE
		A	1/1

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3. Interface description

Pin No.	Symbol	Description
1	RST	Device reset signal (0 : Enable ; 1: Disable)
2	NC	NC
3	TE	Tearing effect output pin to synchronize MCU to frame
4	TPVDD	Touch Panel 2.8V power supply
5	TPRST	Touch Panel Reset
6	TPINT	Touch Panel interrupt
7	TPSCL	Touch Panel Clock
8	TPSDA	Touch Panel Data
9	GND	Ground.
10	NC	NC
11-14	VBAT	Power Input for SIBO 3.4-5.5v
15-16	VDDIO	Power supply for I/O block provided from outside VDDI < 0.05V (When power is turned off)
17	GND	Ground.
18	CLKP	MIPI positive clock signal
19	CLKN	MIPI negative clock signal
20	GND	Ground.
21	D0P	MIPI positive data signal
22	D0N	MIPI negative data signal
23	GND	Ground.
24	VCI_EN	POWER IC Enable Input Voltage 1.8-3.3V
TP PIN		
1	TPVDD	Touch Panel 2.8V power supply
2	TPRST	Touch Panel Reset
3	TPINT	Touch Panel interrupt
4	TPSCL	Touch Panel Clock
5	TPSDA	Touch Panel Data
6	GND	Ground.



4. Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit
Supply voltage (Display)	VDD	-0.3	3.6	V
	IOVCC	-0.3	3.6	V
	ELVDD	4.6±0.05		V
	ELVSS	-2.2±0.05		V
Operating temperature range	Top	-10	+60	°C
Storage temperature range	Tst	-20	+70	°C
Storage humidity	HD	-	90	%RH



5. DC Characteristics

DC Characteristics for Interface

Table 7 DC Characteristic for Interface Signals

Parameter	Symbol	Condition	Specification			Pin	Unit
			Min.	Typ.	Max.		
Logic high level input voltage	VIH_IO1	–	$0.8 \times VDDI$	–	VDDI	RESX	V
Logic low level input voltage	VIL_IO1	–	0.0	–	$0.2 \times VDDI$		
Logic high level output voltage	VOH_IO1	IOUT = – 1 mA	$0.8 \times VDDI$	–	VDDI	TE	
Logic low level output voltage	VOL_IO1	IOUT = + 1 mA	0.0	–	$0.2 \times VDDI$		
Input high level leakage current	I _{IH}	VIN = VDDI	–	–	1	RESX	μA
Input low level leakage current	I _{IL}	VIN = VSS	– 1	–	–		

NOTE: TA = – 40 to 85 °C

Power Consumption

Table 8 Power Consumption

Parameter	Symbol	Condition	Specification			Unit	Note
			Min.	Typ.	Max.		
Operating current (DSI, dynamic display)	IVDDI _{op}	Frame frequency = 60 Hz No load SR_SET = 5'b10110 SPR Function OFF	–	–	2.805	mA	(NOTE)
	IVCI _{op}		–	–	5.5		
Sleep current	IVDDI _{LP}	LP11 mode	–	–	850	uA	
	IVCI _{LP}		–	–	50		
	IVDDI _{ULPS}	ULPS mode	–	–	833	uA	
	IVCI _{ULPS}		–	–	50		
Deep standby current	IVDDI _{DSL}		–	–	4	uA	
	IVCI _{DSL}		–	–	2		

NOTE: The table above shows only driver IC's power consumption. (MIPI I/F @0.5Gbps, white pattern).
VCI = 2.8V, VDDI = 1.8V, TA = 25 °C.



6. Electron-optical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply voltage (Display)	VGL	-	-8	-	-5	V
	VGH	-	6	-	8	V
	ELVDD	-	4.55	4.6	4.65	V
	ELVSS	-	-2.4	-2.2	-2.0	V
	VINIT	-	-	-3	-	V
Current (Display)	$I_{ELVDD/ELVSS}$	Full white display 350nits,60Hz	-	15.5	23.3	mA

Note:

VGHR, VGLR and VINIT must be adjusted to optimize display quality, Contrast Ratio and etc.

Item	Symbol	Condition	Min	Typ	Max	Unit	Note
Surface Luminance	Lv	$\theta=0^\circ$ $\phi=0^\circ$ Ta=25°C	-	350	-	cd/m2	Note1
Luminance uniformity	δ WHITE		85	-	-	%	Note2
Contrast Ratio	Cr		30000	-	-	-	Note3
Viewing Angle	θ	Up/Down/ Right/Left Cr>10	88	-	-	deg	Note4

NTSC ratio	-	-	85	100	-	%	CIE1931
Life Time	T95	25°C	240	-	-	hours	-



- Measurement equipment: DMS803 or similar equipment.
- Measuring surroundings: Dark room.
- Measuring temperature: $T_a=25^{\circ}\text{C}$.
- The Viewing Angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the display surface.

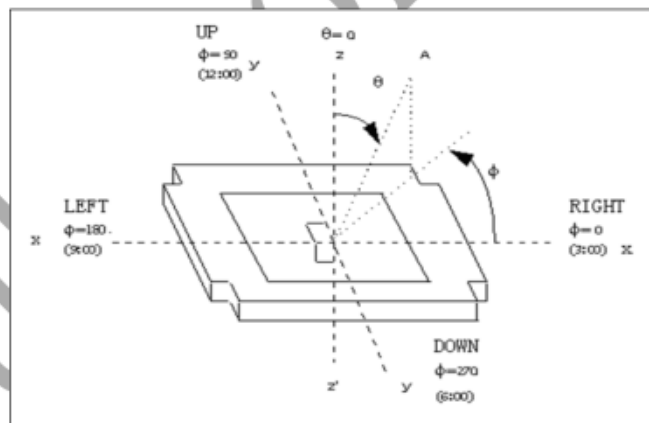


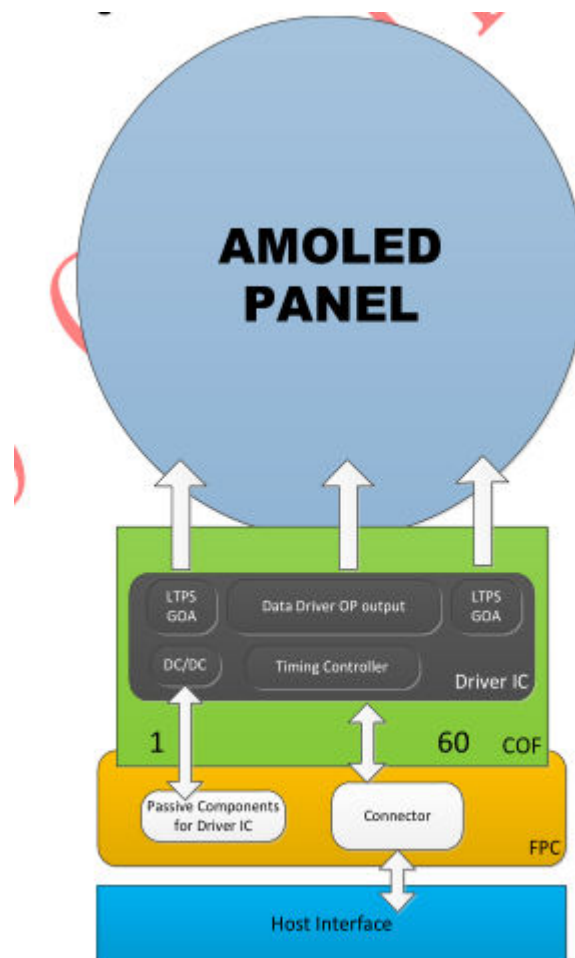
Fig-2

Note5. Color Coordinate of CIE1931

- Measurement equipment: CS2000 or similar equipment.
- Measuring surroundings: Dark room.
- Measuring temperature: $T_a=25^{\circ}\text{C}$.
- The x, y value of Color Coordinate is determined by measuring at center position of the display panel.



7. System Block Diagram



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8. AC characteristic

3.3.1 Power On/Off Sequence

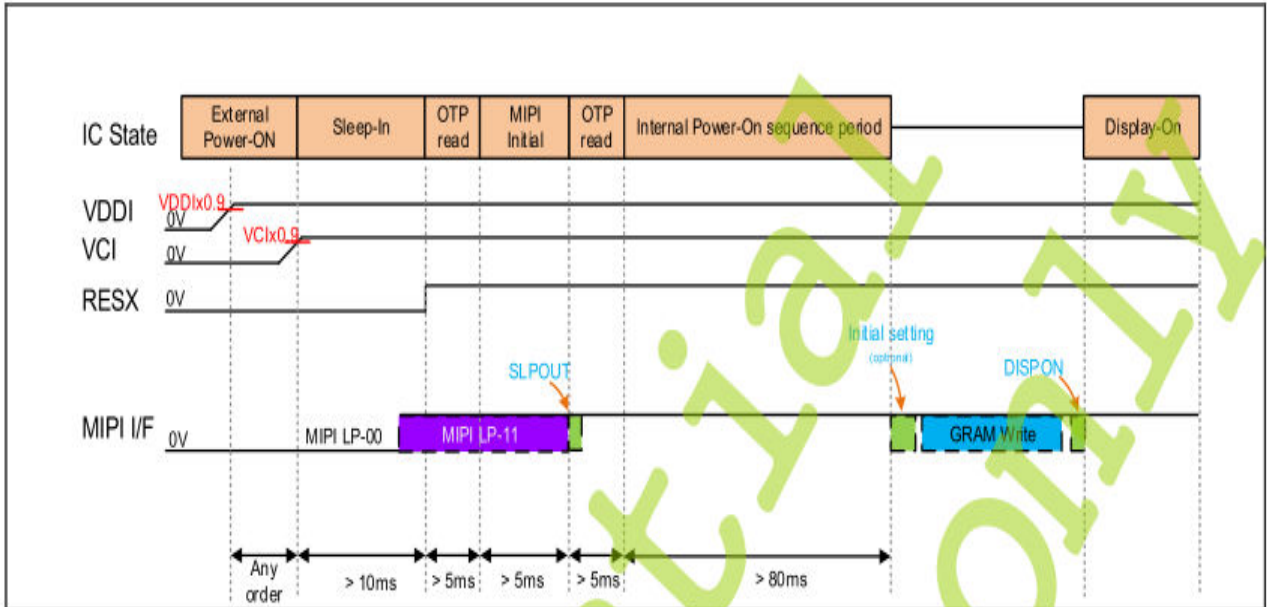


Figure 16 Power-On Sequence





2.4.1 DC Characteristics for MIPI DSI

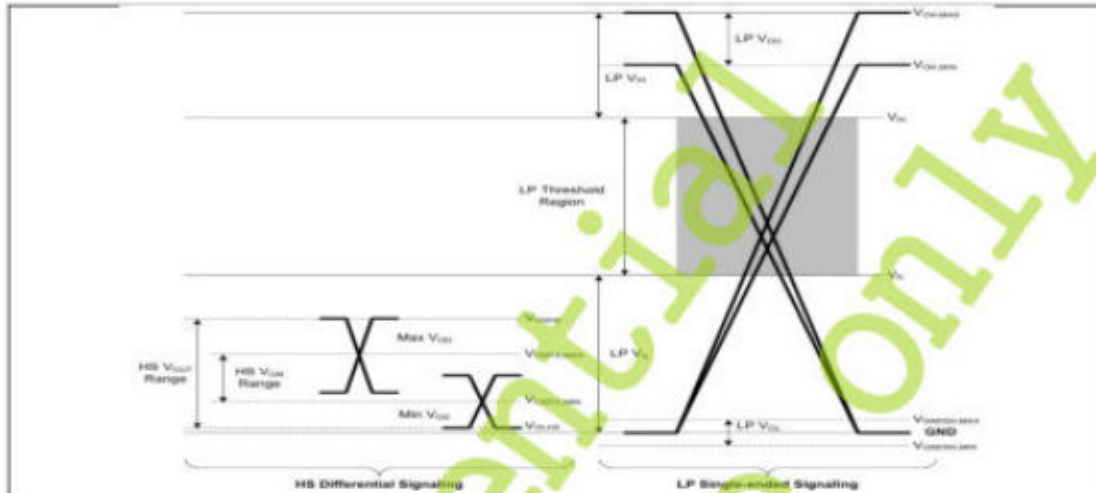


Figure 6 MIPI D-PHY Signaling Levels

Table 16 MIPI DSI DC Characteristic

	Item	Symbol	Min.	Typ.	Max.	Unit	Note
HS_RX	Differential input high threshold	V_{IDTH}	-	-	70	mV	3
	Differential input low threshold	V_{IDL}	-70	-	-		3
	Single-ended input high voltage	V_{IHS}	-	-	460		
	Single-ended input low voltage	V_{ILS}	-40	-	-		
	Single-ended threshold for HS termination enable	V_{TERMEN}	-	-	450		
	Common-mode voltage HS receive mode	$V_{CMRX(DC)}$	70	-	330		1
	Differential input impedance	Z_D	80	100	125	Ω	2
LP_RX	Logic0 voltage not in ULP State	V_{IL}	-	-	550	mV	
	Logic1 input voltage	V_{IH}	880	-	-		
	I/O leakage current	I_{LEAK}	-10	-	10	μA	
LP_TX	Thevenin output low level	V_{OL}	-50	-	50	mV	
	Thevenin output high level	V_{OH}	1.1	-	1.3	V	
	Output impedance of LP transmitter	Z_{OLP}	110	-	-	Ω	2



9

High Speed Clock and Data Timing

2.4.4 High Speed Clock and Data Timing

Interface

Below Figure shows the sequence of the high speed data transmission.

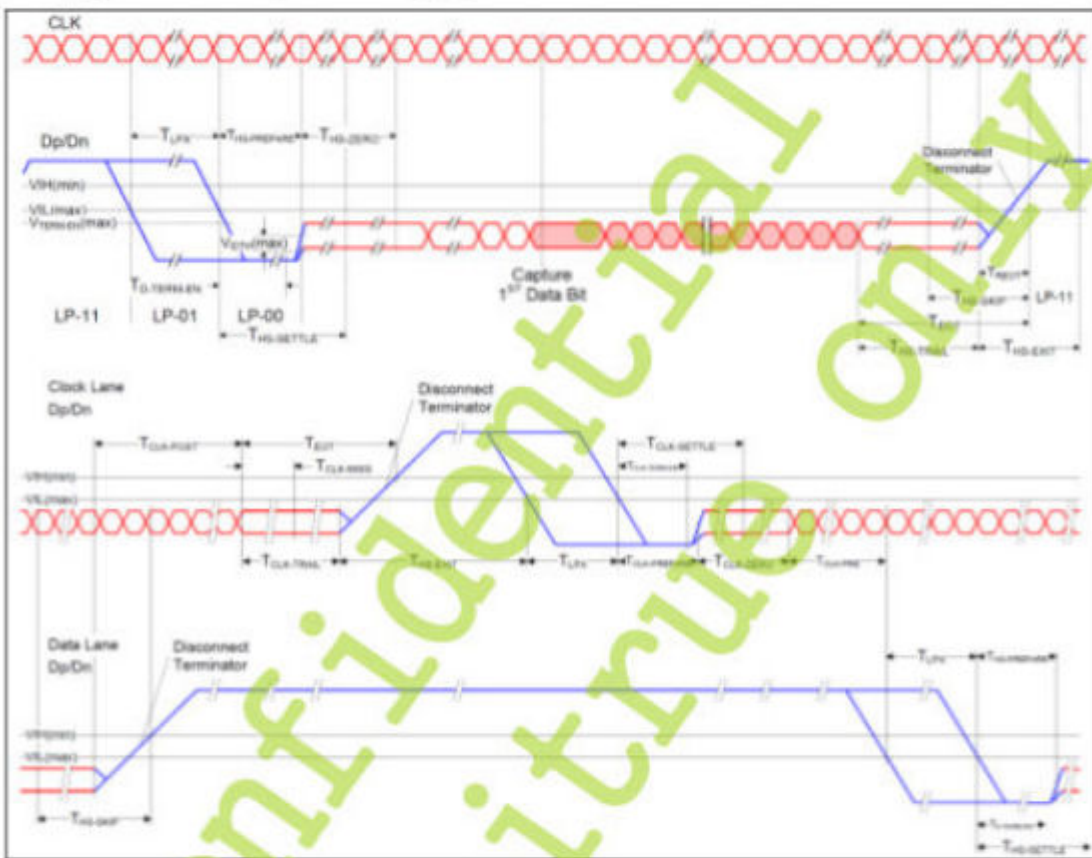


Figure 9 High Speed Clock and Data timing

The values in the following table require a clock tolerance no worse than $\pm 10\%$ for implementation.

Table 19 Global Operation Timing Parameters

Symbol	Description	Min.	Typ.	Max.	Unit	Note
TCLK-MISS	Timeout for receiver to detect absence of Clock transitions and disable the Clock Lane HS-Rx.	-	-	60		(1) (6)
TCLK-POST	Time that the transmitter continues to send HS clock after the last associated Data Lane has transitioned to LP Mode. Interval is defined as the period from the end of THS-TRAIL to the beginning of TCLK-TRAIL.	60 ns + 52 × UI	-	-	ns	(5)



10. Reliability test conditions and methods

No	Test Item	Test condition	Criterion
1	High Temperature Storage	70°C±3°C 48H Power off	Inspection after 4 hours storage at room temperature, the sample shall be free from defects: 1. Air bubble in the LCD; 2. Seal leak; 3. Non-display; 4. missing segments; 5. Glass crack; 6. Current Idd is twice higher than initial value. 7. The surface shall be free from damage. 8. The electric characteristic requirements shall be satisfied
2	Low Temperature Storage	-20°C±3°C 48H Power off	
3	High Temperature Operation	60°C±3°C 48H Power on	
4	Low Temperature Operation	-10°C±3°C 48H Power on	
5	High Temperature & Humidity Operation	60°C±3°C 90%RH 48H Power off	
6	Temperature Cycle	-20°C←→25°C←→70°C 30min 5min 30min 5 cycle Power off	

Remark:

1. The test samples should be applied to only one test item.
2. Sample size for each test item is 3~5pcs.
3. For Damp Proof Test, Pure water (Resistance > 10MΩ) should be used.
4. In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judged as a good part.
5. EL evaluation should be excepted from reliability test with humidity and temperature: Some defects such as black spot/blemish can happen by natural chemical reaction with humidity and Fluorescence EL has.
6. Failure Judgment Criterion: Basic Specification, Electrical Characteristic, Mechanical Characteristic, Optical Characteristic.