宇华国际科技有限公司

YuHua INT,L Technology Co., LIMITED

SPECIFICATION FOR LCD MODULE

Customer : _____

Product Model: YH101MF4001

Sample code: _____

Designed by	Checked by	Approved by

Final Approval by Customer

☐ **LCM Machinery OK** Checked By _____ ☐ **LCM Display OK** Checked By _____	☐ **LCM OK** ☐ **NG，Problem survey:** Approved By _____

※The specification of “TBD” should refer to the measured value of sample . If there is difference between the design specification and measured value, we naturally shall negotiate and agree to solution with customer.

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CONTENTS

1. GENERAL DESCRIPTION

The display model YH101MF4001_FHD is a ALL 0‘ clock TFT-LCD (Thin Film Transistor Liquid Crystal Display) module. This model is Composed of a TFT LCD panel , a driving circuit and a back light, and alsohasa10.1inchdiagonallymeasuredactivedisplayareawithFHD(1200 horizontal by 1920 vertical pixel) resolution in a stripe arrangement. Display 16M colors by 8 bit R.G.B signal input.

General specifications are summarized in the following table :

1.1 General information

Item	Specification	Unit
Outline Dimension	143×228.70×2.20 (Type.)	mm
Display area	135.36(H)×216.58(V)	mm
Number of Pixel	1200RGB(H)×1920(V)	pixels
Pixel pitch	0.0376(H)×0.1128(V)	mm
Pixel arrangement	RGB Vertical stripe	
Display mode	IPS	
Surface treatment	Hard-Coating with EWV film	colors
Back-light	White LED	
System interface	4 lane MIPI	
NTSC	50 (type)	%
Viewing Direction	ALL VIEW	
Power Consumption	TBD	mW
LCD	TBD	
DRIVER IC	TBD	

2. ABSOLUTE MAXIMUM RATINGS

2.1 Electrical Absolute Rating:

Item	Symbol	Min.	Type.	Max.	Unit	NOTE
Supply Voltage	VCC	3.1	3.3	3.4	V	
	AVEE	-	-	-	V	
	AVDD	-	-	-	V	
	调整对比度，调大颜色变深，调小颜色变浅					
	VGH	-	-	-	V	
	VGL	-	-	-	V	
VCOM	VCOMin	-	-	-	V	
	TYPEVCOM电压值只做参考，具体以实际效果为准（根据FLIICKER状态可调整），IPS屏，调VCOM可以解决残影					
Input signal voltage	V_{IH}	0.7 V_{CC}	-	V_{CC}	V	
	V_{IL}	0	-	0.3V_{CC}	V	

2.2 Environment Absolute Rating

Item	Symbol	Min	Max	Uint	Note
Operating Temperature	T_{OPA}	-10	50	℃	
Storage Temperature	T_{STG}	-20	60	℃	

3.1 Optical specification

ITEM		SYMBOL	CONDITIONS	SPECIFICATIONS			UNIT	NOTE
				MIN.	TYP.	MAX.		
Brightness		B	Viewing normal angle	--	250	--	Cd/m^2	(1)(2)(3)(4)(5)
Contrast Ratio		CR		600	800	--	--	
colo(u)r temperature		CT		--	--	--	--	
Response Time		Tr		--	10	20	msec	
		Tf		--	15	30	msec	
CIE Color coordinate	White	XW			0.305			
		YW			0.320			
	Red	XR		TBD	TBD	TBD		
		YR		TBD	TBD	TBD		
	Green	XG		TBD	TBD	TBD		
		YG		TBD	TBD	TBD		
	Blue	XB		TBD	TBD	TBD		
		YB		TBD	TBD	TBD		
Viewing Angle	Hor.	LEFT	Center CR>=10	--	85	--	Deg.	
		RIGHT		--	85	--		
	Ver.	UP		--	85	--		
		DOWN		--	85	--		
Uniformity	Un			--	80	--	%	

3.2 Measuring Condition

A Measuring surrounding:dark room

B Ambient temperature: 25+/-2 ℃

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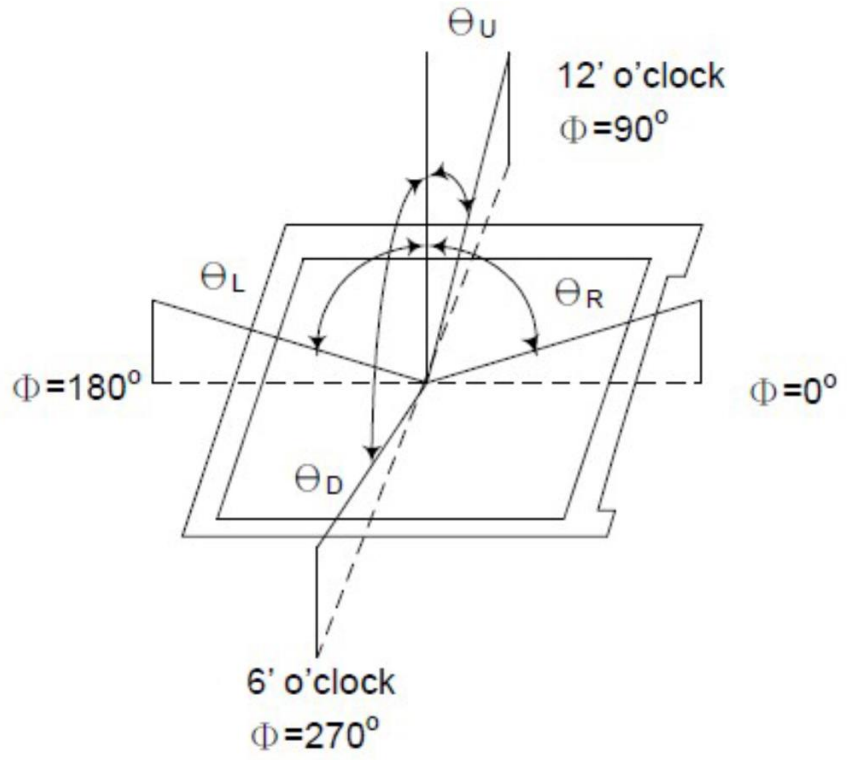
3.3 Measuring Equipment

A FPM520 of Westar Display technologies, INC., which utiliaed Sr-3 for Chromaticity and BM-5A for other optical characteristics.

B Measuring spot size:20-21 mm

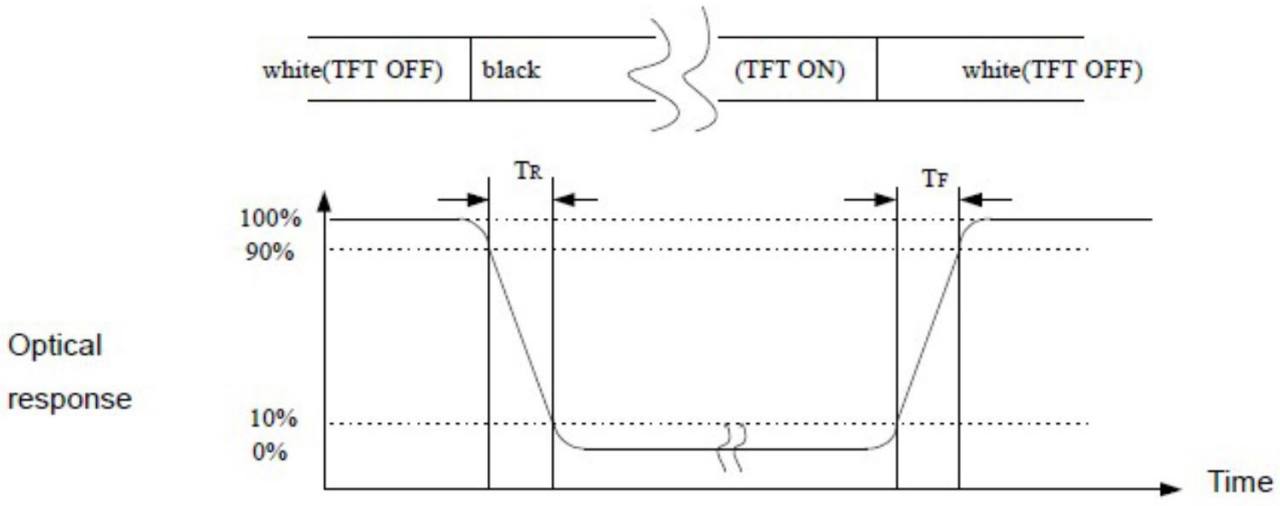
Note (1) Definition of Viewing Angle :



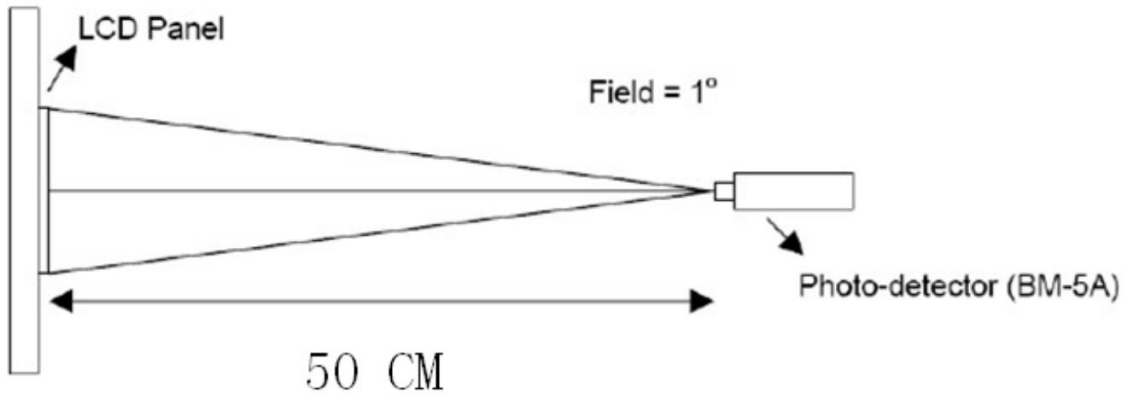
Note (2) Definition of Contrast Ratio (CR):
Measured at the center point of panel

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

Note (3) Definition of Response Time: Sum of T_R and T_F



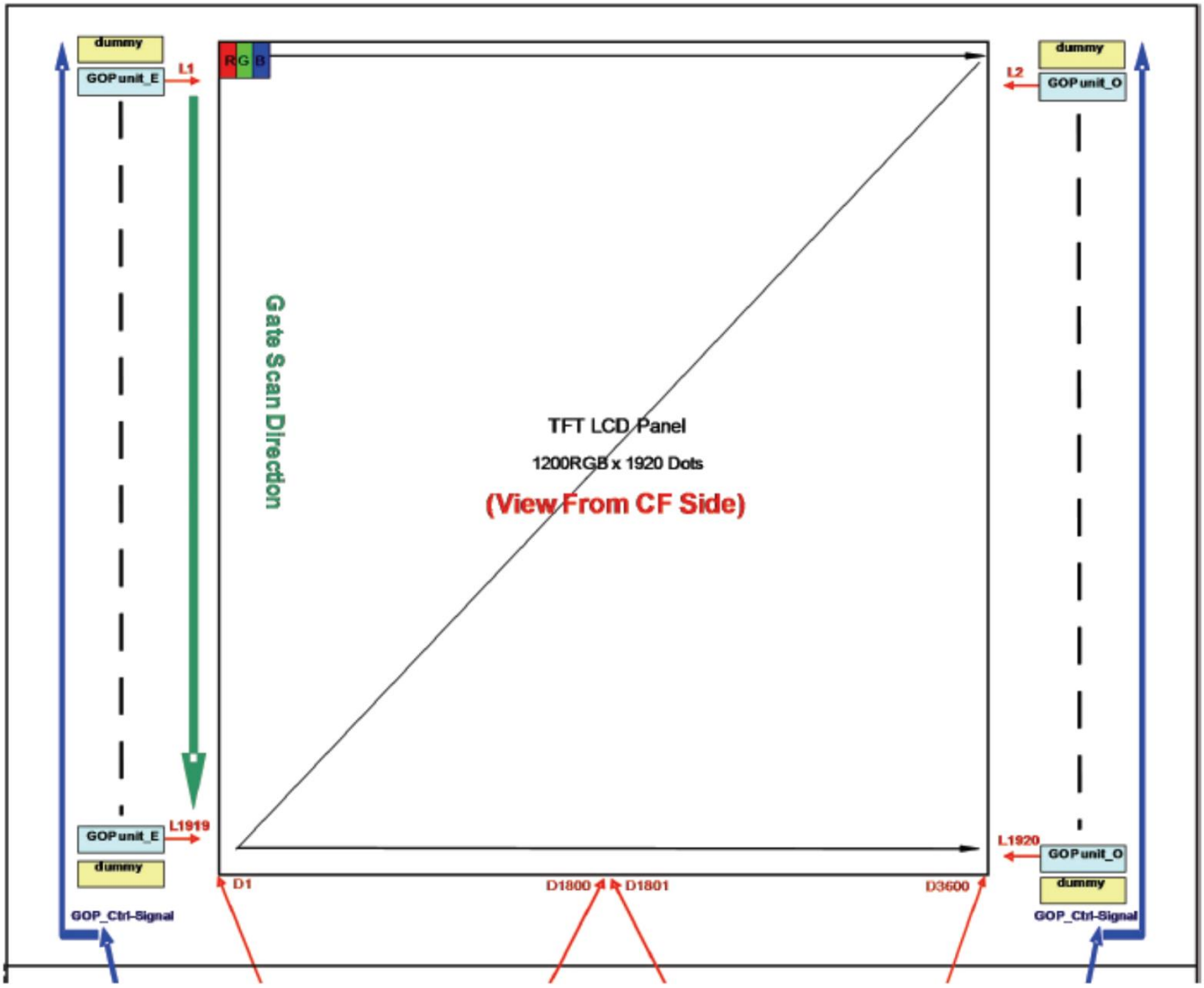
Note (4) Definition of optical measurement setup



Note (5) Rubbing Direction (The different Rubbing Direction will cause the different optimal view direction.

4. BLOCK DIAGRAM

4.1 Pixel Format



5. INTERFACE PIN CONNECTION

PIN NO	SYMBOL	Description
1	NC	OPEN
2-3	VDDIN	Power SUPPLY 3.3V
4	GND	Ground
5	RESET	Global reset signal
6	NC	OPEN
7	GND	Ground
8	MIPI_TDN0	MIPI data input.
9	MIPI_TDP0	MIPI data input.
10	GND	Ground
11	MIPI_TDN1	MIPI data input.
12	MIPI_TDP1	MIPI data input.
13	GND	Ground
14	MIPI_TCN	MIPI clock input.
15	MIPI_TCP	MIPI clock input.
16	GND	Ground
17	MIPI_TDN2	MIPI data input.
18	MIPI_TDP2	MIPI data input.
19	GND	Ground
20	MIPI_TDN3	MIPI data input.
21	MIPI_TDP3	MIPI data input.
22	GND	Ground
23-24	NC	OPEN
25	GND	Ground
26	NC	OPEN
27	CABC	PWM control signal for LED driver
28-29	NC	OPEN
30	GND	Ground
31-32	LEDK	LED Cathode
33-34	NC	OPEN
35	AVEE	OPEN
36-37	NC	OPEN
38	AVDD	OPEN
39-40	LEDA	LED Anode

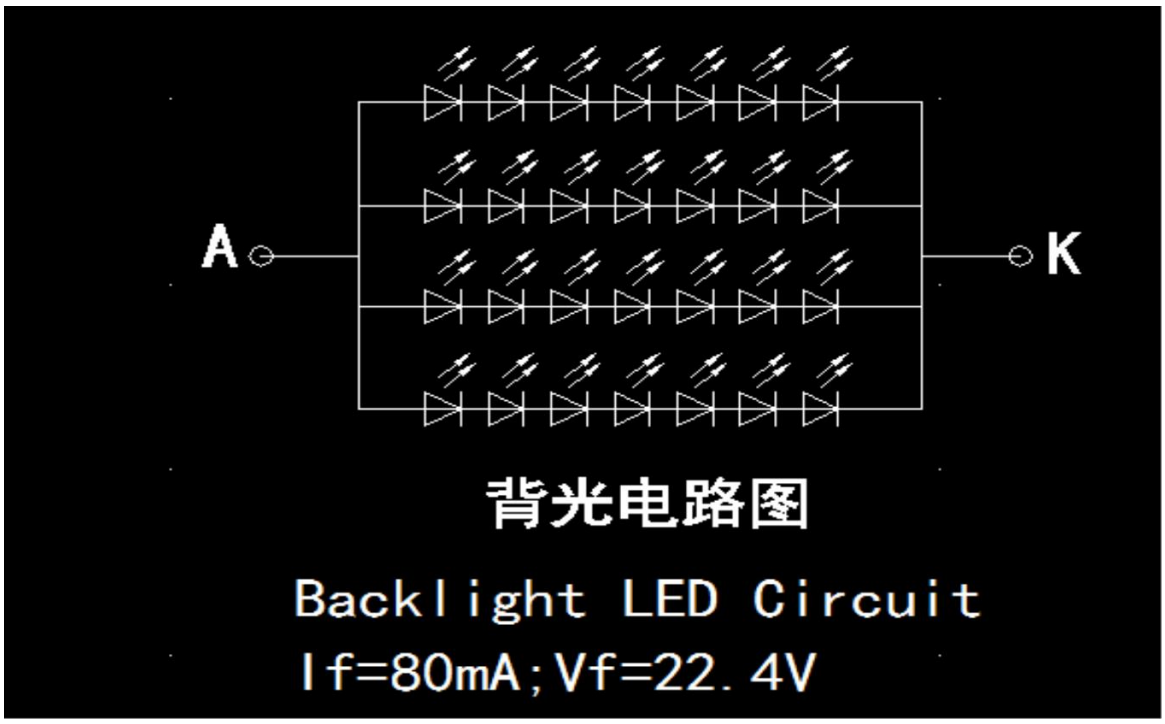
6. BACK LIGHT

6.1 The Characteristic Of The Back Light

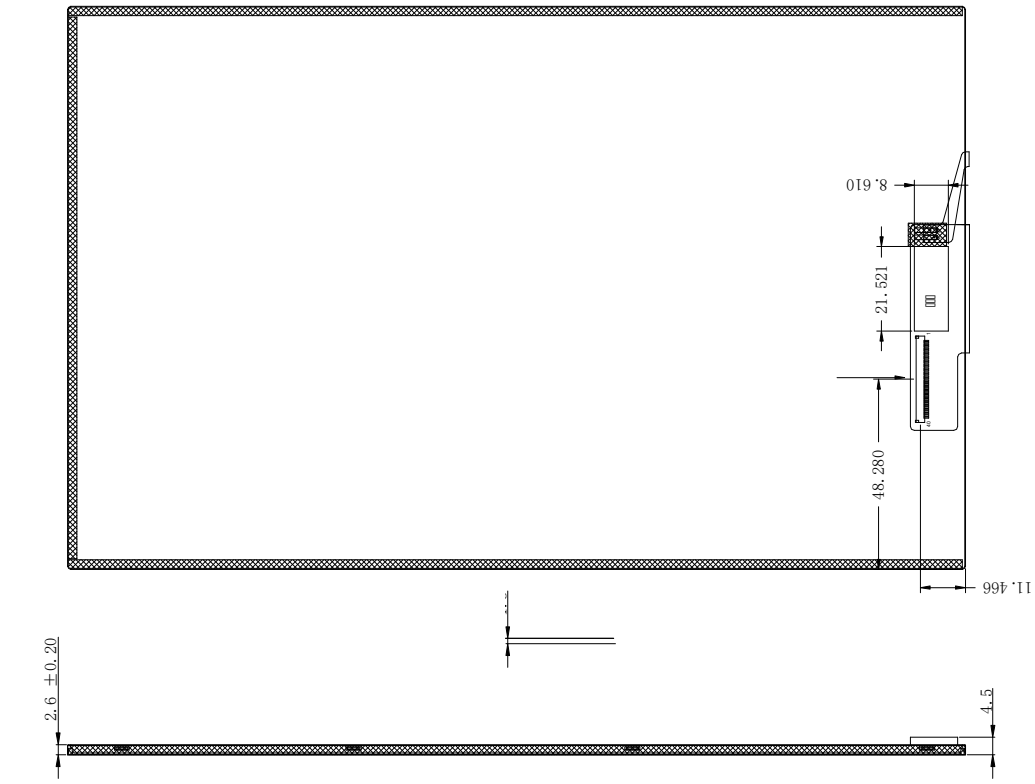
The back-light system is an edge-lighting type with 28 LEDS. The characteristic of the LED is shown in the following tables.

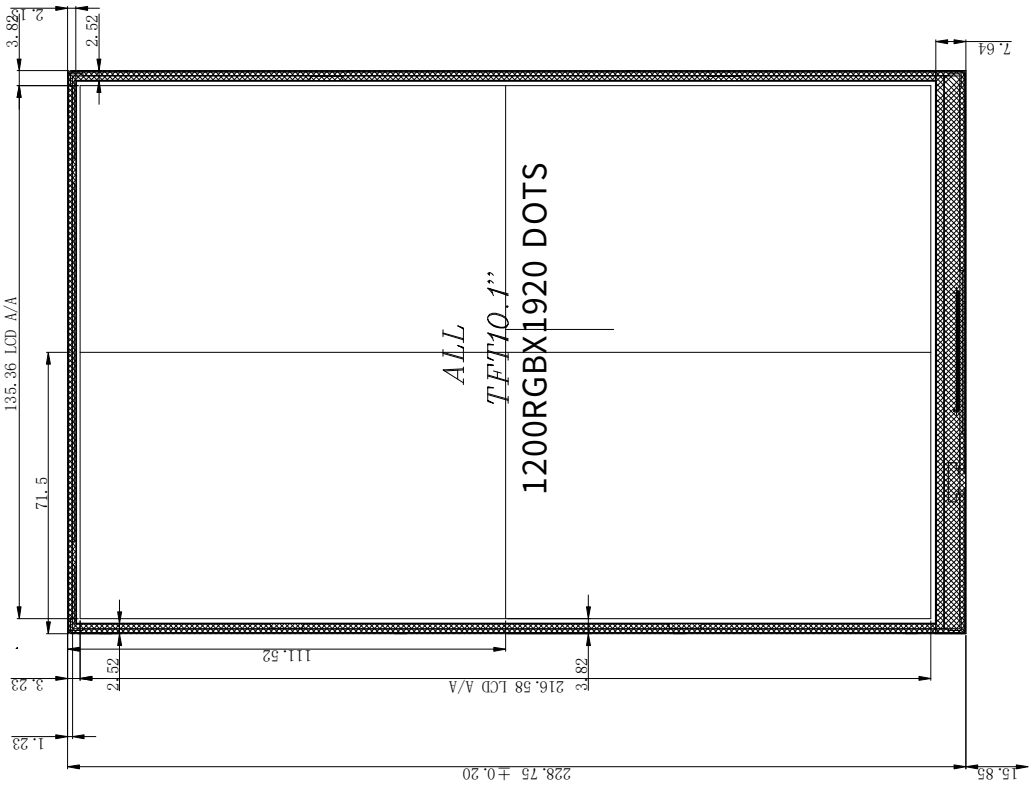
Item	Symbol	Min	Typ.	Max.	Unit	Note
LED current	IF	-	90	100	mA	-
	如果客户觉得亮度不够，电流可以在之前基础上加个20MA					
LED voltage	V	-	22.4	-	V	-
Coordinates	X	0.260		0.310	-	-
	Y	0.270		0.320	-	-
Brightness Uniformity	Iv-m	-	80	-	-	-
Backlight lifetime	T	-	20000	-	hrs	25 C 0

6.2 Back Light Circuit



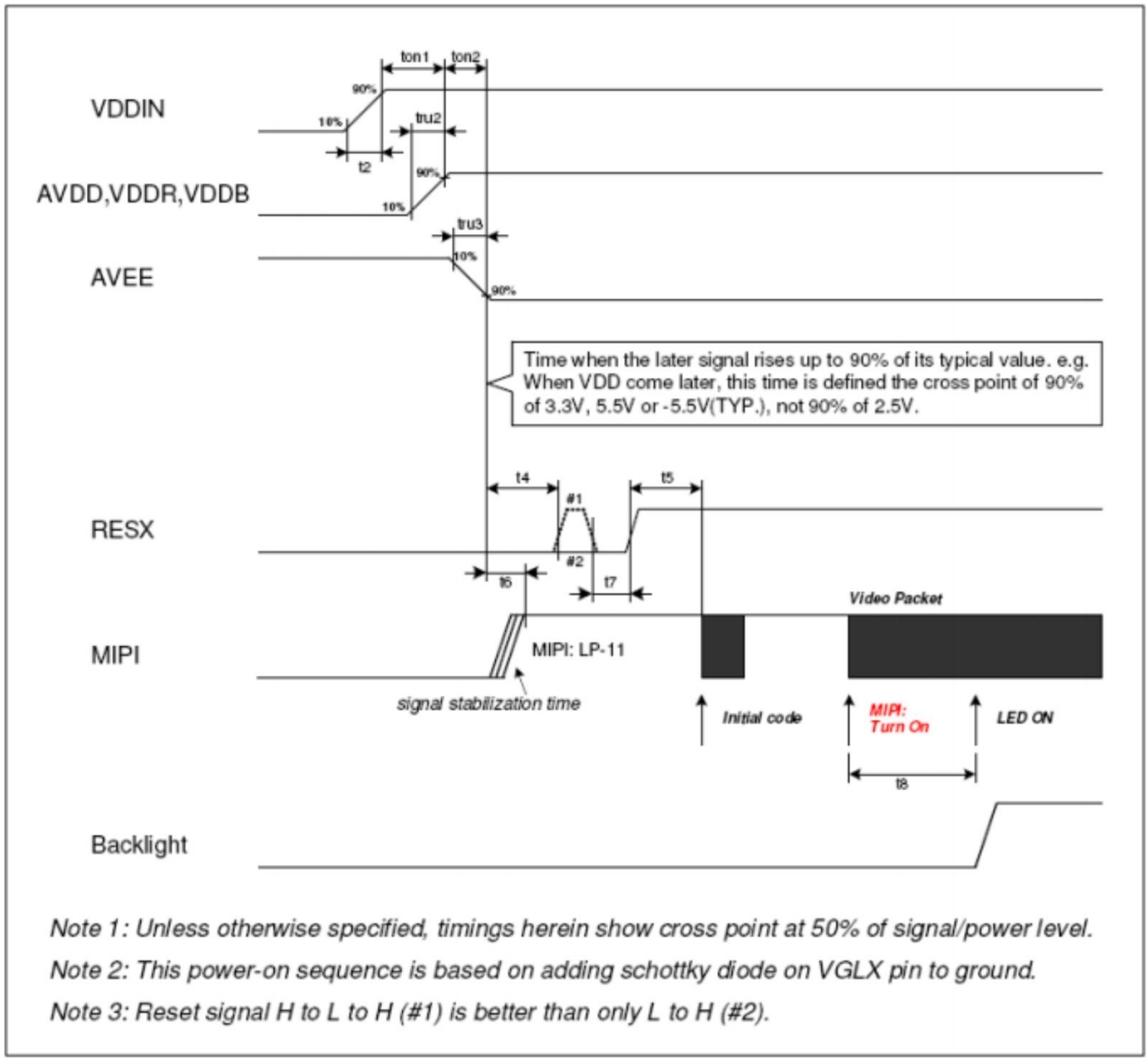
7. OUTLINE DIMENSION





8. Power、Signal Sequence

Power On:

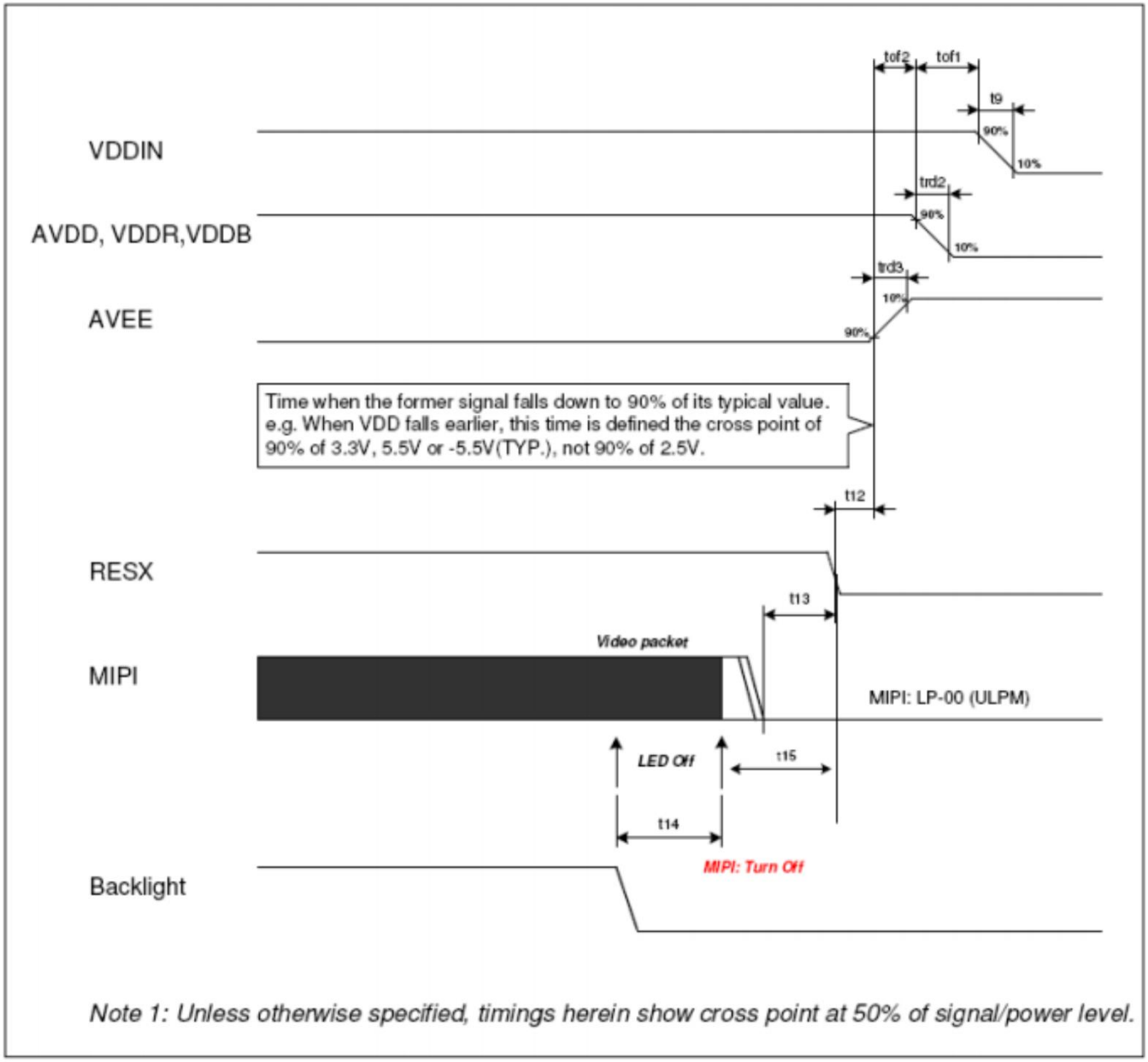


Note 1: Unless otherwise specified, timings herein show cross point at 50% of signal/power level.

Note 2: This power-on sequence is based on adding schottky diode on VGLX pin to ground.

Note 3: Reset signal H to L to H (#1) is better than only L to H (#2).

Power Off:



Note 1: Unless otherwise specified, timings herein show cross point at 50% of signal/power level.

9. Timing Characteristics of Input Signals

Signal	Item	Symbol	Min.	Typ.	Max.	Unit
	MIPI Data frequency	FDATA	955	999	1000	MHz
DCLK	Frequency	1/Tc	151.55	159.39	159.59	MHz
DE	Vertical Total Time	TV	1981	1981	1982	TH
	Vertical Active Display Period	TVD	-	1920	-	TH
	Vertical Front Porch Period	TVFP	35	35	36	TH
	Vsync pulse width	TVPW	1	1	1	TH
	Vertical Back Porch Period	TVBP		25		TH
	Horizontal Total Time	TH	1275	1341	1342	Tc
	Horizontal Active Display Period	THD	-	1200	-	Tc
	Horizontal Front Porch Period	THFP	42	80	81	Tc
	Horizontal pulse width	THPW	1	1	1	Tc
	Horizontal Back Porch Period	THBP	32	60	60	Tc