

Wuhan China Star Optoelectronics Technology Co.,Ltd

Product Specification Sheet

Customer: _____

Model Name: MNG007DA6-2

Date: 2024/1/2

Version: V01

Customer's Approval		CSOT	
Signature	Date	Approved by	Date
		Reviewed By	Date
		Prepared By:	Date

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

Record of Revision

Version	Revise Date	Page	Content

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Contents

1. GENERAL DESCRIPTION	5
1.1 OVERVIEW	5
1.2 SPECIFICATION SUMMARY	5
2. MECHANICAL SPECIFICATIONS	6
2.1 INTERFACE CONNECTION	6
3. ABSOLUTE MAXIMUM RATINGS	6
3.1 ABSOLUTE RATINGS OF ENVIRONMENT	6
3.2 ELECTRICAL ABSOLUTE RATINGS	7
3.2.1 TFT LCD MODULE	7
4. ELECTRICAL SPECIFICATIONS	8
4.1 FUNCTION BLOCK DIAGRAM	8
4.2 INTERFACE CONNECTIONS	8
4.3 ELECTRICAL CHARACTERISTICS	10
4.4 LCD ELETRONICS SPECIFICATION	10
4.4.1 BACKLIGHT UNIT	13
4.5 INPUT SIGNAL TIMING SPECIFICATIO NS	14
4.5.1 eDP AUX Channel Characteristics	14
4.5.2 eDP Main Link Receiver Characteristics	14
4.5.3 eDP AUX Channel Characteristic	14
4.5.4 COLOR DATA INPUT ASSIGNMENT	15
4.6 DISPLAY TIMING SPECIFICATIONS	17
4.7 POWER ON/OFF SEQUENCE	18
5. OPTICAL CHARACTERISTICS	20
6. RELIABILITY TEST ITEMS	23
7. DISPLAY QUALITY	24
8. PACKAGING CONDITION	24
8.1 PACKING SPECIFICATIONS	24
8.2 PACKING METHOD	24

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

8.3 LABEL.....	25
9. ROHS DIRECTIVE	25
10. HANDLING PRECAUTIONS	26
APPENDIX. EDID DATA STRUCTURE:	27
APPENDIX. OUTLINE DRAWING	38

www.szguangzhuo.com
Tel/V信Wechat: +86-13411884959

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

1. GENERAL DESCRIPTION

1.1 OVERVIEW

MNG007DA6-2 is a 16" TFT Liquid Crystal Display Low blue light module with LED Backlight unit and 40 pins eDP 1.4b interface. This module supports 2560 x 1600 mode and can display 1073.7M colors.

1.2 SPECIFICATION SUMMARY

No.	Item	Specification	Unit	Note
1	LCD size	16.0	inch	
2	Resolution	2560 x RGB x 1600		WQXGA
3	Pixel Arrangement	RGB		
4	Model Type	LCM		
5	TFT Technology	LTPS		
6	Display mode	FFS, Normally Black		
7	Active Area	344.6784 (H) × 215.424 (V)	mm	
8	pixel pitch	134.64(H) × 134.64(V)	um	
9	Display Colors	1073.7M		
10	Contrast Ratio	1200:1(Typ)/1000:1 (min)		
11	Color Gamut	DCI P3 100% (typ) / 95% (min)	%	DCI/ CIE1976uv
12	LCM Outline Dimension	349.68×224.42×2.45	mm	Typical
13	Luminance	500(Typ)	nits	
14	Low blue light ratio	50	%	Max
15	Surface treatment(IP)	Fine AG(Haze 25%)	--	Pol.
16	Interface	eDP 1.4b		4lane@8.1G w/ DSC
17	Refresh Rate	60-240	Hz	
18	Function	SDRRS、DMRRS、VRR		Intel
		Freesync		AMD
		Gsync、DDS(I2C)		NV
		DSC、AdaptiveSync、OD、HDR		Other
19	Method of Inversion	Column Inversion		
20	Power consumption of Panel	2.2(Max)	W	3.3V@Mosaic 240Hz
	Power consumption of Backlight	6.0(Max)	W	Max
21	Weight	325	g	Max

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

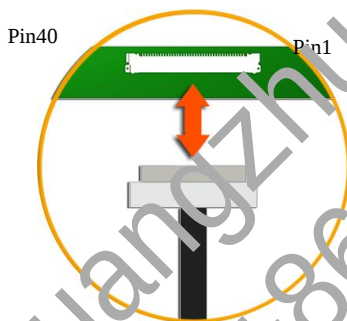
Any unauthorized use is prohibited.

Note (1) The specified power consumption (with converter efficiency) is under the conditions at VCCS =3.3 V, LED_VCCS = Typ, fPWM = 200 Hz, Duty=100% and Ta = 25 ± 2 ℃, whereas mosaic pattern is displayed.

2. MECHANICAL SPECIFICATIONS

Parameter		Min.	Typ.	Max.	Unit	Note
Unit outline dimensions	Width	349.38	349.68	349.98	mm	
	Height	224.12	224.42	224.72	mm	
	Depth	2.3	2.45	2.6	mm	
Weight		-	-	325	g	

2.1 INTERFACE CONNECTION



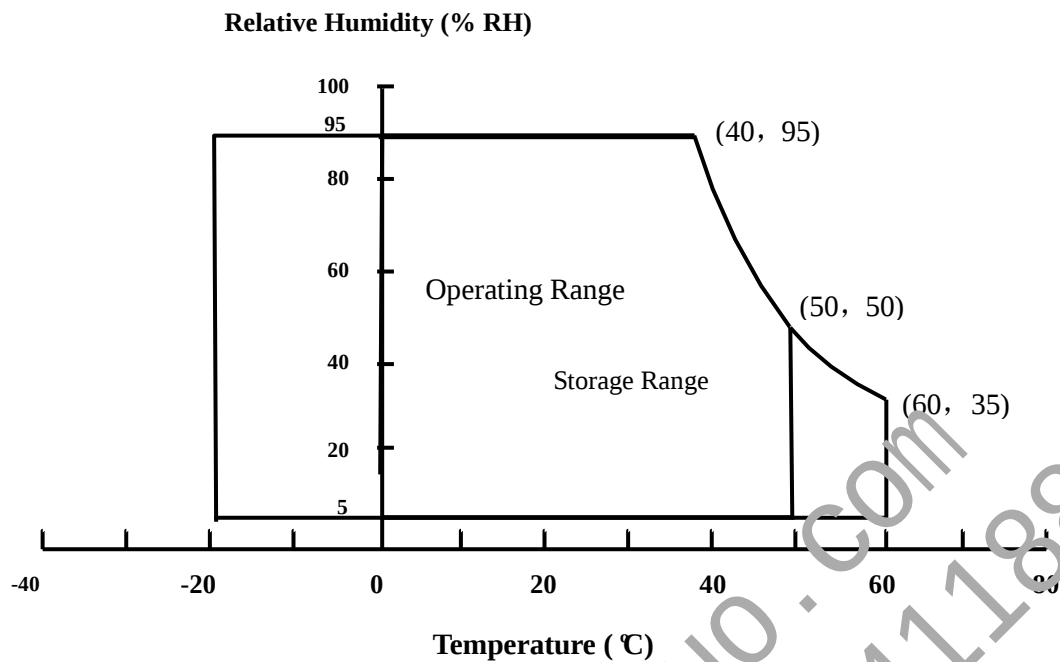
Please refer Appendix Outline Drawing for detail design.

Connector Part No.: **MSAK24025P40M**

3. ABSOLUTE MAXIMUM RATINGS

3.1 ABSOLUTE RATINGS OF ENVIRONMENT

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	T _{ST}	-20	+60	℃	(1)
Operating Ambient Temperature	T _{OP}	0	+50	℃	(1), (2)



Note (1)

(a) 95% RH Max. ($T_a \leq 40\text{ }^{\circ}\text{C}$).

(b) Wet-bulb temperature should be $39\text{ }^{\circ}\text{C}$ Max. ($T_a \leq 40\text{ }^{\circ}\text{C}$).

(c) No condensation.

3.2 ELECTRICAL ABSOLUTE RATINGS

3.2.1 TFT LCD MODULE

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	VCCS	+0.3	+4	V	(1)
Logic Input Voltage	V _{IN}	+0.3	+3.6	V	
LCD_Self Test	BIST	-0.3	5	V	`
Over Driver	OD	-0.3	5	V	(1)
I2C_TCON_SDA	SDA	-0.3	3.6	V	(1)
I2C_TCON_SCL	SCL	-0.3	3.6	V	(1)
Converter Input Voltage	LED_VCCS	-0.3	26	V	(1)

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

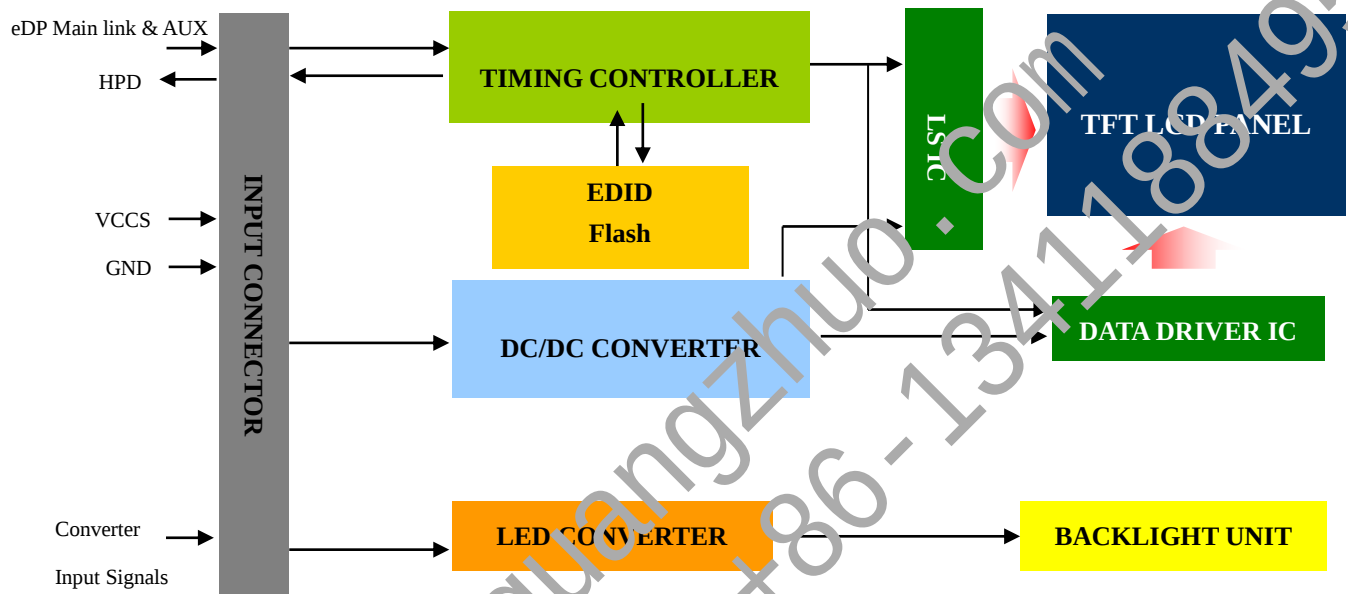
Wuhan China Star Optoelectronics Technology Co.,Ltd

Converter Control Signal Voltage	LED_PWM,	-0.3	+3.6	V	(1)
Converter Control Signal Voltage	LED_EN	-0.3	+3.6	V	(1)

Note (1) Stresses beyond those listed in above “ELECTRICAL ABSOLUTE RATINGS” may cause permanent damage to the device. Normal operation should be restricted to the conditions described in “ELECTRICAL CHARACTERISTICS”.

4. ELECTRICAL SPECIFICATIONS

4.1 FUNCTION BLOCK DIAGRAM



4.2 INTERFACE CONNECTIONS

PIN ASSIGNMENT

Pin	Symbol	Description	I/O	Voltage(V)	Note
1	I2C_SCL	I2C SCL	I/O	1.8	
2	H_GND	High Speed Ground	GND	0	
3	Lane3_N	Comp Signal Link Lane 3	I	0.2	
4	Lane3_P	True Signal Link Lane 3	I	0.2	
5	H_GND	High Speed Ground	GND	0	
6	Lane2_N	Comp Signal Link Lane 2	I	0.2	
7	Lane2_P	True Signal Link Lane 2	I	0.2	
8	H_GND	High Speed Ground	GND	0	
9	Lane1_N	Comp Signal Link Lane 1	I	0.2	
10	Lane1_P	True Signal Link Lane 1	I	0.2	
11	H_GND	High Speed Ground	GND	0	
12	Lane0_N	Comp Signal Link Lane 0	I	0.2	
13	Lane0_P	True Signal Link Lane 0	I	0.2	
14	H_GND	High Speed Ground	GND	0	

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

15	AUX_CH_P	True Signal Auxiliary Ch.	I/O	0.2	
16	AUX_CH_N	Comp Signal Auxiliary Ch.	I/O	0.2	
17	H_GND	High Speed Ground	GND	0	
18	LCD_VCC	LCD logic and driver	Input Power	3.3	
19	LCD_VCC	LCD logic and driver	Input Power	3.3	
20	LCD_VCC	LCD logic and driver	Input Power	3.3	
21	LCD_VCC	LCD logic and driver	Input Power	3.3	
22	LCD Self Test	LCD Panel Self Test Enable	I	NC	
23	LCD_GND	LCD logic and driver	GND	0	
24	LCD_GND	LCD logic and driver	GND	0	
25	LCD_GND	LCD logic and driver	GND	0	
26	LCD_GND	LCD logic and driver	GND	0	
27	HPD	HPD signal pin	O	2.7	
28	BL_GND	Backlight_ground	GND	0	
29	BL_GND	Backlight_ground	GND	0	
30	BL_GND	Backlight_ground	GND	0	
31	BL_GND	Backlight_ground	GND	0	
32	BL_Enable	Backlight On / Off	I	1.3/3.3	
33	BL_PWM_DIM	System PWM signal Input	I/O	1.8/3.3	
34	I2C_SDA	I2C SDA	I/O	1.8	
35	HW	MOS preventing I2C overwrite	Floating	NC	For CSOT Use
36	BL_PWR	Backlight power	Input Power	12	
37	BL_PWR	Backlight power	Input Power	12	
38	BL_PWR	Backlight power	Input Power	12	
39	BL_PWR	Backlight power	Input Power	12	
40	OD_EN	Over Drive enable Pull high(1): OD on; Pull low(0): OD off	I	1.8	Disable@low (default),enable@high

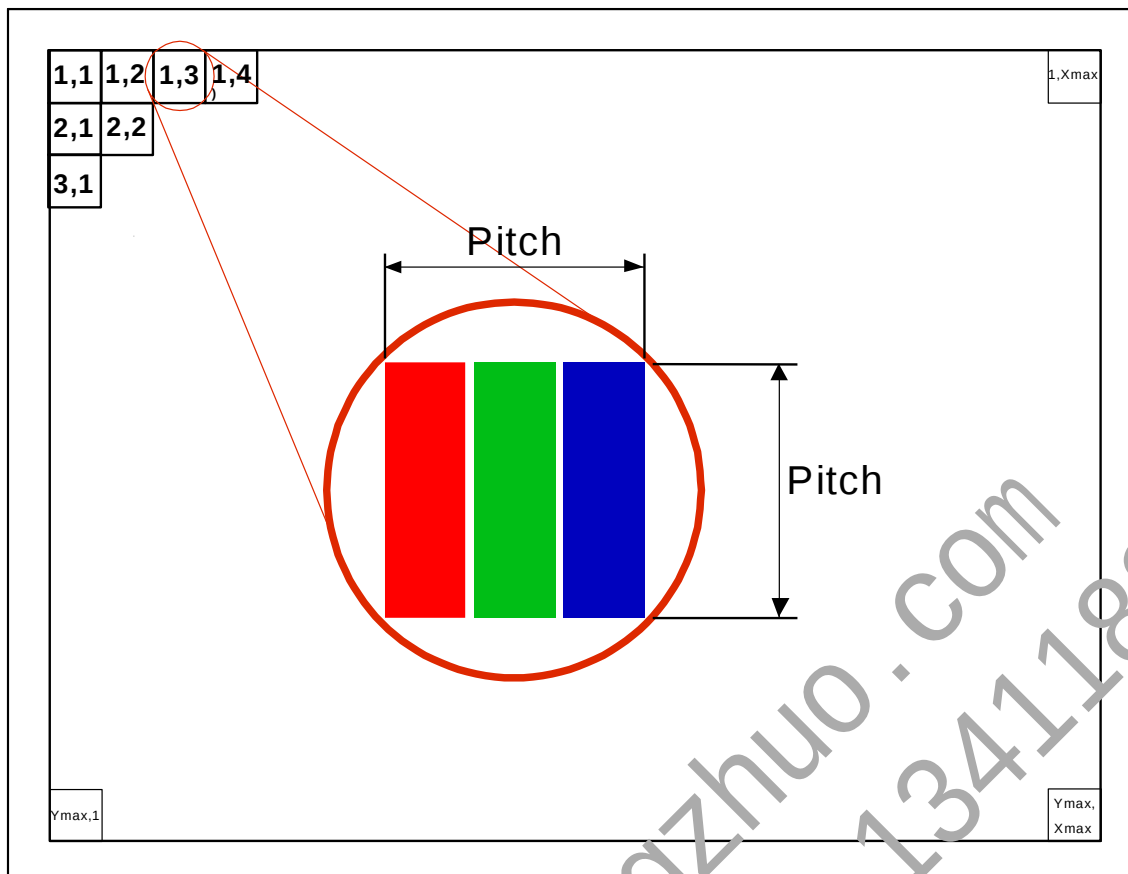
Note (1) The circuit of function pin is shown in the following figure.

Note (2) The pixel is shown in the following figure.

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.



Note (2) I2C using information:

- 1.TCON I2C(DDS) address: 0xC2(11000010)
- 2.PMIC address: 0x46 (0100011x)
- 3.LED Driver: 0x6C(A0=0) (0110100x), 0x6E(A0=1)
- 4.Level Shifter: 0x5E(A0=1)(0101111x)

4.3 ELECTRICAL CHARACTERISTICS

4.3.1 LCD ELETRONICS SPECIFICATION

Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Power Supply Voltage	VCCS	3.0	3.3	3.6	V	(1)
BIST Control Level	BIST on	2.2	3.3	3.6	V	(1)
	BIST off	0	-	0.5	V	(1)
I2C(SDA/SCL)	on	1.65/2.2	1.8/3.3	2.2/3.6	V	(1)
	off	0	-	0.5	V	(1)

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

OD(Over Driver)	on		1.65/2.2	1.8/3.3	2.2/3.6	V	(1)
	off		0	-	0.5	V	(1)
Ripple Voltage		V_{RP}	-	-	100	mV	(1)
Inrush Current		I_{RUSH}	-	-	1.5	A	(1)(2)
Power Supply Current	Mosaic	I_{LCD}	-	-	636	mA	(3)
Power consumption	Mosaic	P_{LCD}	-	-	2.2	W	(3)
Power Supply Current	Heavy loading	I_{LCD}	-	-	1667	mA	(4)
Power consumption	Heavy loading	P_{LCD}	-	-	6.0	W	(4)

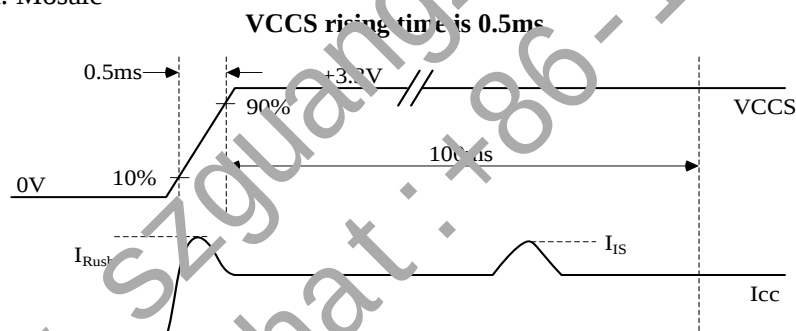
Note (1) The ambient temperature is $T_a = 25 \pm 2^\circ\text{C}$.

Note (2) I_{RUSH} : the maximum current when VCCS is rising

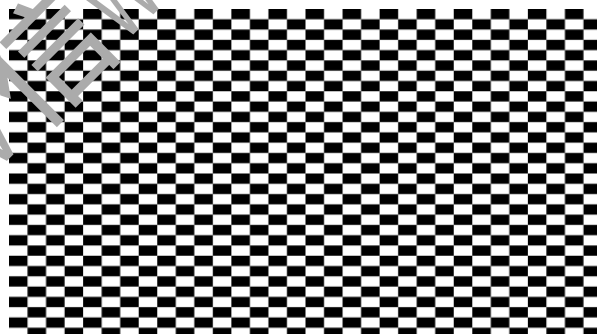
I_{IS} : the maximum current of the first 100ms after power on

Measurement Conditions: Shown as the following figure.

Test pattern: Mosaic



Note (3) The specified power supply current is under the conditions at $V_{CCS} = 3.3\text{ V}$, $T_a = 25 \pm 2^\circ\text{C}$, DC Current and $f_v = 240\text{ Hz}$, whereas a power dissipation check pattern below is displayed.



Note (4) The specified power supply current is under the conditions at $V_{CCS} = 3.3\text{ V}$, $T_a = 25 \pm 2^\circ\text{C}$, DC Current

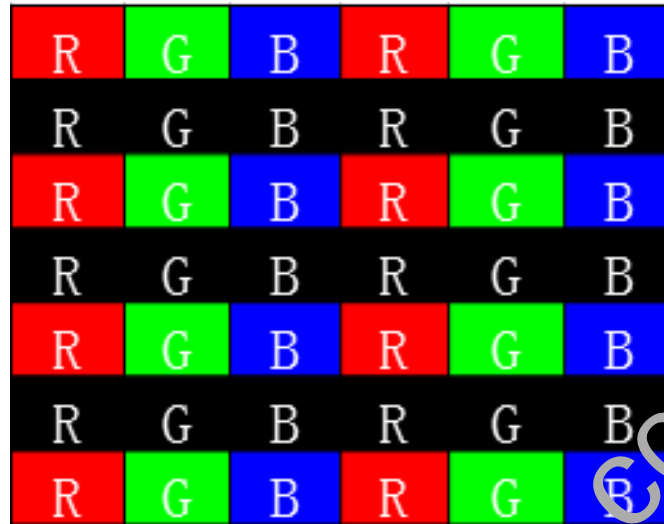
版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

and $f_v = 240 \text{ Hz}$, whereas a power dissipation Heavy loading pattern below is displayed.



LED CONVERTER SPECIFICATION

Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Converter Input power supply voltage		LED_VCC	5.0	12.5	21.0	V	
Converter Inrush Current		I _{LED_RUSH}	-	-	1.5	A	(1)
EN Control Level	Backlight On		1.65/2.2	1.8/3.3	2.2/3.6	V	
	Backlight Off		0	-	0.5	V	
PWM Control Level	PWM High Level		1.65/2.2	1.8/3.3	2.2/3.6	V	
	PWM Low Level		0	-	0.5	V	
PWM Control Duty Ratio			1	-	100	%	
PWM Control Permissible Ripple Voltage		V _{PWM_pp}	-	-	100	mV	
PWM Control Frequency		f _{PWM}	200	-	2000	Hz	
LED Power consumption		P _L	-	-	6.0	W	(2)
LED Power Current	LED_VCCS =Typ.	I _L -	-	-	500	mA	(3)

Note (1) I_{LED_RUSH}: the maximum current when LED_VCCS is rising,

I_{LED_IS}: the maximum current of the first 100ms after power-on,

Measurement Conditions: Shown as the following figure. LED_VCCS = Typ, Ta = 25 ± 2 °C, f_{PWM} = 200 Hz, Duty=100%.

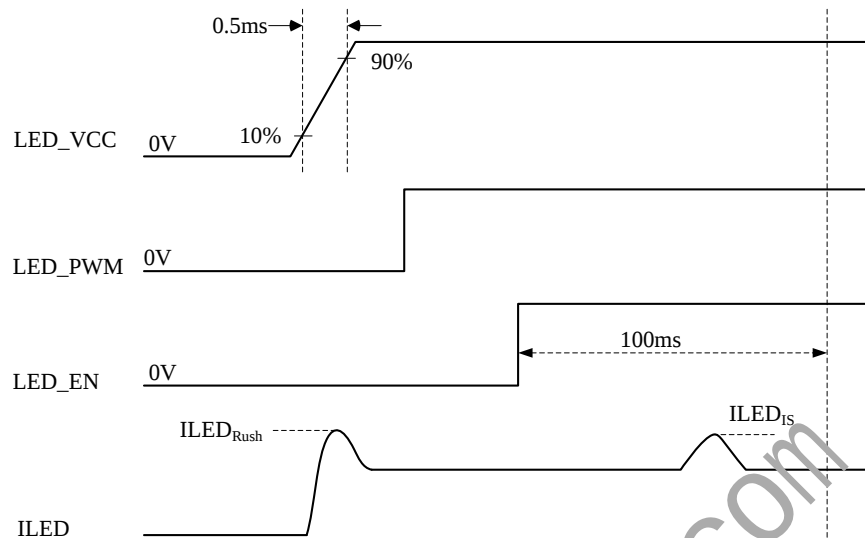
版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

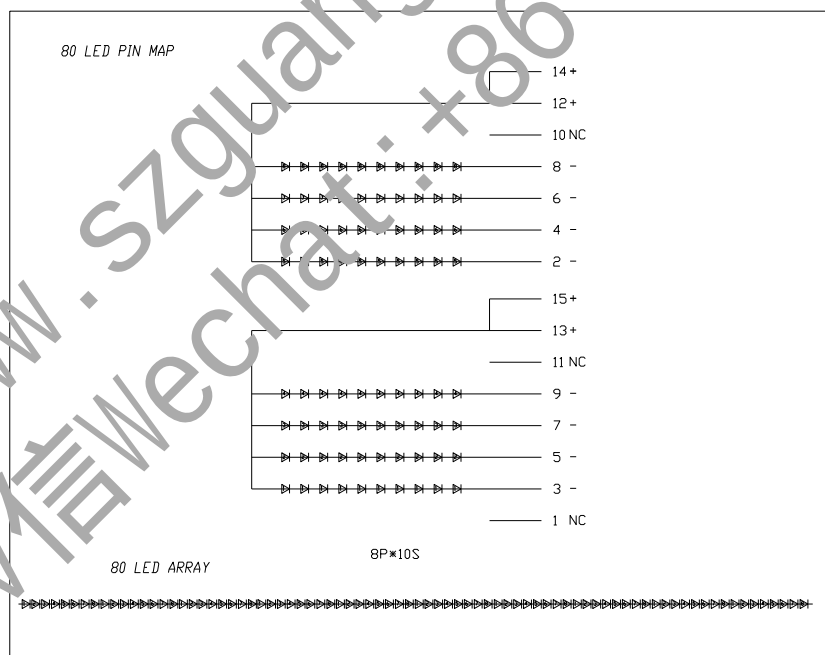
VLED rising time is 0.5ms



Note(2) $P_L = I_L \times V_L$ (With LED converter transfer efficiency);

Note (3) The specified LED power supply current is under the conditions at “LED_VCCS = Typ”, $T_a = 25 \pm 2^\circ\text{C}$, fPWM = 200 Hz, Duty=100%.

4.3.1 BACKLIGHT UNIT



$T_a = 25 \pm 2^\circ\text{C}$

Parameter	Symbol	Value	Unit	Note
-----------	--------	-------	------	------

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

		Min.	Typ.	Max.		
LED Light Bar Power Supply Voltage	VL	-	-	28.9	V	(1)(2)
LED Light Bar Power Supply Current	IL	-	180.8	-	mA	(Duty100%)
Power Consumption	PL	-	-	6.0	W	(3)
LED Life Time	L _{BL}	15000	-	-	Hrs	(4)

Note (1) LED current is measured by utilizing a high frequency current meter :

Note (2) For better LED light bar driving quality, it is recommended to utilize the adaptive boost converter with current balancing function to drive LED light-bar.

Note (3) $P_L = I_L \times V_L$ (Without LED converter transfer efficiency)

Note (4) The lifetime of LED is defined as the time when it continues to operate under the conditions at $T_a = 25 \pm 2^\circ\text{C}$ and $I_L = 20\text{mA}$ (Per EA) until the brightness becomes $\leq 50\%$ of its original value.

4.4 INPUT SIGNAL TIMING SPECIFICATIONS

4.4.1 eDP AUX Channel Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Unit Interval for AUX channel	UI _{AUX}	0.4	-	0.6	μS	
Peak-to-peak voltage at TP1	V _{AUX-DIFF-P}	0.18	0.2	1.38	V	
AUX DC Common mode Voltage	V _{AUX-DC-CM}	0	-	1.2	V	
AUX Short current limit	I _{AUX-SHORT}	-	-	90	mA	
AUX CH termination DC resistor	R _{AUX-TERM}	80	100	120	Ω	Differential input
AUX AC coupling capacitor	C _{AUX}	75	-	200	nF	
Number of pre-charge pulses	Pre-charge pulses	10	-	16		

4.4.2 eDP Main Link Receiver Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Link clock down spreading	Down_Spread_Amplitude	0		0.5	%	
Differential Peak-to-peak Input Voltage at Rx package pins	V _{RX-DIFF-P}	100	-	1320	mV	
Differential termination resistance	R _{RX-TERM}	80	90	100	Ω	
RX short circuit Current Limit	I _{RX-SHORT}	-	-	50	mA	
Lane Intra-pair Skew at RX package pins	T _{RX-SKEW-INTRA-PAIR-High-Bit-Rate}	-	-	50	ps	

4.4.3 eDP AUX Channel Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
-----------	--------	------	------	------	------	------

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

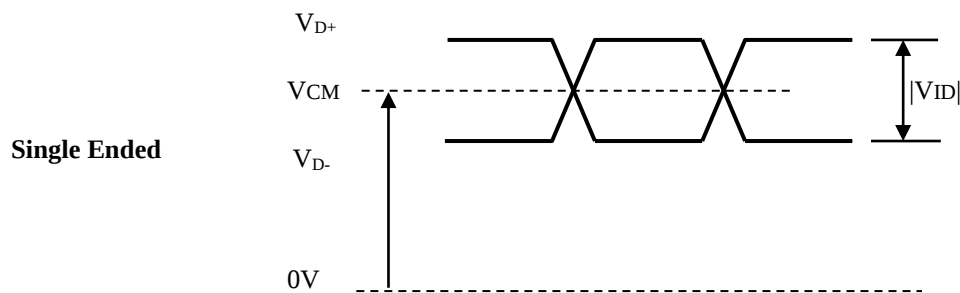
The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

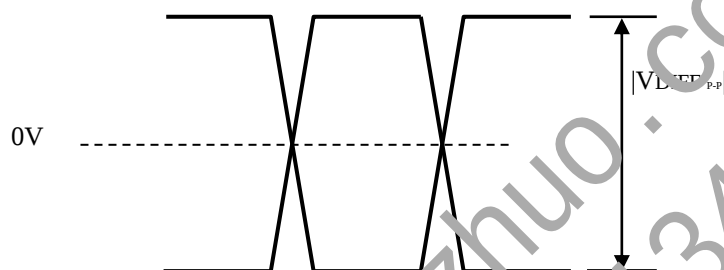
Wuhan China Star Optoelectronics Technology Co.,Ltd

Hot plug Detect	V _{HPD}	2.5	-	2.8	V	
-----------------	------------------	-----	---	-----	---	--

Note (1) Display port interface related AC coupled signals are following VESA Display Port Standard V1.4b.



Differential



4.4.4 COLOR DATA INPUT ASSIGNMENT

The brightness of each primary color (red, green and blue) is based on the 8-bit gray scale data input for the color. The higher the binary input the brighter the color. The table below provides the assignment of color versus data input.

Color	Data Signal																							
	Red								Green								Blue							
	R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale Of Red	Red(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Red(253)	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(254)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(255)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale Of Green	Green(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Green(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Green(253)	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0
	Green(254)	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Green(255)	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

Gray Scale Of Blue	Blue(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1
	Blue(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Blue(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Note (1) 0: Low Level Voltage, 1: High Level Voltage

4.5 DISPLAY TIMING SPECIFICATIONS

The input signal timing specification is showed as the following table and timing diagram.

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
	Frame	TV	/	240	/	Hz	
DCLK	Frequency	1/Tc	/	1142.4	/	MHz	-
DE	Vertical Total Time	TV	/	1750	/	TH	-
	Vertical Active Display Period	TVD	/	1600	/	TH	-
	Vertical Active Blanking Period	TVB	/	150	/	TH	-
	Horizontal Total Time	TH	/	2720	/	Tc	-
	Horizontal Active Display Period	THD	/	2560	/	Tc	-
	Horizontal Active Blanking Period	THB	/	160	/	Tc	-

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
	Frame	TV	/	60	/	Hz	
DCLK	Frequency	1/Tc	/	244.8	/	MHz	-
DE	Vertical Total Time	TV	/	1750	/	TH	-
	Vertical Active Display Period	TVD	/	1600	/	TH	-
	Vertical Active Blanking Period	TVB	/	150	/	TH	-

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

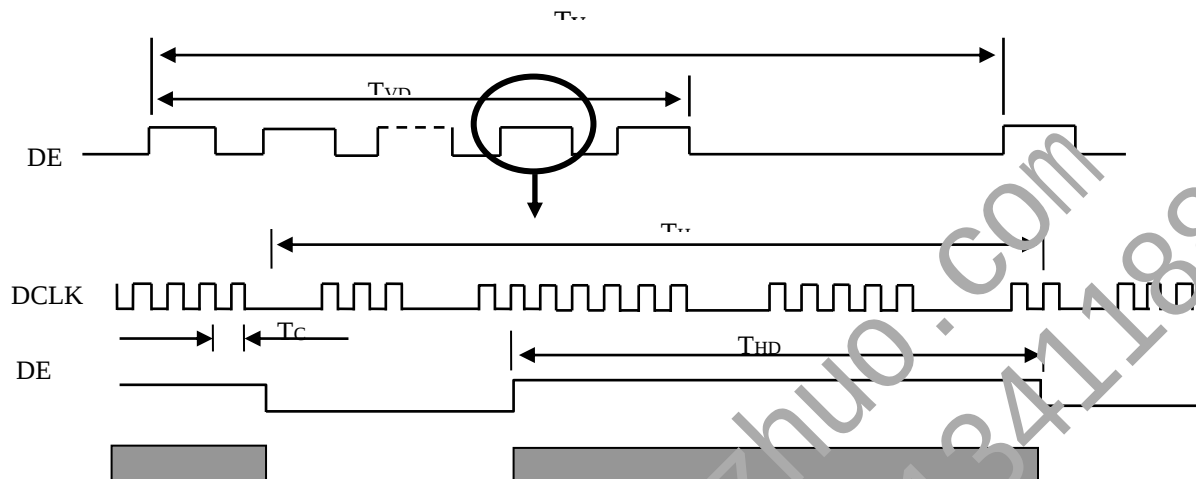
Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

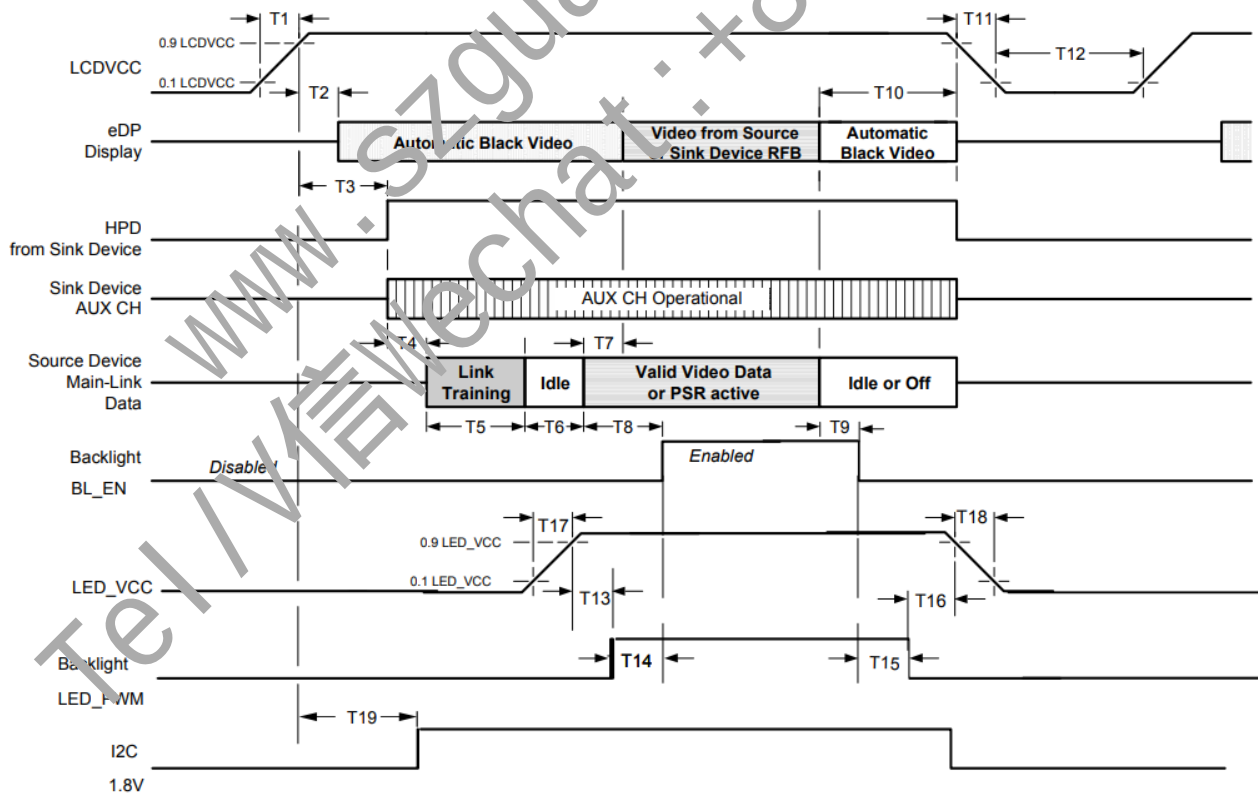
Horizontal Total Time	TH	/	2720	/	Tc	-
Horizontal Active Display Period	THD	/	2560	/	Tc	-
Horizontal Active Blanking Period	THB	/	160	/	Tc	-

Note (1) Display timing signal should be contained and transferred by Display Port Main Link stream data packing described in VESA Display Port Standard V1.4b.

INPUT SIGNAL TIMING DIAGRAM



4.6 POWER ON/OFF SEQUENCE



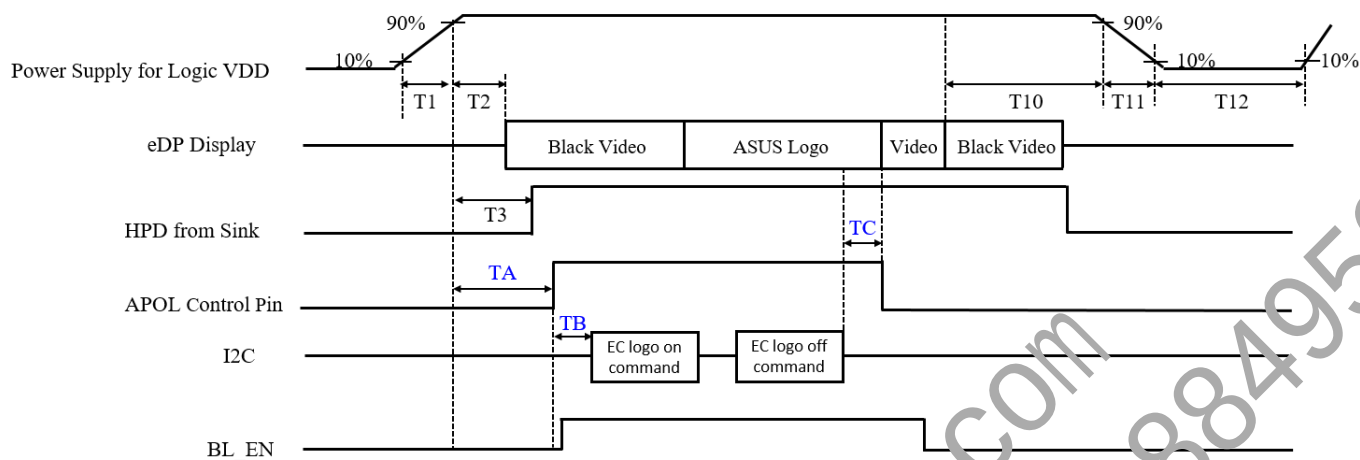
版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

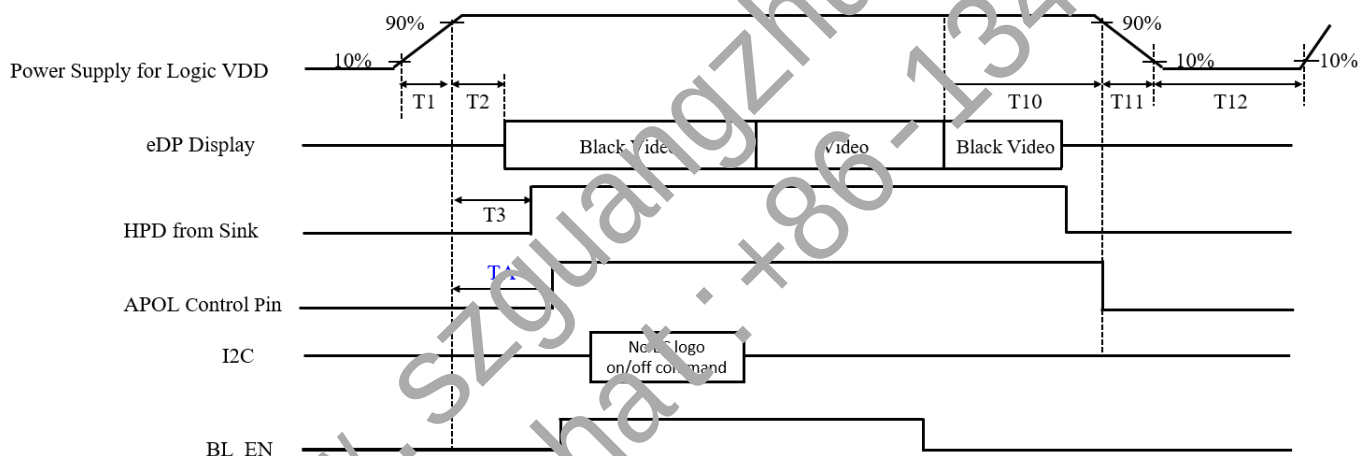
Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

APOL version: V1.7



Other mode:



Symbol	Description	Min	Typ.	Max	Unit	Note
T1	Power rails rising time, 10% to 90%	0.5		10	ms	
T2	Delay from LCD,VCCS to eDP Display	0		80	ms	
T3	Delay from LCD,VCCS to HPD high	0		80	ms	
T4	Delay from Sink AUX to link training initialization	-		-	ms	
T5	Link training duration	-		-	ms	
T6	Link idle	-		-	ms	
T7	Delay from valid video data from Source to video on display	0		50	ms	

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

T8	Delay from valid video data from Source to backlight on	-		-	ms	
T9	Delay from backlight off to end of valid video data	0		T10-50	ms	
T10	Delay from end of valid video data from Source to power off	50		500	ms	
T11	VCCS power rail fall time, 90% to 10%	-		10	ms	(1)
T12	VCCS Power off time	500		-	ms	
T13	Delay from VCC to PWM	0		-	ms	
T14	Delay from PWM to LED ENABLE	0		-	ms	
T15	Delay from LED ENABLE to PWM Disable	0			ms	
T16	Delay from PWM Disable to VBL 90%	0			ms	
T17	Delay from VBL 10% to VBL 90%	0		-	ms	
T18	VBL power rail fall time, 90% to 10%	0		-	ms	
TA	Delay from LCD,VCCS to APOL on	0	-	100	ms	
TB	Delay from APOL on to EC logo on command	0		25	ms	
TC	Delay from EC logo off command to APOL off	0		1	frame	

Note (1) Please follow the power on/off sequence described above. Otherwise, the LCD module might abnormal display or be damaged.

Note (2) Please avoid floating state of interface signal at invalid period. When the interface signal is invalid, be sure to pull down the power supply of LCD VCCS to 0 V.

Note (3) The backlight must be turned on after the power supply for the logic and the interface signal is valid.

The backlight must be turned off before the power supply for the logic and the interface signal is invalid.

Note (4) Please follow the LED backlight power sequence as above. If the customer could not follow, it might cause backlight flash issue during display ON/OFF or damage the LED backlight controller

5. Optical characteristics

	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Viewing angle range	Left/Right	CR>10		89		Deg.	(1), (3), (4), (6)
	Upper/Lower			89			
Contrast ratio	CR	$\theta=0$ deg.	1000	1200	-	-	(2), (4), (6)
Response time	GTG ave wi OD		-	3	4	ms	(5) 以W/I OD数据为准
	GTG ave wo OD		-	5	6	ms	

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

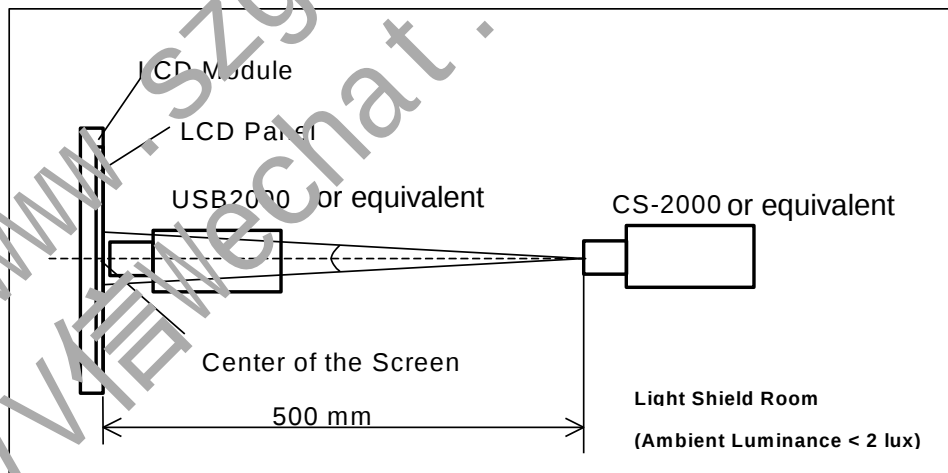
Chromaticity of white	x		Typ. -0.025	0.3127	Typ. +0.025	-	(2), (6) Normal operation
	y			0.3290		-	
Chromaticity of red	x			0.680		-	
	y			0.316		-	
Chromaticity of green	x			0.259		-	
	y			0.697		-	
Chromaticity of blue	x			0.142		-	
	y			0.055		-	
Gamut	%		95%	100%	-	%	DCI/ CIE1976uv
Luminance of White	Y_L	-	425	500	-	cd/m ²	(7)
Gamma	-	-	2.0	2.2	2.4		Vesa gamma
Flicker	60hz	Flicker pattern	-	-	-30	db	/
Low blue light ratio	White	(415-455)/(400-500)	-	-	50	%	/
White uniformity 5pt	δW	$\theta = 0$ deg.	-		1.25	-	(8)
White uniformity 13pt	δW	$\theta = 0$ deg.	-		1.5	-	(2), (8)

※The measurement shall be taken 5 minutes after lighting the LCM at the following rating.

※The optical characteristics shall be measured in a dark room or equivalent.

Note (1) Measurement of viewing angle range

Note (2) Measurement of luminance and Chromaticity and Contrast.



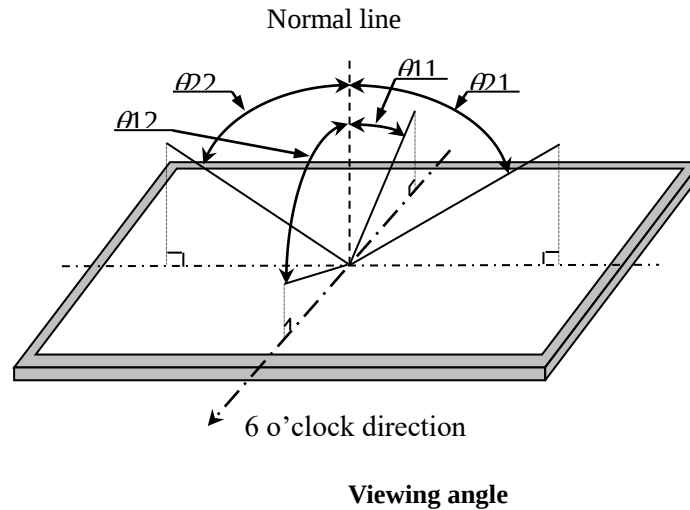
Note (3) Definitions of viewing angle range:

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd



Note (4) Definition of contrast ratio:

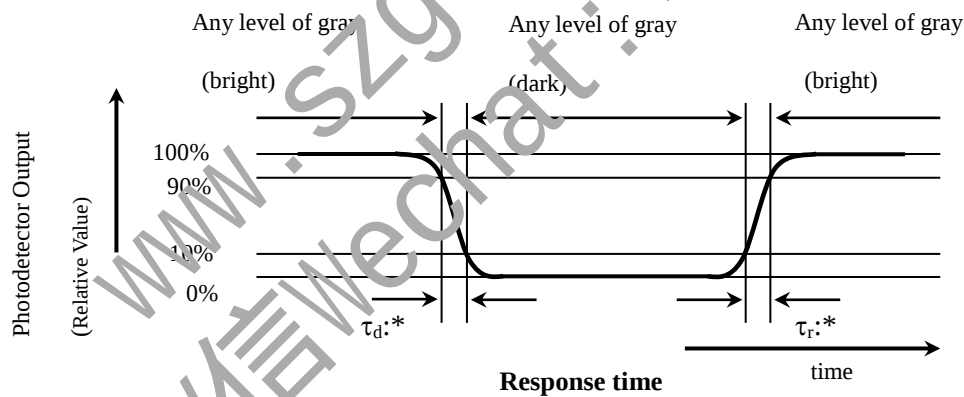
The contrast ratio is defined as the following.

$$\text{Contrast Ratio} = \frac{\text{Luminance(Brightness) with all pixels white}}{\text{Luminance(Brightness) with all pixels Black}}$$

Note (5) Definition of response time:

The response time is defined as the following figure and shall be measured by switching the input signal for "black" and "white" .

$$\text{GTG ave} = \frac{t_{0-32} + t_{32-0} + t_{0-14} + t_{14-0} + \dots + t_{223-255} + t_{255-223}}{8 \times 9}$$



版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

		Start Gray								
		0	31	63	95	127	159	191	223	255
End Gray	0									
	31									
	63									
	95									
	127									
	159									
	191									
	223									
	255									

Response time

Note (6) This shall be measured at center of the screen..

Note (7) Definition of white uniformity:

White uniformity of 5 points is defined as the following with 5 measurements(4,6,7,9,10).

$$\delta_{w1} = \frac{\text{Maximum Luminance of 5 Points(Brightness)}}{\text{Minimum Luminance of 5 Points(Brightness)}}$$

White uniformity of 13 points is defined as the following with 13 measurements(1~13).

$$\delta_{w2} = \frac{\text{Maximum Luminance of 13 Points(Brightness)}}{\text{Minimum Luminance of 13 Points(Brightness)}}$$

6. Reliability Test Items

No.	Test Item	Conditions
1	High temperature storage test	60°C,240h
2	Low temperature storage test	-20°C,240h
3	Low temperature operation test	0°C,500h
4	High temperature & High	50°C,80%RH,1000hrs±48hrs

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

	humidity operation test	
5	Thermal shock test	-20°C/30min、60°C/30min 100cycles
6	TC	-20±2°C/18minutes±5%、60±2°C/18minutes±5% 40cycles
7	Altitude test (Alt)	53.3±5% KPa (altitude 5000m),24±2 hours
8	on/off Test (on/off)	Room temperature (25±3°C),500 hours (30sec.on/30sec.off,30,000 cycles);
9	Life Test (Life)	Room temperature (25±3°C),2000hrs±72hrs;
10	ESD	150pF[330Ω],Contact:±8KV,Air:±15KV
11	Vibration	1.5G,10->200Hz,For x, y, z axis,30min for each axis
12	Shock	(1) 50G 18msec.trapezoidal (2) 210G 3msec.half-sine 1 for each ± x, y, z direction, total 6 times for (1),(2) Power off
13	IS	Condition: room temp.: 25±3°C; room ambient: 0-500Lux; viewing distance: 30-50cm Procedure: Turn off the panel at least 12 hours before starting test; 0 minutes、2 minutes every 5minutes up to 30min、2hours 、4hour and 10hour; Checking IS by using 64Gray scale from Gray0~63 under 30s.

7. Display Quality

The display quality of the color TFT-LCD Module shall be in compliance with the Incoming Inspection Standard.

8. Packaging Condition

8.1 Packing Specifications

Item	Specification	Remark
Carton(Box) Packing	40 PCS/Carton(Box)	5 PCS/Tray, (4+1) *2
Carton(Box) Packing Size	490mm(L)x392mm(W)x310mm(H)	Length x Width x Height
Pallet Packing	24 Carton(Box)/Pallet	6*4
Pallet Packing Size	1200mm(L)x1000mm(W)x1360mm(H)	Length x Width x Height

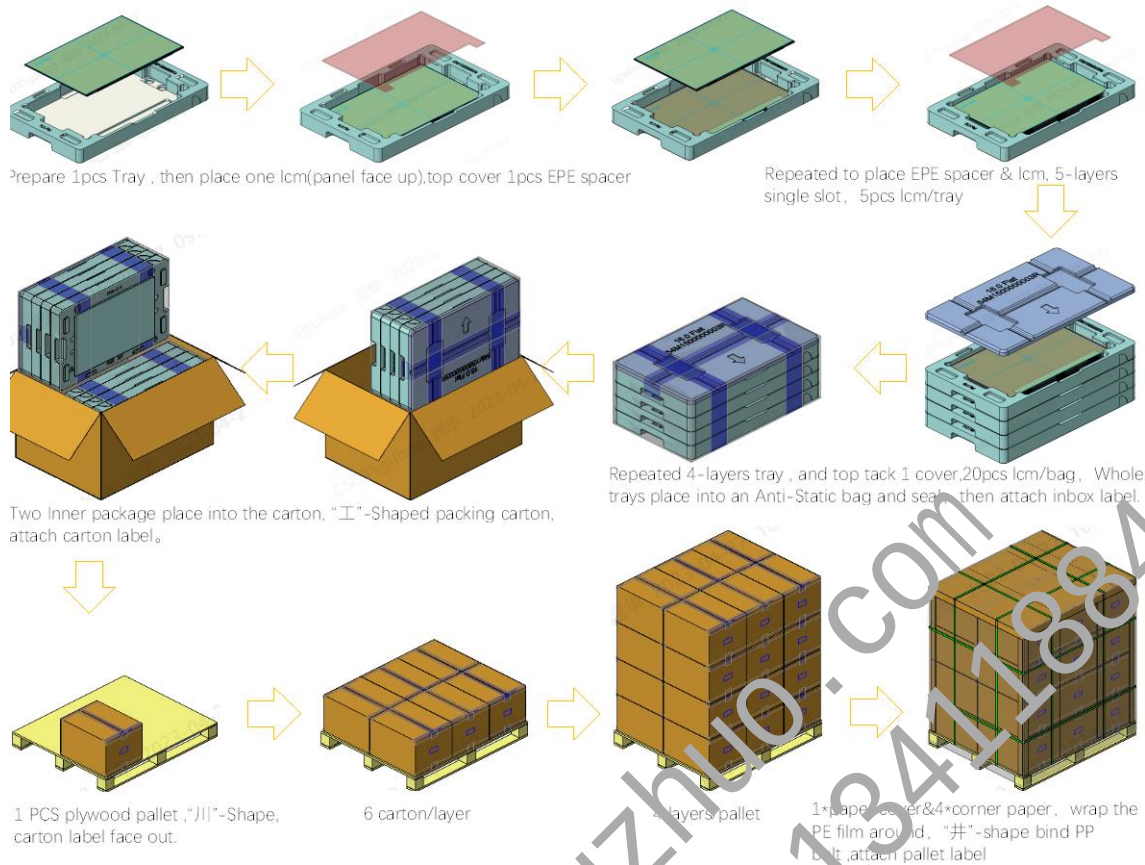
8.2 Packing Method

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

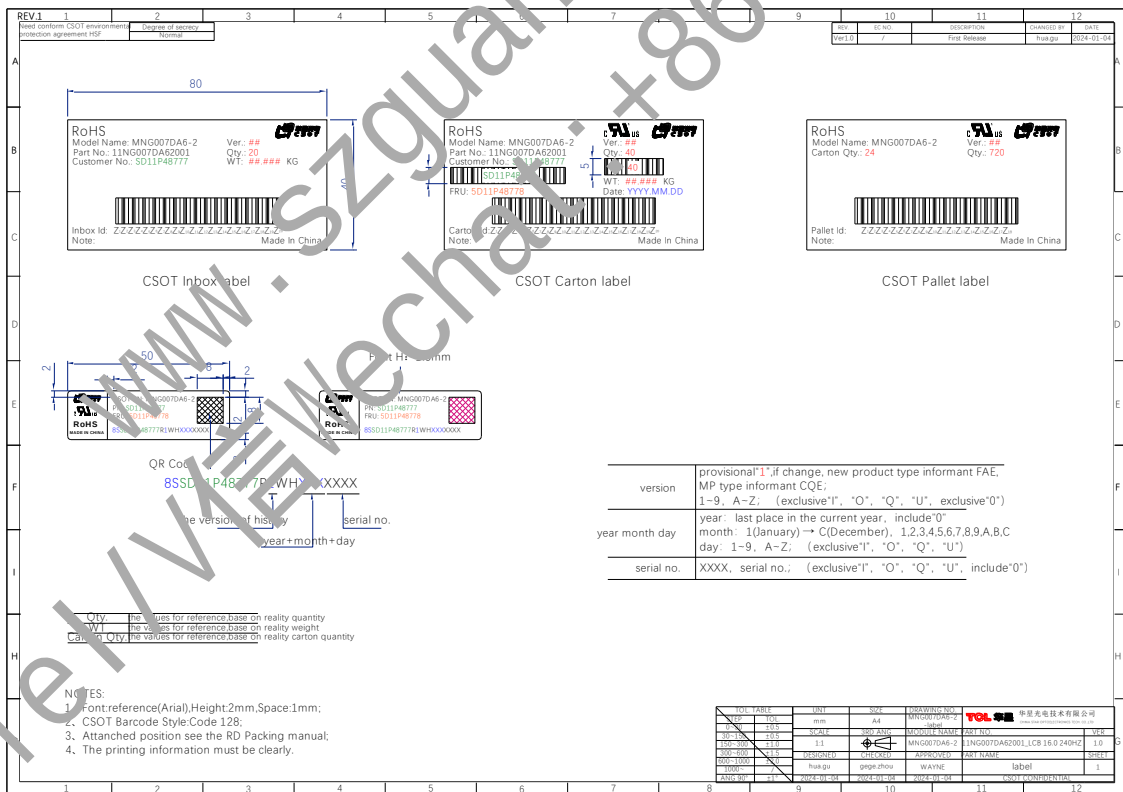
The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd



8.3 Label



9. RoHS Directive

This LCD Module is compliant with RoHS Directive.

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

10. Handling Precautions

- a) Be sure to turn off the power supply when inserting or disconnecting the cable .Please insert for too much stress not to join a connector in the case of insertion of a connector.
- b) Be sure to design the cabinet so that the Module can be installed without any extra stress such as warp or twist.
- c) Since the front polarizer is easily damaged, pay attention not to scratch it.
- d) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.
- e) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
- f) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface. Handle with care.
- g) Since CMOS LSI is used in this Module, take care of static electricity and injure the human earth when handling. Observe all other precautionary requirements in handling components.
- h) This Open-cell has its circuitry PCBs on the side and should be handled carefully in order not to be stressed.
- i) Laminate film is attached to the Module surface to prevent it from being scratched. Peel the laminate film off slowly just before the use with strict attention to electrostatic charges. Ionized air shall be blown over during the action. Blow off the 'dust' on the polarizer by using an ionized nitrogen gas, etc. Working under the following environments is desirable.
 - All workers wear conductive shoes, conductive clothes, conductive fingerstalls and grounding belts without fail.
 - Use Ionized blower for electrostatic removal, and peel of the laminate film with a constant speed. (Peeling of it at over 2 seconds)
- j) The polarizer surface on the panel is treated with Anti Glare . In case of attaching protective board over the LCD, be careful about the optical interface fringe etc. which degrades display quality.
- k) Do not expose the LCD Module to a direct sunlight, for a long period of time to protect the Module from the ultra violet ray.
- l) When handling LCD Modules and assembling them into cabinets, please be noted that long-term storage in the environment of oxidation or deoxidization gas and the use of such materials as reagent, solvent, adhesive, resin, etc. which generate these gasses, may cause corrosion and discoloration of the Modules.
- m) Liquid crystal contained in the panel may leak if the LCD is broken. Rinse it as soon as possible if it gets inside your eye or mouth by mistake.
- n) Disassembling the Module can cause permanent damage and should be strictly avoided.(Except for protection film of the panel.)
- o) Be careful when using it for long time with fixed pattern display as it may cause afterimage.(Please use a screen saver etc., in order to avoid an afterimage.)
- p) If a minute particle enters in the Module and adheres to an optical material, it may cause display non-uniformity issue, etc. Therefore, fine-pitch filters have to be installed to cooling and inhalation hole if you intend to install a fan.

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

- q) Epoxy resin (amine series curing agent), silicone adhesive material (dealcoholization series and oxime series), tray forming agent (azo compound) etc, in the cabinet or the packing materials may induce abnormal display with polarizer film deterioration regardless of contact or noncontact to polarizer film. Be sure to confirm the component of them.
- r) Do not use polychloroprene. If you use it, there is some possibility of generating Cl₂ gas that influences the reliability of the connection between LCD panel and driver IC.
- s) Do not put a laminate film on LCD Module, after peeling of the original one. If you put on it, it may cause discoloration or spots because of the occurrence of air gaps between the polarizer and the film.
- t) Ground module bezel to stabilize against EMI and external noise.

Appendix. EDID DATA STRUCTURE: MNG007DA6-2 EDID Table_V1_20231229

EDID Table Format					
Byte#	Byte#	Field Name and Comments (BIOS EDID based)	Lenovo Requirements	Value	Value
(Dec)	(Hex)			(Hex)	(Dec)
0	00	Header	"00h" fixed	00	0
1	01		"FFh" fixed	FF	255
2	02		"FFh" fixed	FF	255
3	03		"FFh" fixed	FF	255
4	04		"FFh" fixed	FF	255
5	05		"FFh" fixed	FF	255
6	06		"FFh" fixed	FF	255
7	07		"00h" fixed	00	0
8	08	ID Manufacturer Name	Panel EDID: Manufacture Name of Supplier	0E	14
9	09		BIOS EDID: LEN (30AEh)	77	119
10	0A	ID Product Code	Panel EDID: Product Code of Supplier	43	67
11	0B		BIOS EDID: Lenovo define	16	22
12	0C	ID Serial Number (32-bit serial number)	Basically "00h"	06	6
13	0D	family ID	Basically "00h"	60	96

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

14	0E		Basically "00h"	00	0
15	0F		Basically "00h"	00	0
16	10	Manufacture week (1-53) & Model year Flag (FFh)	Panel EDID: "00h" or Manufacture week BIOS EDID: "00h" recommend	04	4
17	11	Manufacture year (year -1990) or Model year	Manufacture year	22	34
18	12	EDID Structure version		01	1
19	13	EDID Revision		04	4
20	14	Video Input Definition		B5	101
21	15	H screen size (cm) or Aspect Ratio	H screen size (cm)	22	34
22	16	V screen size (cm) or Aspect Ratio	V screen size (cm)	16	22
23	17	Display gamma (gamma x 100)-100		7	120
24	18	Feature support(DPMS)	Panel EDID: Supplier define BIOS EDID: Lenovo Spec fixed EDID ver1.3 case (LVDS) "E1" EDID ver1.4 case (eDP) "E2" EDID ver1.4 case (eDP) + LRR2.5 ... "E3" (Refer to address 12h, 13h)	03	3
25	19	Red/Green Low Bits	Basically enter the same value as CAS.	06	6
26	1A	Blue/White Low Bits		45	69
27	1B	Red x		AE	174
28	1C	Red y		51	81
29	1D	Green x		42	66
30	1E	Green y		B2	178
31	1F	Blue x		24	36
32	20	Blue y		0E	14
33	21	White x		50	80
34	22	White y		54	84
35	23	Established Timing 1	"00h" fixed	00	0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

36	24	Established Timing 2	"00h" fixed	00	0
37	25	Manufacturer's Reserved Timings	"00h" fixed	00	0
38	26	Standard Timing Identification #1	"01h" fixed	01	1
39	27		"01h" fixed	01	1
40	28	Standard Timing Identification #2	"01h" fixed	01	1
41	29		"01h" fixed	01	1
42	2A	Standard Timing Identification #3	"01h" fixed	01	1
43	2B		"01h" fixed	01	1
44	2C	Standard Timing Identification #4	"01h" fixed	01	1
45	2D		"01h" fixed	01	1
46	2E	Standard Timing Identification #5	"01h" fixed	01	1
47	2F		"01h" fixed	01	1
48	30	Standard Timing Identification #6	"01h" fixed	01	1
49	31		"01h" fixed	01	1
50	32	Standard Timing Identification #7	"01h" fixed	01	1
51	33		"01h" fixed	01	1
52	34	Standard Timing Identification #8	"01h" fixed	01	1
53	35		"01h" fixed	01	1
54	36	Pixel Clock/10,000 (LSB)	Panel EDID: Preferred Timing Mode BIOS EDID: Preferred Timing Mode	90	144
55	37	Pixel Clock/10,000 (MSB) /		6F	111
56	38	Horizontal Active		00	0
57	39	Horizontal Blanking		A0	160
58	3A	Horizontal Active : Horizontal Blanking		A0	160
59	3B	Vertical Active		40	64
60	3C	Vertical Blanking		96	150
61	3D	Vertical Active : Vertical Blanking		60	96
62	3E	Horizontal Sync. Offset		30	48
63	3F	Horizontal Sync. Pulse Width		20	32
64	40	Vertical Sync. Offset : Sync Width		36	54
65	41	Horizontal / Vertical Sync Offset/Width		00	0
66	42	Horizontal Image Size		58	88
67	43	Vertical Image Size		D7	215
68	44	Horizontal & Vertical Image Size		10	16
69	45	Horizontal Border		00	0
70	46	Vertical Border		00	0
71	47	Signal Interface Type		18	24
72	48	Pixel Clock/10,000 (LSB) (Slow Refresh rate)	Panel EDID: Supplier define	00	0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

73	49	Pixel Clock/10,000 (MSB) / (Slow Refresh rate)	Below is Lenovo recommend.	00	0
74	4A	Horizontal Active	- LRR1.0(PSR2, LRR): Slow refresh	00	0
75	4B	Horizontal Blanking	rate timing	FD	253
76	4C	Horizontal Active : Horizontal Blanking	- LRR 2.5(PSR2, VRR): MRL	0C	12
77	4D	Vertical Active	- Not LRR: All "00h" in this descriptor	3C	60
78	4E	Vertical Blanking		F0	240
79	4F	Vertical Active : Vertical Blanking	BIOS EDID: Slow Refresh rate Table	A5	165
80	50	Horizontal Sync. Offset	- LRR1.0(PSR2, LRR): Slow refresh	A5	165
81	51	Horizontal Sync Pulse Width	rate timing	73	115
82	52	Vertical Sync Offset : Sync Width	- LRR 2.5(PSR2, VRR): MRL	01	1
83	53	Horizontal Vertical Sync Offset/Width	- Not LRR: All "00h" in this descriptor	0A	10
84	54	Horizontal Image Size		20	32
85	55	Vertical Image Size	MRL (Monitor Range Limits)	20	32
86	56	Horizontal & Vertical Image Size	48h -> "00h" fixed	20	32
87	57	Horizontal Border	49h -> "00h" fixed	20	32
88	58	Vertical Border	4Ah -> "00h" fixed	20	32
89	59	Signal Interface Type	4Bh -> "FDh" fixed 52h -> "01h" fixed 53h -> "0Ah" fixed 54h -> "20h" fixed 55h -> "20h" fixed 56h -> "20h" fixed 57h -> "20h" fixed 58h -> "20h" fixed 59h -> "20h" fixed	20	32
90	5A	Flag		00	0
91	5B	Flag	Panel EDID: Supplier define	00	0
92	5C	Flag	Below is Lenovo recommend.	00	0
93	5D	Data Type 1	- Supplier name	FE	254
94	5E	Flag	- Enter all "00h" in this descriptor	00	0
95	5F	(Horizontal active pixel /8)-31 (BIOS EDID)		43	67
96	60	Image Aspect Ratio (BIOS EDID)	BIOS EDID: Refer to left comment.	53	83
97	61	Middle Refresh Rate (BIOS EDID)	5Ah -> "00h" fixed	4F	79
98	62	(Horizontal active pixel /8)-31 (BIOS EDID)	5Bh -> "00h" fixed	54	84
99	63	Image Aspect Ratio (BIOS EDID)	5Ch -> "00h" fixed	20	32
100	64	Low Refresh Rate (BIOS EDID)	5Dh -> "0Fh" fixed	54	84
101	65	Brightness(1/10nit) (BIOS EDID)	5Eh -> "00h" fixed	33	51

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

102	66	Feature flag (BIOS EDID)		0A	10
103	67	Feature flag (BIOS EDID)		20	32
104	68	Display Supplier manufacture Code		20	32
105	69	(3 character ID) (BIOS EDID)		20	32
106	6A	Display Supplier Product code (BIOS EDID)		20	32
107	6B			20	32
108	6C	Flag		00	0
109	6D	Flag		00	0
110	6E	Flag		00	0
111	6F	Data Type Tag	Panel EDID: Model Name	FE	254
112	70	Flag	6Ch -> "00h" fixed	00	0
113	71	Model Name	6Dh -> "00h" fixed	4E	77
114	72	Model Name	6Eh -> "00h" fixed	4E	78
115	73	Model Name	6Fh -> "FEh" fixed	47	71
116	74	Model Name	70h -> "00h" fixed	30	48
117	75	Model Name		30	48
118	76	Model Name	BIOS EDID: Model Name	37	55
119	77	Model Name	6Ch -> "00h" fixed	44	68
120	78	Model Name	6Dh -> "00h" fixed	41	65
121	79	Model Name	6Eh -> "00h" fixed	36	54
122	7A	Model Name	6Fh -> "FEh" fixed	2D	45
123	7B	Model Name	70h -> "00h" fixed	32	50
124	7C	Model Name		0A	10
125	7D	Model Name		20	32
126	7E	Extension flag		02	2
127	7F	Checksum		B7	183
128	80	EDID Extension Tags	HDR support "02h" fixed	02	2
129	81	Revision Number	HDR support "03h" fixed	03	3
130	82	Byte number offset	HDR support "0Fh" fixed	0F	15
131	83	Total number of Detailed Timing	HDR support "00h" fixed	00	0
132	84	Tag Code [7:5], Length of data [4:0]	HDR support "E3h" fixed	E3	227
133	85	Extended Tag Code	HDR support "05h" fixed	05	5
134	86	Colorimetry Support Flags		80	128

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

135	87	Colorimetry Metadata Support Flags	HDR support "00h" fixed	80	128
136	88	Tag Code [7:5], Length of data [4:0]	HDR support "E6h" fixed	E6	230
137	89	Extended Tag Code	HDR support "06h" fixed	06	6
138	8A	Supported Electro-Optical Transfer Function		05	5
139	8B	SM_0 =1: Static Metadata Type 1	HDR support "01h" fixed	01	1
140	8C	Desired Content Max Luminance data		6A	106
141	8D	Desired Content Max Frame-average Luminance data		6A	106
142	8E	Desired Content Min Luminance data		48	72
143	8F	Extended Tag Code	VSDB support....."6Dh" fixed	00	0
144	90	IEEE OUI of AMD VSDB		00	0
145	91			00	0
146	92			00	0
147	93			00	0
148	94	Revision	VSDB support....."02h" fixed	00	0
149	95	Local Diming		00	0
150	96	Freesync Min Rate		00	0
151	97	Freesync Max Rate		00	0
152	98	"00h" for Freesync	VSDB support....."00h" fixed	00	0
153	99	Gamma 2.2 EOTF		00	0
154	9A	Max Luminance1		00	0
155	9B	Min Luminance1		00	0
156	9C	Max Luminance2		00	0
157	9D	Min Luminance2		00	0
158	9E		"00h" fixed	00	0
159	9F		"00h" fixed	00	0
160	A0		"00h" fixed	00	0
161	A1		"00h" fixed	00	0
162	A2		"00h" fixed	00	0
163	A3		"00h" fixed	00	0
164	A4		"00h" fixed	00	0
165	A5		"00h" fixed	00	0
166	A6		"00h" fixed	00	0
167	A7		"00h" fixed	00	0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

168	A8	"00h" fixed	00	0
169	A9	"00h" fixed	00	0
170	AA	"00h" fixed	00	0
171	AB	"00h" fixed	00	0
172	AC	"00h" fixed	00	0
173	AD	"00h" fixed	00	0
174	AE	"00h" fixed	00	0
175	AF	"00h" fixed	00	0
176	B0	"00h" fixed	00	0
177	B1	"00h" fixed	00	0
178	B2	"00h" fixed	00	0
179	B3	"00h" fixed	00	0
180	B4	"00h" fixed	00	0
181	B5	"00h" fixed	00	0
182	B6	"00h" fixed	00	0
183	B7	"00h" fixed	00	0
184	B8	"00h" fixed	00	0
185	B9	"00h" fixed	00	0
186	BA	"00h" fixed	00	0
187	BB	"00h" fixed	00	0
188	BC	"00h" fixed	00	0
189	BD	"00h" fixed	00	0
190	BE	"00h" fixed	00	0
191	BF	"00h" fixed	00	0
192	C0	"00h" fixed	00	0
193	C1	"00h" fixed	00	0
194	C2	"00h" fixed	00	0
195	C3	"00h" fixed	00	0
196	C4	"00h" fixed	00	0
197	C5	"00h" fixed	00	0
198	C6	"00h" fixed	00	0
199	C7	"00h" fixed	00	0
200	C8	"00h" fixed	00	0
201	C9	"00h" fixed	00	0
202	CA	"00h" fixed	00	0
203	CB	"00h" fixed	00	0
204	CC	"00h" fixed	00	0
205	CD	"00h" fixed	00	0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

206	CE	"00h" fixed	00	0
207	CF	"00h" fixed	00	0
208	D0	"00h" fixed	00	0
209	D1	"00h" fixed	00	0
210	D2	"00h" fixed	00	0
211	D3	"00h" fixed	00	0
212	D4	"00h" fixed	00	0
213	D5	"00h" fixed	00	0
214	D6	"00h" fixed	00	0
215	D7	"00h" fixed	00	0
216	D8	"00h" fixed	00	0
217	D9	"00h" fixed	00	0
218	DA	"00h" fixed	00	0
219	DB	"00h" fixed	00	0
220	DC	"00h" fixed	00	0
221	DD	"00h" fixed	00	0
222	DE	"00h" fixed	00	0
223	DF	"00h" fixed	00	0
224	E0	"00h" fixed	00	0
225	E1	"00h" fixed	00	0
226	E2	"00h" fixed	00	0
227	E3	"00h" fixed	00	0
228	E4	"00h" fixed	00	0
229	E5	"00h" fixed	00	0
230	E6	"00h" fixed	00	0
231	E7	"00h" fixed	00	0
232	E8	"00h" fixed	00	0
233	E9	"00h" fixed	00	0
234	EA	"00h" fixed	00	0
235	EB	"00h" fixed	00	0
236	EC	"00h" fixed	00	0
237	ED	"00h" fixed	00	0
238	EE	"00h" fixed	00	0
239	EF	"00h" fixed	00	0
240	FO	"00h" fixed	00	0
241	F1	"00h" fixed	00	0
242	F2	"00h" fixed	00	0
243	F3	"00h" fixed	00	0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

244	F4		"00h" fixed	00	0
245	F5		"00h" fixed	00	0
246	F6		"00h" fixed	00	0
247	F7		"00h" fixed	00	0
248	F8		"00h" fixed	00	0
249	F9		"00h" fixed	00	0
250	FA		"00h" fixed	00	0
251	FB		"00h" fixed	00	0
252	FC		"00h" fixed	00	0
253	FD		"00h" fixed	00	0
254	FE		"00h" fixed	00	0
255	FF	Checksum		FF	246
256	100	EDID Extension Block Tag	EDID Extension Block Tag	70	112
257	101	Display ID version	Display ID version	20	32
258	102	section size	section size	79	121
259	103	product Type identifier	product Type identifier	02	2
260	104	extension count	extension count	00	0
261	105	block tag	block tag	22	34
262	106	block rev	block rev	00	0
263	107	Payload	Payload	14	20
264	108	Pixel Clock	pixel clock	7F	127
265	109			6E	110
266	10A			11	17
267	10B	timing options	timing options	85	133
268	10C	H-Active	H-Active	FF	255
269	10D			09	9
270	10E	H-Blanking	H-Blanking	9F	159
271	10F			00	0
272	110	H-onset	H-offset	2F	47
273	111			00	0
274	112	H-sync pulse width	H-sync pulse width	1F	31
275	113			00	0
276	114	V-Active	V-Active	3F	63
277	115			06	6
278	116	V-Blanking	V-Blanking	95	149
279	117			00	0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

280	118	V-offset	V-offset	02	2
281	119			00	0
282	11A	V-sync pulse width	V-sync pulse width	05	5
283	11B			00	0
284	11C	DID Block #2 Header		25	37
285	11D			01	1
286	11E			09	9
287	11F	DID DATA Block #2 Monitor range limited		7F	127
288	120			6E	110
289	121			11	17
290	122			7F	127
291	123			6E	110
292	124			11	17
293	125			3C	60
294	126			F0	240
295	127			80	128
296	128	DID Block #3 Header		2B	43
297	129			00	0
298	12A			0C	12
299	12B	DID DATA Block #3 Adaptive-Sync		27	39
300	12C			00	0
301	12D			64	100
302	12E			EF	239
303	12F			00	0
304	130			00	0
305	131			27	39
306	132			00	0
307	133			30	48
308	134			3B	59
309	135	DID Block #4 Header		00	0
310	136			00	0
311	137			81	129
312	138			00	0
313	139	DID DATA Block #4 AMD VSDB 3		13	19
314	13A			72	114
315	13B			1A	26
316	13C			00	0
317	13D			00	0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

318	13E		03	3
319	13F		01	1
320	140		3C	60
321	141		F0	240
322	142		00	0
323	143		00	00
324	144		6A	106
325	145		48	72
326	146		6A	106
327	147		48	72
328	148		F0	240
329	149		00	0
330	14A		00	0
331	14B		00	0
332	14C	"00h" fixed	00	0
333	14D	"00h" fixed	00	0
334	14E	"00h" fixed	00	0
335	14F	"00h" fixed	00	0
336	150	"00h" fixed	00	0
337	151	"00h" fixed	00	0
338	152	"00h" fixed	00	0
339	153	"00h" fixed	00	0
340	154	"00h" fixed	00	0
341	155	"00h" fixed	00	0
342	156	"00h" fixed	00	0
343	157	"00h" fixed	00	0
344	158	"00h" fixed	00	0
345	159	"00h" fixed	00	0
346	15A	"00h" fixed	00	0
347	15B	"00h" fixed	00	0
348	15C	"00h" fixed	00	0
349	15D	"00h" fixed	00	0
350	15E	"00h" fixed	00	0
351	15F	"00h" fixed	00	0
352	160	"00h" fixed	00	0
353	161	"00h" fixed	00	0
354	162	"00h" fixed	00	0
355	163	"00h" fixed	00	0

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.

Wuhan China Star Optoelectronics Technology Co.,Ltd

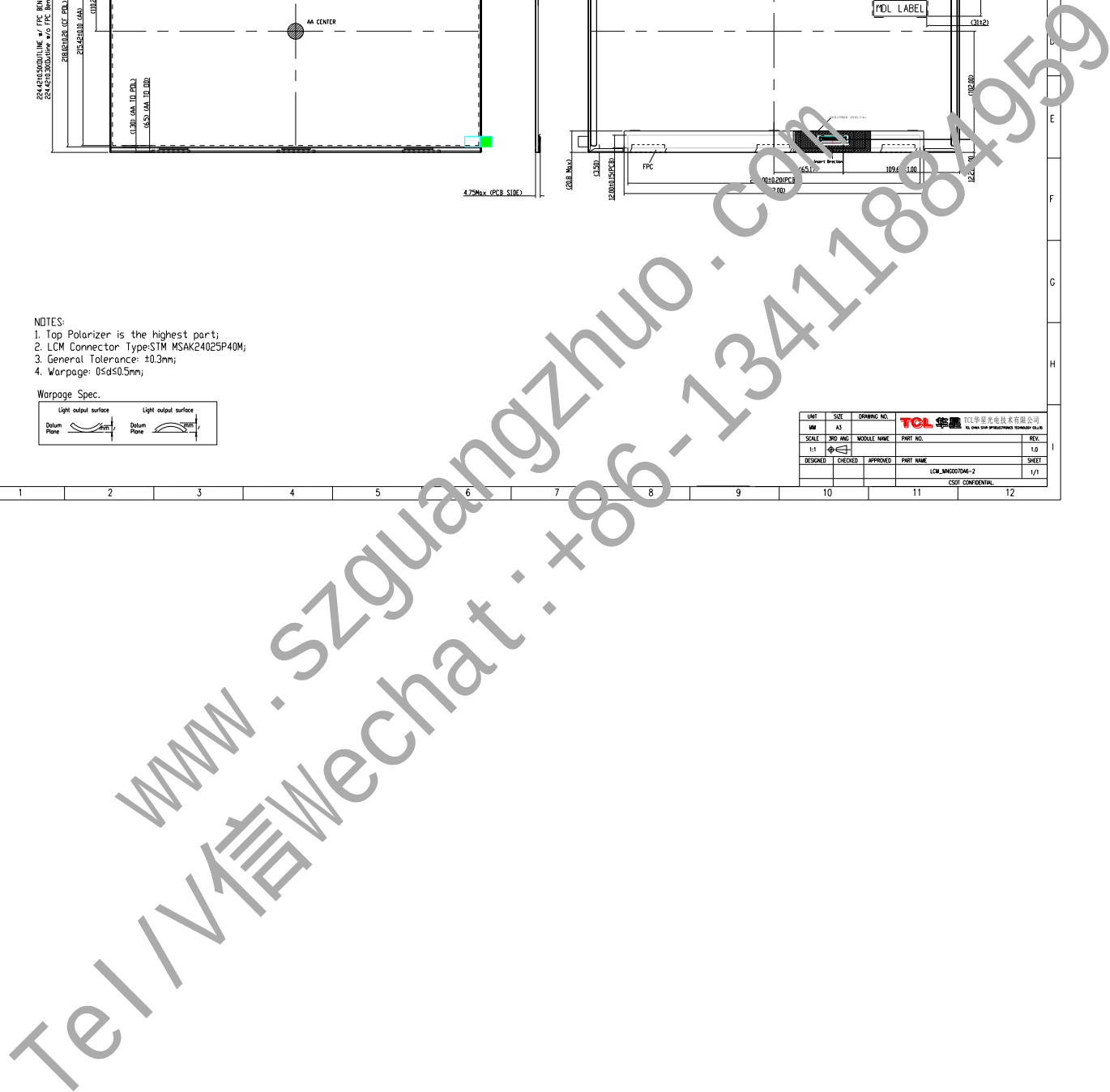
356	164		"00h" fixed	00	0
357	165		"00h" fixed	00	0
358	166		"00h" fixed	00	0
359	167		"00h" fixed	00	0
360	168		"00h" fixed	00	0
361	169		"00h" fixed	00	0
362	16A		"00h" fixed	00	0
363	16B		"00h" fixed	00	0
364	16C		"00h" fixed	00	0
365	16D		"00h" fixed	00	0
366	16E		"00h" fixed	00	0
367	16F		"00h" fixed	00	0
368	170		"00h" fixed	00	0
369	171		"00h" fixed	00	0
370	172		"00h" fixed	00	0
371	173		"00h" fixed	00	0
372	174		"00h" fixed	00	0
373	175		"00h" fixed	00	0
374	176		"00h" fixed	00	0
375	177		"00h" fixed	00	0
376	178		"00h" fixed	00	0
377	179		"00h" fixed	00	0
378	17A		"00h" fixed	00	0
379	17B		"00h" fixed	00	0
380	17C		"00h" fixed	00	0
381	17D		"00h" fixed	00	0
382	17E	Checksum(01~FD)		18	24
383	17F	Checksum(80~FE)		90	144

Appendix. OUTLINE DRAWING

版权属于武汉华星光电技术有限公司所有。禁止任何未经授权的使用

The copyright belongs to Wuhan China Star Optoelectronics Technology Co., LTD.

Any unauthorized use is prohibited.



www.szguangzhuo.com 广卓液晶屏 echodeng61@163.com jimei@jimeihk.com +86-13411884959