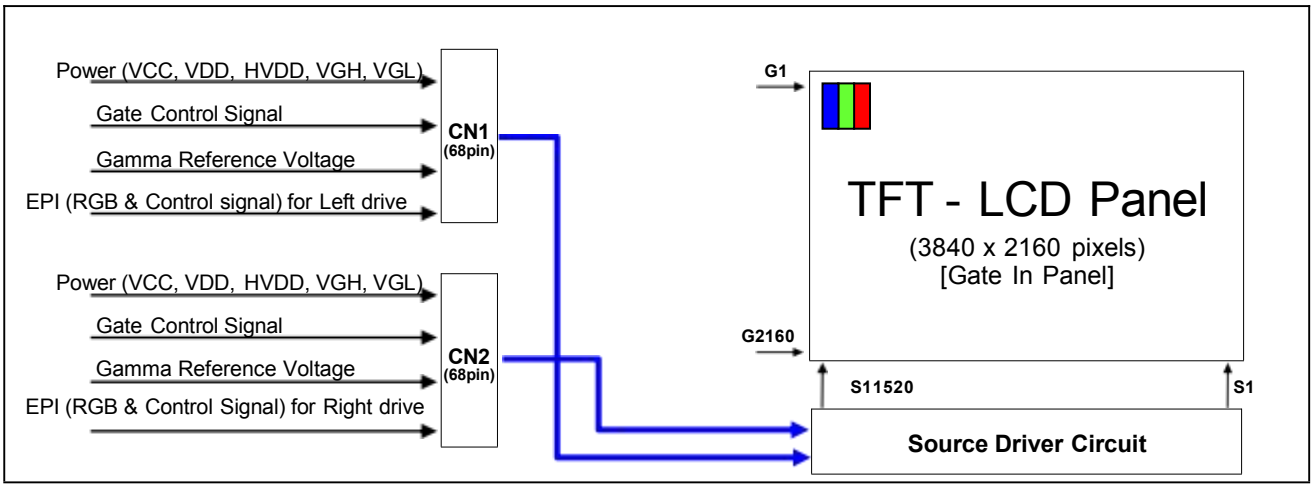
1. General Description

The LD430EQJ is a Color Active Matrix Liquid Crystal Display with an integral the Source PCB and Gate implanted on Panel (GIP). The matrix employs a-Si Thin Film Transistor as the active element. It is a transmissive type display operating in the normally black mode. It has a 42.51 inch diagonally measured active display area with UHD resolution (2160 vertical by 3840 horizontal pixel array). Each pixel is divided into Red, Green, and Blue sub-pixels or dots which are arranged in vertical stripes. Gray scale or the luminance of the sub-pixel color is determined with a 10-bit gray scale signal for each dot. Therefore, it can present a palette of more than 1.07Bilion colors.

It is intended to support LCD TV, PCTV, Commercial Display where high brightness, super wide viewing angle, high color gamut, high color depth and fast response time are important.



General Features

Active Screen Size	42.51 inches diagonal
Outline Dimension	953.0(H) x 543.0 (V) x 1.3mm(D) (Typ.)
Pixel Pitch	0.2451 mmx 0.2451 mm
Pixel Format	3840 horiz. by 2160 vert. Pixels, RGB stripe arrangement
Display Mode	IPS
Color Depth	10-bit(D), 1.07 Billion colors
Drive IC Data Interface	Source D-IC : 8-bit EPI, gamma reference voltage, and control signals Gate D-IC : Gate In Panel
Transmittance(with POL)	4.03%(Typ.)
Viewing Angle (CR>10)	Viewing angle free (R/L 178 (Min.), U/D 178 (Min.))
Power Consumption	Logic= 6.72W (Typ.), 8.74W (Max.)
Weight	1.1Kg (Typ.) , 1.2Kg (Max.)
Display Mode	Transmissive mode, Normally black
Surface Treatment (Top)	Hard coating(2H), Anti-glare low reflection treatment of the front polarizer (Haze 3%(Typ.))
Possible Display Type	Landscape Only Enable

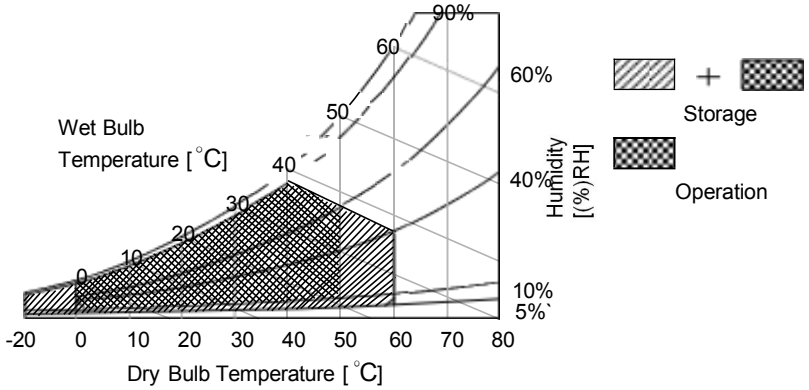
2. Absolute Maximum Ratings

The following items are maximum values which, if exceeded, may cause faulty operation or permanent damage to the LCD module.

Parameter	RATINGS Symbol	Value		Unit	Note
		Min	Max		
Logic & EPI Power Voltage	VCC	-0.5	+2.2	VDC	1
Gate High Voltage	VGH	+18.0	+30.0	VDC	
Gate Low Voltage	VGL1	-8.0	-4.0	VDC	
	VGL2	-16.0	-4.0	VDC	
Source D-IC Analog Voltage	VDD	-0.3	+18.0	VDC	
Gamma Ref. Voltage (Upper)	VGMH	½VDD-**0.3**	VDD+0.5	VDC	
Gamma Ref. Voltage (Low)	VGML	-0.3	½ VDD+**0.3**	VDC	
LED Input Voltage	VF	-	+180.0	VDC	
Panel Front Temperature (Considering L/C Phase Transition Temperature)	TPT	-	+68	℃	4
Operating Temperature	TOP	0	+50	℃	2,3
Storage Temperature	TST	-20	+60	℃	
Operating Ambient Humidity	HOP	10	90	%RH	
Storage Humidity	HST	5	90	%RH	

Note 1. Ambient temperature condition (Ta = 25 ± 2。C)

2. Temperature and relative humidity range are shown in the figure below.
   Wet bulb temperature should be Max 39 ℃ and no condensation of water.
3. Gravity mura can be guaranteed below 50℃ and under backlight luminance 350nit condition
4. The maximum operating temperatures is based on the test condition that the surface temperature of display area is less than or equal to 68℃ with LCD module alone in a temperature controlled chamber. Thermal management should be considered in final product design to prevent the surface temperature of display area from being over 68℃. The range of operating temperature may be degraded in case of improper thermal management in final product design.
5. Prevent products from being exposed to the direct sunlight. Otherwise, its reliability and function may not be guaranteed



3. Electrical Specifications

3-1. Electrical Characteristics

It requires several power inputs. The VCC is the basic power of LCD Driving power sequence, Which is used to logic power voltage of Source D-IC and GIP.

Table 1. ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	MIN	TYP	MAX	Unit	Note
Logic & EPI Power Voltage	VCC	-	1.62	1.8	1.98	VDC	5
Logic High Level Input Voltage	VIH	-	1.4	-	VCC	VDC	5
Logic Low Level Input Voltage	VIL	-	0	-	0.4	VDC	5
Source D-IC Analog Voltage	VDD	-	Typ.-200mV	14.9	Typ.+200mV	VDC	5
Half Source D-IC Analog Voltage	H_VDD	-	Typ.-200mV	6.95	Typ.+200mV	VDC	5,7
Gamma Reference Voltage	V_{GMH}	(GMA1 ~ GMA9)	H_VDD+0.2V	-	VDD-0.2	VDC	5
	V_{GML}	(GMA10 ~ GMA18)	0.2	-	H_VDD-0.2V	VDC	5
Common Voltage	Vcom	Reverse	Typ.-500mV	5.59	Typ.+500mV	V	5
Vterm	Vterm	CML Type Vcore_tx=1.0V ~ 1.2V	Vcore_Tx - 10%	Vcore_Tx	Vcore_Tx +10%	V	5
EPI input common voltage	VCM	CML Type	0.75		Vterm - Vdiff/2	V	
EPI input differential voltage	Vdiff	-	150	-	500	mV	
EPI Input eye diagram	Veye	-	90	-	-	mV	
Gate High Voltage	VGH	@ 25℃	Typ.-840mV	28	Typ.+840mV	VDC	4,5
		@ 0℃	Typ.-900mV	30	Typ.+900mV	VDC	
Gate Low Voltage	VGL	-	Typ.-210mV	-7.0	Typ.+210mV	VDC	
Gate Low Voltage 2	VGL2	-	Typ.-210mV	-7.0	Typ.+210mV	VDC	
GIP Refresh Voltage	VGH even/odd	-	VGL	-	VGH	V	5
GIP Start Pulse Voltage	VST	-	VGL	-	VGH	V	5
GIP Operating Clock	GCLK	-	VGL	-	VGH	V	5
Total Power Current	ILCD	-	-	560	730	mA	1
		-	-	1183	1540	mA	2
Total Power Consumption	PLCD	-	-	6.72	8.74	Watt	1
		-	-	14.20	18.45	Watt	2

Note: 1. The specified current and power consumption are under the V_{LCD}=12V, 25 ± 2 ℃, f_V=60Hz condition whereas mosaic pattern(8 x 6) is displayed and f_V is the frame frequency.
2. The current and power consumption are specified at the maximum current pattern.(1H)
3. The above spec is based on the basic model.
4. All of the typical gate voltage should be controlled within 3% voltage level
5. Ripple voltage level is recommended under ± 5% of typical voltage
6. In case of EPI signal spec, refer to Fig 2 for the more detail.
7. HVDD Voltage level is half of VDD and it should be between Gamma9 and Gamma10.

4. Mechanical Characteristics

Table 2 provides general mechanical characteristics.

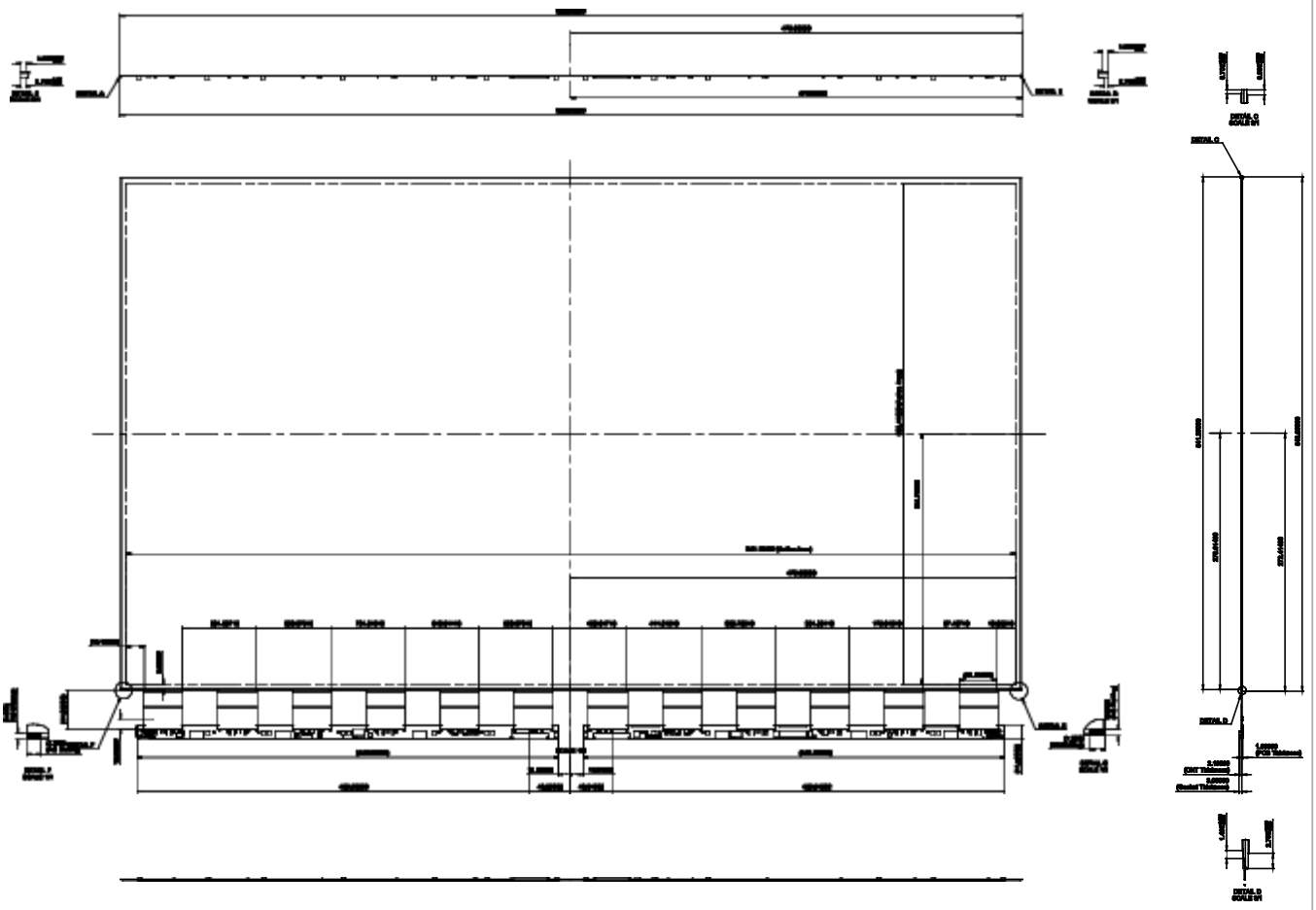
Table 2. MECHANICAL CHARACTERISTICS

Item	Value	
Outline Dimension (Only Glass)	Horizontal	953.0mm
	Vertical	543.0mm
	Thickness	1.1mm
Active Display Area	Horizontal	941.18mm
	Vertical	529.42mm
Weight	1.1kg(typ) 1.2kg(Max)	
Surface Treatment	Hard coating(2H), Anti-glare treatment of the front polarizer (Haze 3%(Typ.))	

notes : Please refer to a mechanic drawing in terms of tolerance at the next page.

5. Mechanical Dimension

5-1. Board Assembly Dimension

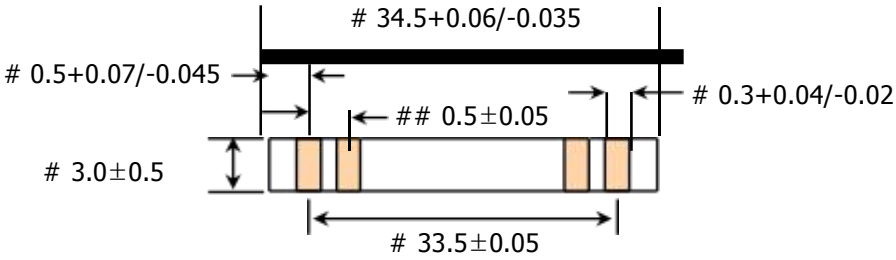


Date	Version
2022.11.14	0.0

APPENDIX- I

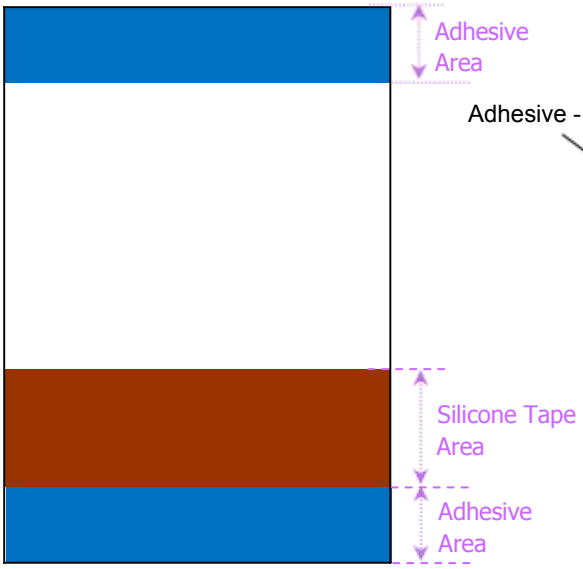
- LCD Connector : TF06L-68S-0.5SH (manufactured by HIROSE)

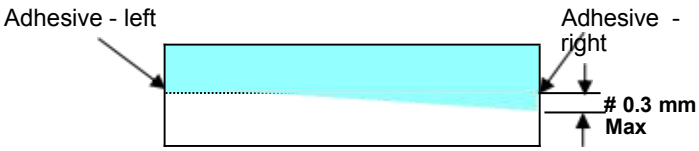
< Pad Detail - 68Pin >

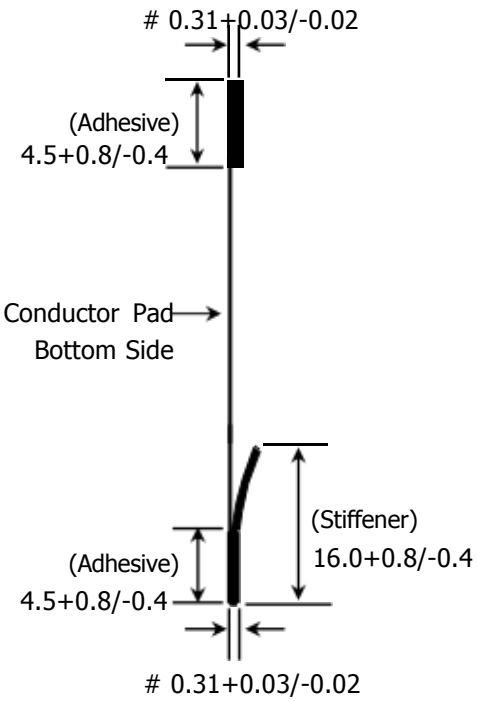


◈ Note

- Pad : GOLD Plating
- # : Cpk 1.0
- ## : Cpk 1.33
- Stiffener color : Sky Blue
  (Silicone Tape color : Brown)
- H-F
- Dimensions unit : mm







- Material List

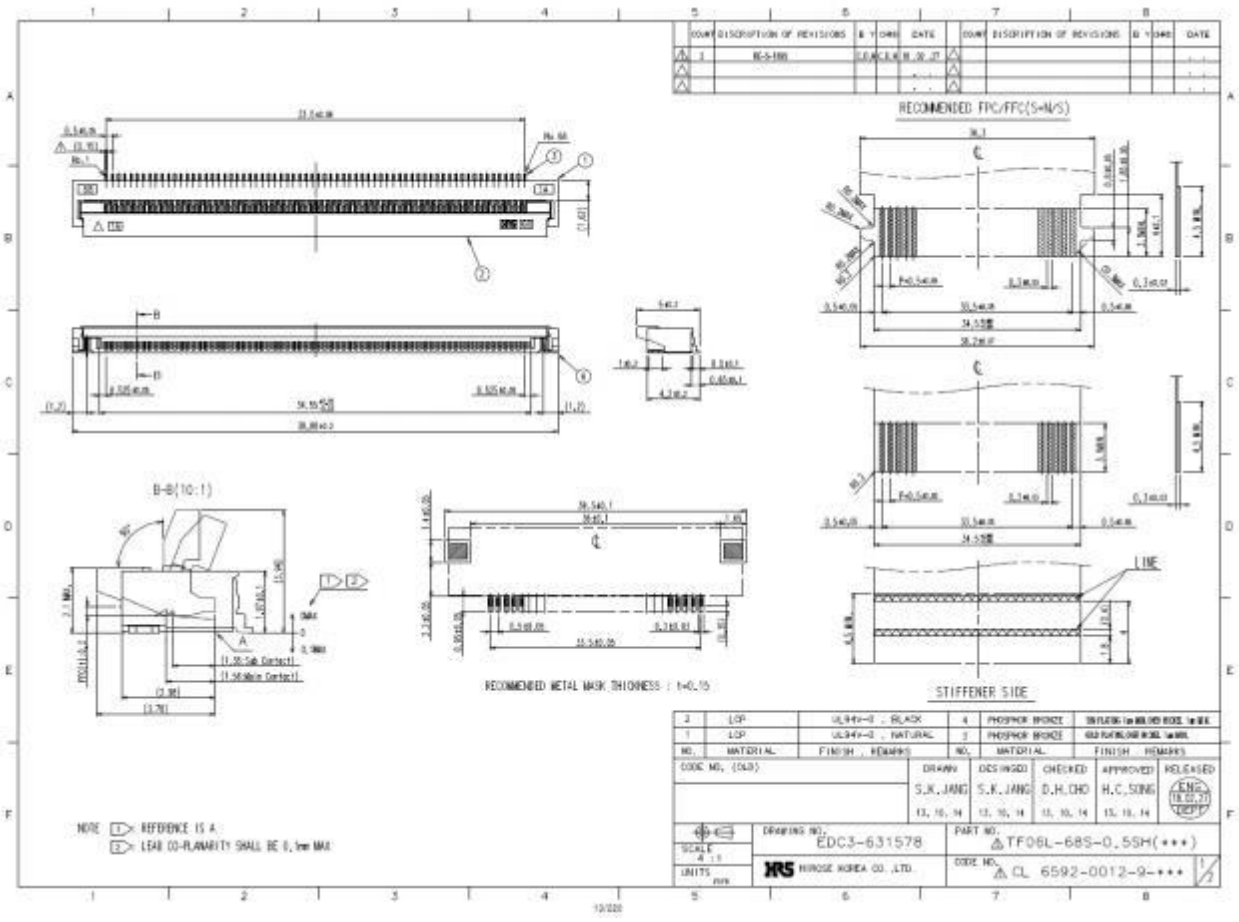
APPLICATION	STANDARD	MATERIAL	REFERENCE
1. CONDUCTOR	GOLD PLATED COPPER WIRE	1. 99.99% COPPER 2. GOLD PLATED	1. TOLERANCE WIDTH ±0.04 -0.02 10 MORE THAN 3. TENSION (KGF) 0.2 MORE THAN * Weight : 1.660g * MAKER : EUNSUNG TECH (LS CABLE, DOSOL)
2. INSULATION	POLYESTER FILM (PET/PET)	1. POLYESTER BASE FILM : 0.025 mm 2. POLYESTER HOTMELT ADHESIVE : 0.035 mm TOTAL THICKNESS : 0.060 mm	UL VW-1 FLAME Width : 3.30mm Length : 500M Unit : ROLL * Weight : 0.430g * MAKER : COSMO AMET/ SHINCHANG HOTMELT
3. SUPPORTING TAPE	POLYESTER FILM	1. POLYESTER BASE FILM : 0.188 mm 2. POLYESTER HOTMELT ADHESIVE : 0.027 mm TOTAL THICKNESS : 0.215 mm	Width : 20.5mm Length : 250M Unit : ROLL * Weight : 0.270g * MAKER : SUNGSHIN Tooltag/ COSMO AMET
4. SILICON TAPE (BROWN)	ST-8550B	TOTAL THICKNESS : 0.065 mm	* Weight : 0.04g * MAKER : DAEHYUN ST

APPENDIX-II

■ FFC CONNECTOR INFORMATION (Source PCB)

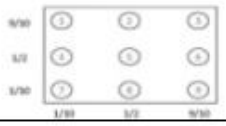
- LCD Connector : TF06L-68S-0.5SH (manufactured by HIROSE)

■ Drawing (TF06L-68S-0.5SH _Manufactured by HIROSE)



 # APPENDIX-Ⅲ

43 寸组装测试报告

机种		430/ELED	测试仪器			多路测温仪 CA210 BM-7 尺规	
玻璃型号		LD430EQJ-SNA2					
分类	项目	测试内容	测试结果			判定结果	备注
物理特性	外观尺寸	与结构件图纸相符	OK			OK	
	屏外观	外观良好	OK			OK	
		结构件有无锈蚀	无			OK	
		结构件有无划伤	无			OK	
		表面颜色均匀一致	OK			OK	
		玻璃有无坏线	无			OK	
		显示区域有无坏点，无斑	无			OK	
		背光有无异物	无			OK	
电器性能	屏中心亮度 cd/m2		400			OK	
	背光电流/电压	720mA/72-86V	范围内			OK	见屏条码所示
	背光功率		69-80W			OK	
	屏亮度分布		387	392	384	OK	9 点测试法
			388	400	391		
			385	393	386		
	屏分辨率	3840x2160				OK	详参考玻璃规格书
	比例模式	16:09				OK	详参考玻璃规格书
	对比度	1200 : 1 (Typ.) (透射)				OK	详参考玻璃规格书
	屏老化时间	连续通电老化 24 小时	无故障			OK	详参考玻璃规格书
	可视角度	89/89/89/89 (Typ.)(CR≥10)					详参考玻璃规格书
	工作温度:	0 ~ 50 °C				OK	

APPENDIX-IV