

# 规格书

型号： S95417-AAA

客户					
批准	审核	检查	批准	审核	拟制

用于承认规格书

用于承认规格书和样品

标准文本	产品规格书	型号	S95417-AAA		
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### 1. 概述

1-1 范围:

此份规格书涵盖了 LCD 从同丰光华到客户的运输过程中应该注意的所有要求。

1-2 产品:

LCD 模块 (LCM)

1-3 型号:

S95417-AAA

### 2. 产品特征

- (1) 显示类型: 2.4"TFT; Transmissive; 6 o'clock
- (2) 显示色彩: 262K
- (3) 驱动IC: S6D1121
- (4) 背光模式: WHITE LED

### 3. 机械规格

项目	规格	单位
外形尺寸	42.72(L) x 60.26 (W) x 3.35(T)	mm
可视区域	36.72(L) x 48.96(W)	mm
显示内容	240RGB x 320 Dots	---
分辨率	240 x 3 x 320	Dots
像素点尺寸	51(L) x 153 (W)	um
像素排列	STRIPE TYPE	---
结构类型	COG+FPC+BL+TP	---
背光类型	WHITE LED	—
重量	待定	g

# S95417-AAA

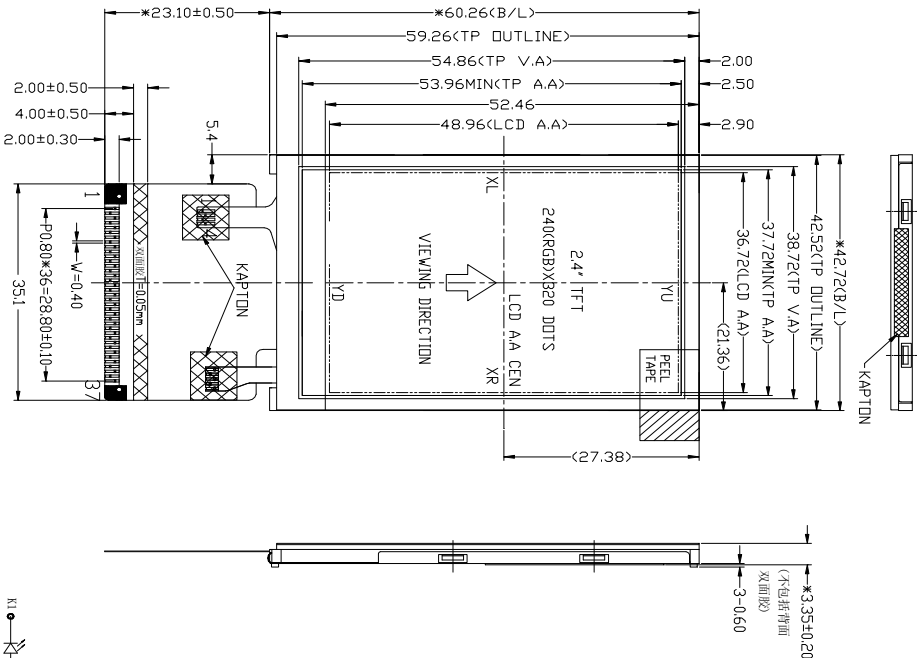
## 型号

## 产品规格书

## 标准文本

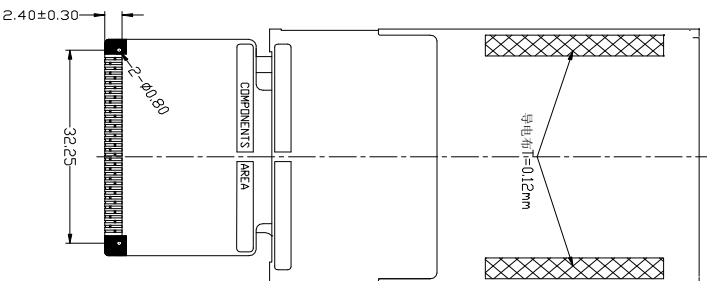
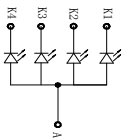
### 外形尺寸

NO.	Pin Name
1	DB0
2	DB1
3	DB2
4	DB3
5	GND
6	VCC
7	CS
8	R8
9	R9
10	R10
11	IM0
12	XL
13	YU
14	XR
15	YD
16	LEDA
17	LEDK1
18	LEDK2
19	LEDK3
20	LEDK4
21	NC
22	DB4
23	DB10
24	DB11
25	DB12
26	DB13
27	DB14
28	DB15
29	DB16
30	DB17
31	RESET
32	VCC
33	VCC
34	GND
35	DB5
36	DB6
37	DB7

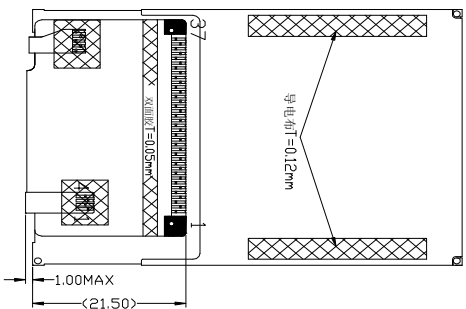


NOTE:  
 1. GENERAL TOLERANCE: ±0.20.  
 2. (...) IS REFERENCE DIMENSION.  
 3. \* CRITICAL DIMENSION  
 4. COMPLIABLY ROHS.

LED CIRCUIT DIAGRAM



弯折示意图，展开出货



VER. SYMBOL	01	first issue	AMENDMENT	SIGN	DATE	09-1-4	CUSTOMER'S APPROVAL	DRAWN	ME CHECKED	EB CHECKED	PEL CHECKED	APPROVED	TITLE	MODULE SPEC.	DRAWING NO.	STR-S95417-AAA	UNIT	mm	SCALE	PIT	SHEET	1 OF 1
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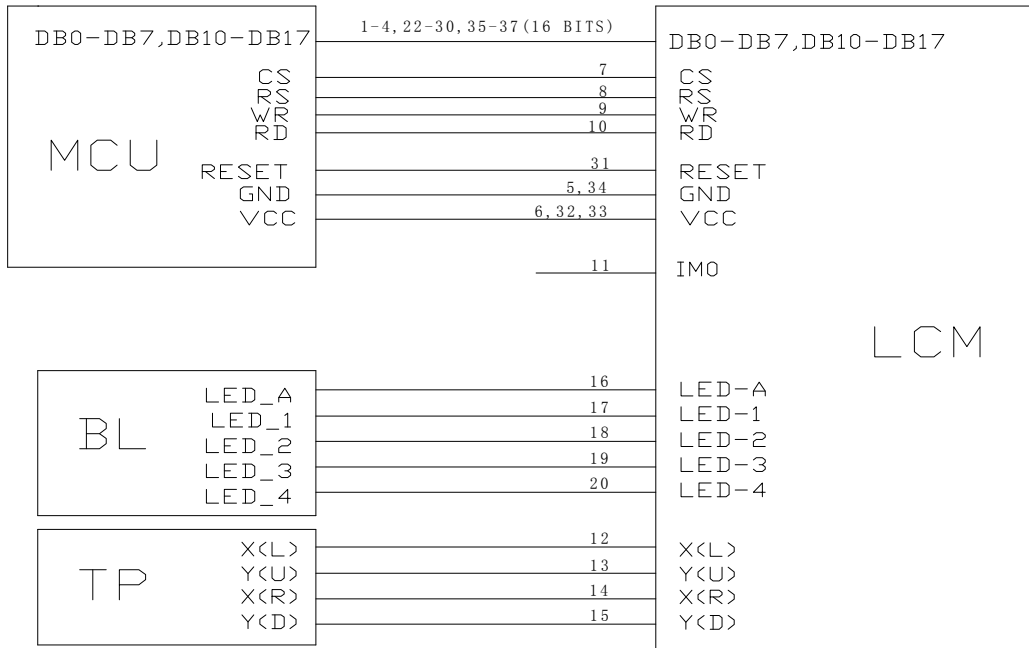
接口定义

PIN NO.	FUNCTION DESCRIPTIONS	SYMBOL
1	Data BUS0	DB0
2	Data BUS1	DB1
3	Data BUS2	DB2
4	Data BUS3	DB3
5	GROUND	GND1
6	Power Supply	VCC1
7	CHIP SELECT PIN	CS
8	COMMAND AND DATA REGISTER SELECT PIN	RS
9	WRITE SIGNAL	WR
10	READ SIGNAL	RD
11	IM0	8/16 select IM0=1:8Bit IM0=0 16Bit
12	TP X_LEFT	XL
13	TP Y_UP	YU
14	TP X_RIGHT	XR
15	TP Y_DOWN	YD
16	POWER SUPPLY+ FOR BACKLIGHT ANODE	LED_A
17	POWER SUPPLY- FOR BACKLIGHT CATHODE	LED_1
18	POWER SUPPLY- FOR BACKLIGHT CATHODE	LED_2
19	POWER SUPPLY- FOR BACKLIGHT CATHODE	LED_3
20	POWER SUPPLY- FOR BACKLIGHT CATHODE	LED_4
21	NC	NC
22	Data BUS4	DB4
23	Data BUS10	DB10
24	Data BUS11	DB11
25	Data BUS12	DB12
26	Data BUS13	DB13
27	Data BUS14	DB14
28	Data BUS15	DB15
29	Data BUS16	DB16
30	Data BUS17	DB17
31	RESET PIN	RESET
32	Power Supply	VCC
33	Power Supply	VCC
34	GROUND	GND
35	Data BUS5	DB5
36	Data BUS6	DB6
37	Data BUS7	DB7

IM0	INTERFACE MODE
L	16 bit,DB0~DB7,DB10~DB17
H	8 bit,DB10~DB17,DB0~DB7 Connected GND

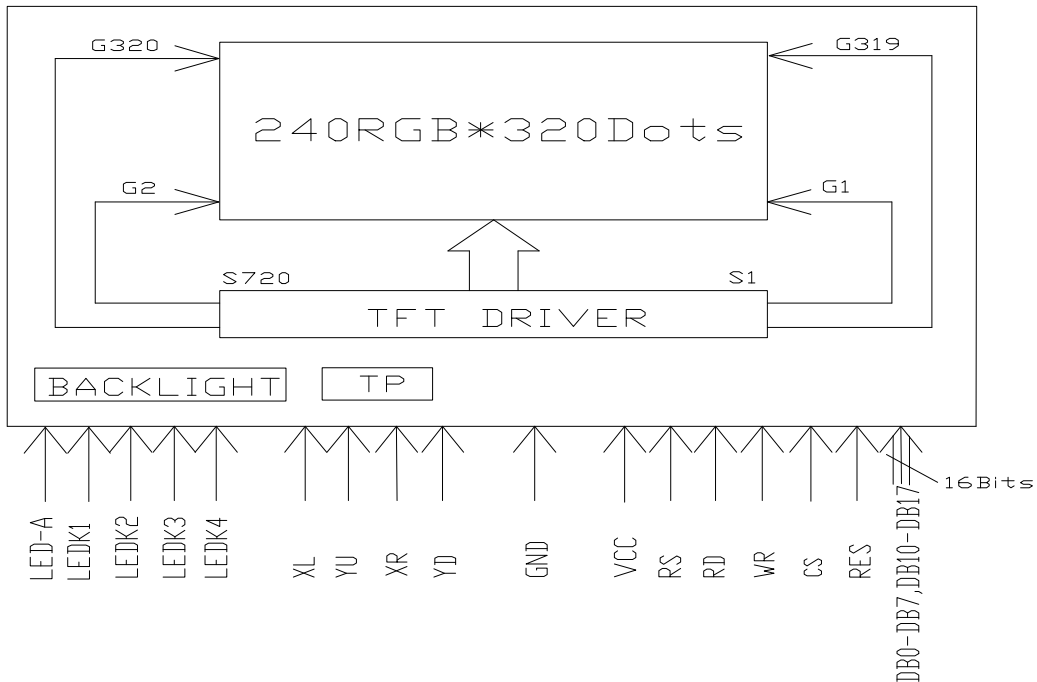
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应用电路



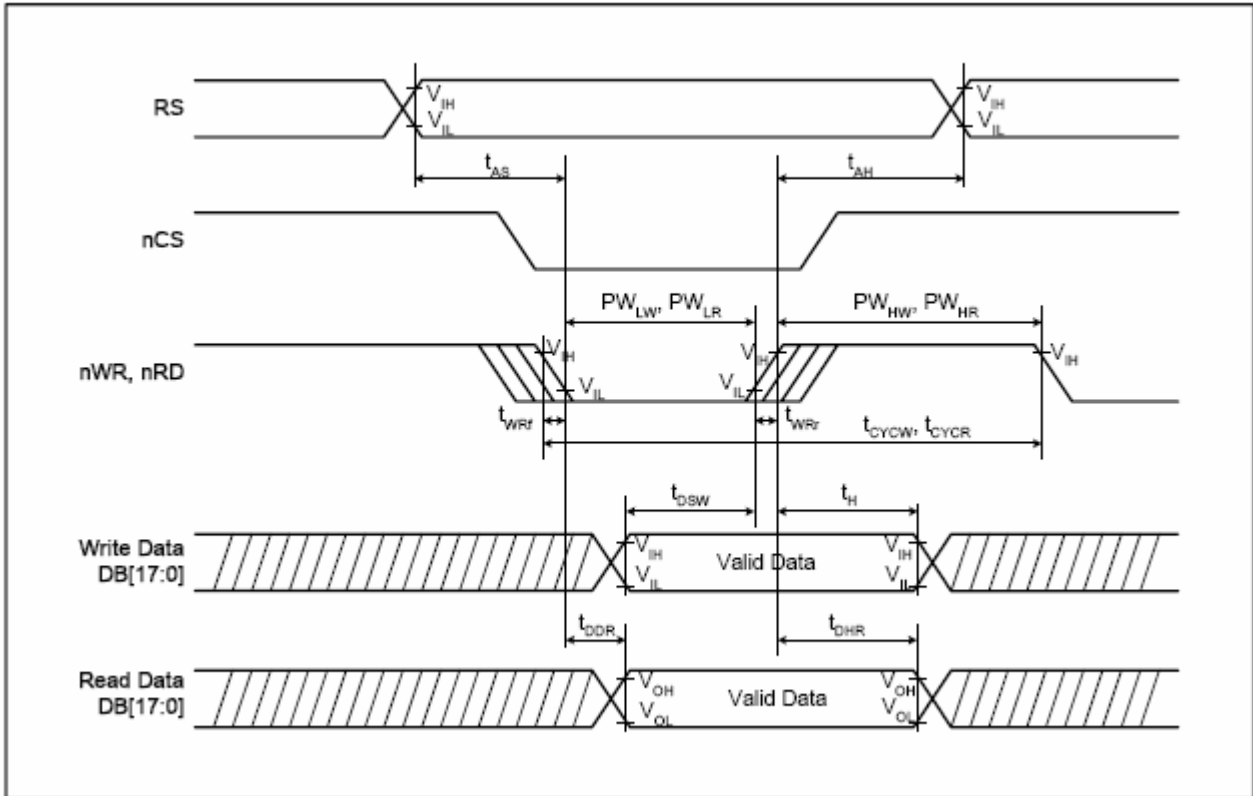
IM0	INTERFACE MODE
L	16 bit,DB0~DB7,DB10~DB17
H	8 bit,DB10~DB17,DB0~DB7 Connected GND

功能框图



## 接口时序

## i80-System Interface Timing Characteristics

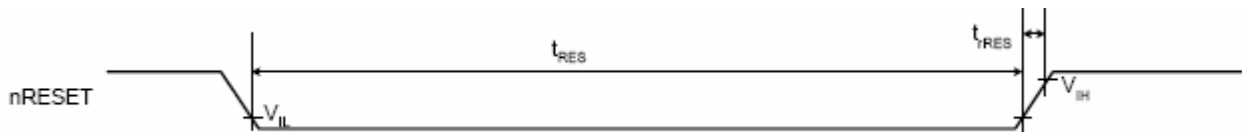


## Normal Write Mode (IOVCC = 1.65~3.3V, VCC=2.4~3.3V)

Item	Symbol	Unit	Min.	Typ.	Max.	Test Condition
Bus cycle time	Write	$t_{CYCW}$	ns	100	-	-
	Read	$t_{CYCR}$	ns	300	-	-
Write low-level pulse width	$PW_{LW}$	ns	50	-	500	
Write high-level pulse width	$PW_{HW}$	ns	50	-	-	
Read low-level pulse width	$PW_{LR}$	ns	150	-	-	
Read high-level pulse width	$PW_{HR}$	ns	150	-	-	
Write / Read rise / fall time	$t_{WRf}/t_{WRf}$	ns	-	-	25	
Setup time	Write ( RS to nCS, E/nWR )	$t_{AS}$	ns	10	-	-
	Read ( RS to nCS, RW/nRD )			5	-	-
Address hold time	$t_{AH}$	ns	5	-	-	
Write data set up time	$t_{DSW}$	ns	10	-	-	
Write data hold time	$t_H$	ns	15	-	-	
Read data delay time	$t_{DDR}$	ns	-	-	100	
Read data hold time	$t_{DHR}$	ns	5	-	-	

复位时序

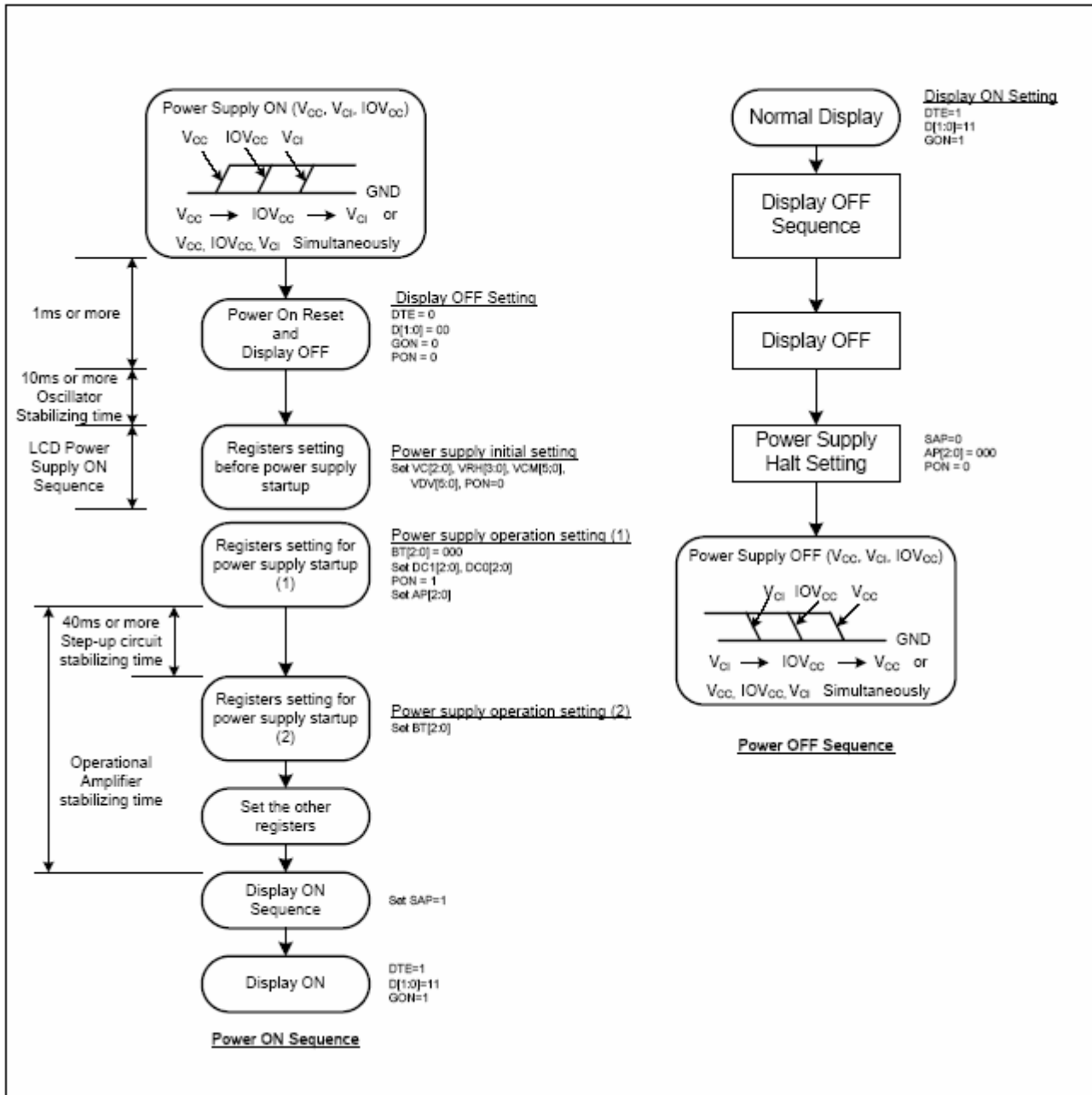
## Reset Input Timing



Reset Timing Characteristics (VCC = 1.8 ~ 3.3 V, IOVCC = 1.65 ~ 3.3 V)

Item	Symbol	Unit	Min.	Typ.	Max.
Reset low-level width	$t_{RES}$	ms	1	-	-
Reset rise time	$t_{RES}$	$\mu$ s	-	-	10

上电/下电时序:





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### 极限技术参数

项目	符号	条件	标准值			单位
			最小值	典型值	最大值	
逻辑电压	VCC	Ta=25°C	-0.3	---	+4.6	V
输入电平	VIN	Ta=25°C	-0.3	---	VCC+0.3	V
使用温度	TOPR	---	-20	---	+70	°C
存储温度	TSTG	---	-30	---	+80	°C

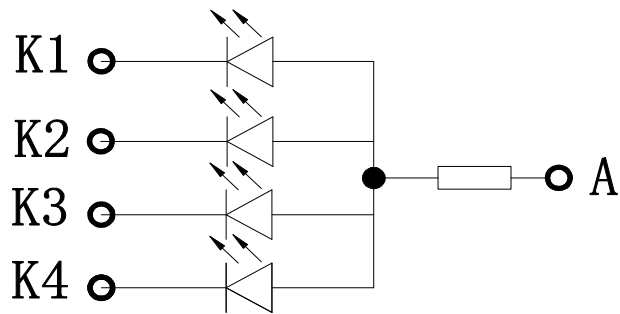
### 电气参数

项目	符号	条件	标准值			单位
			最小值	典型值	最大值	
逻辑电压	VCC	Ta= +25°C	---	2.8	---	V
输入高电平	VIH	VCC=1.8~3.3V	0.8IOVCC	---	IOVCC	V
输入低电平	VIL	VCC=1.8~3.3V	-0.3	---	0.2IOVCC	V
输出高电平	VOH	IOH=-0.1mA	0.8IOVCC	---	---	V
输出低电平	VOL	IOVCC=1.65~3.3V VCC=2.2~3.3V IOL=0.1mA	---	---	0.2IOVCC	V

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背光参数

背光供电方式



极限参数值

参数	符号	规格	单位
功耗	PD	360	mW
顺向电流	Ifm	20	mA
反向电压	VR	5 (每粒灯)	V
操作温度	TOPR	-10℃ ~ +60℃	℃
储存温度	TSTG	-20℃ ~ +70℃	℃

电气参数

参数	符号	光源	条件	标准值			单位
				最小值	典型值	最大值	
驱动电压	Vf	WHITE	If = 60mA	3.0	3.2	3.4	V
LCM亮度	Iv	WHITE		100	120	150	cd/m <sup>2</sup>
色坐标	X	WHITE	If = 60mA	0.25	—	0.29	—
	Y			0.25	—	0.29	—

光电参数

Item	Symbol	Conditions	Specifications			Unit	Note	
			Min.	Typ.	Max.			
Transmittance	T%	Viewing normal angle $\theta_x = \theta_y = 0^\circ$	4.7			%	All left side data are based on CMO's following condition -- NTSC: 60% Light : C light (Machine:BM5A) Normal Polarizer Reference Only	
Contrast Ratio	CR		150	250	-	-		
Response Time	$T_R$		-	10	20	ms		
	$T_F$		-	20	30	ms		
Chromaticity	Red		$X_R$	0.604	0.634	0.664		-
			$Y_R$	0.296	0.326	0.356		-
	Green		$X_G$	0.260	0.290	0.320		-
			$Y_G$	0.551	0.581	0.611		-
	Blue		$X_B$	0.102	0.132	0.162		-
			$Y_B$	0.096	0.126	0.156		-
White	$X_W$	0.262	0.292	0.322	-			
	$Y_W$	0.306	0.336	0.366	-			
Viewing Angle	Hor.	$\theta_{x+}$	-	45	-	deg.		
		$\theta_{x-}$	-	45	-			
	Ver.	$\theta_{y+}$	-	35	-			
		$\theta_{y-}$	-	15	-			

\*Note (1) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

$$\text{Contrast Ratio (CR)} = L_{63} / L_0$$

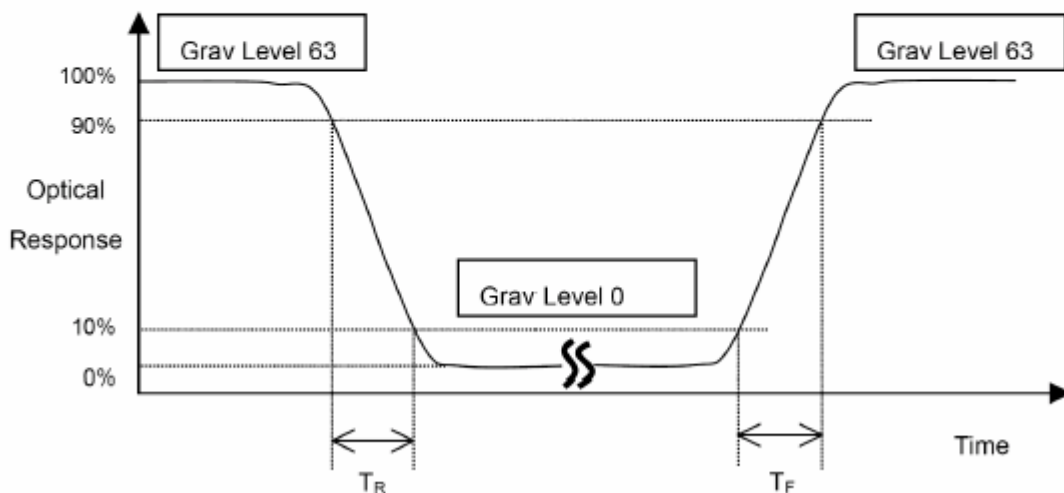
L63: Luminance of gray level 63

L0: Luminance of gray level 0

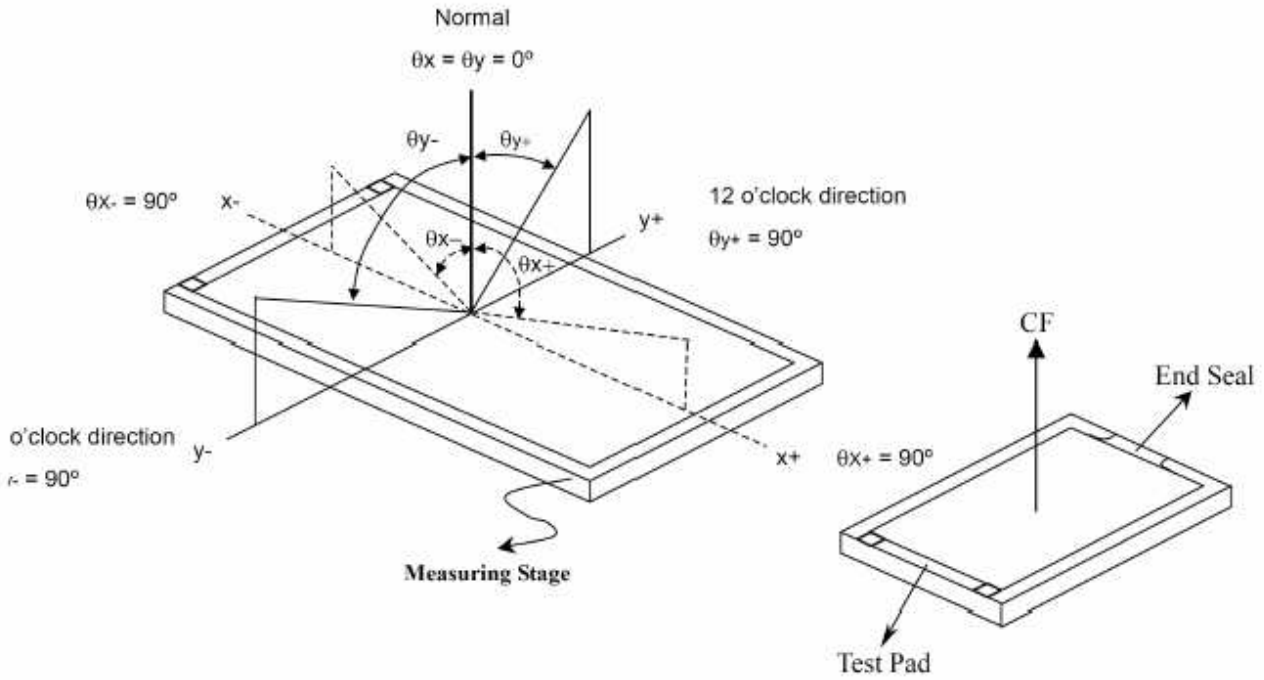
$$CR = CR(10)$$

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (6).

\*Note (2) Definition of Response Time (TR, TF):



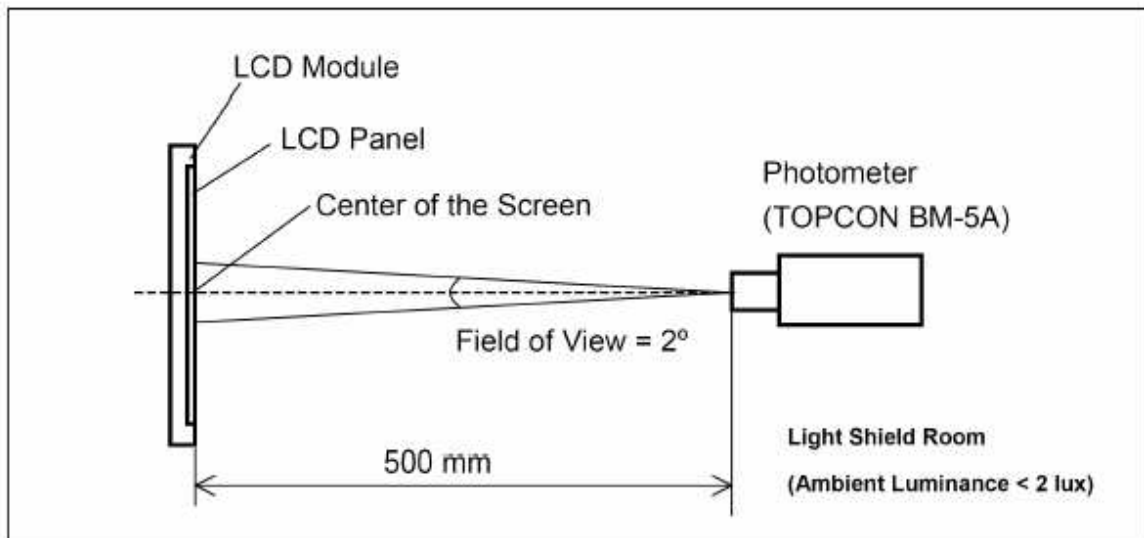
\*Note(3) Definition of Viewing Angle



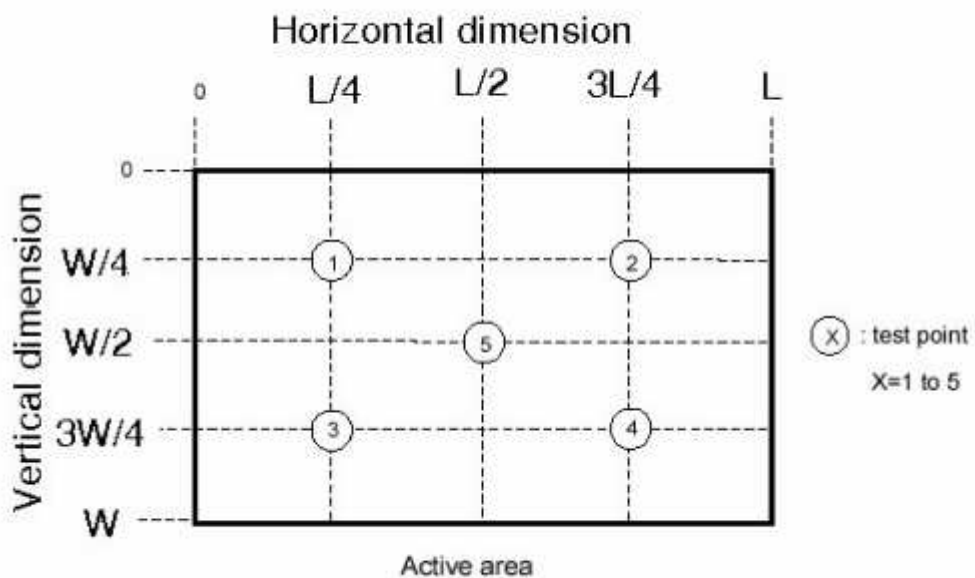
\*\*\* The above "Viewing Angle" is the measuring position with Largest Contrast Ratio; not for good image quality. View Direction for good image quality is 6 O'clock. Module maker can increase the "Viewing Angle" by applying Wide View Film.

\*Note (4) Measurement Set-Up:

The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



\*Note (5)



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### 极限环境参数

项目	符号	条件	标准
操作温度	TOPR	-20℃~+70℃	外观无缺陷，功能正常
储存温度	TSTG	-30℃~+80℃	外观无缺陷，功能正常
湿度	—	See Note	无缩合，凝聚现象

#### NOTE: 测试条件

- (1) 温度和湿度: 25±2℃, 60±5%RH (特殊条件除外)
- (2) 操作状态: 样品在正常工作时测试

### 可靠性测试

项目	条件	标准
操作温度	高温 +60℃ 72 小时	外观无缺陷，功能正常
	低温 -10℃ 72 小时	
储存温度	高温 +70℃ 120 小时	外观无缺陷，功能正常
	低温 -20℃ 120 小时	
恒温恒湿	40℃ 90%RH 72HRS	外观无缺陷，功能正常
振动	时间: 每个方向振动三十分钟 (X,Y,Z) 频率: 10~55Hz (1 min) 振幅: 1.5mm	外观无缺陷，功能正常
冷热冲击	-20℃(30mins) ←5℃(5mins)→+60℃(30mins) 10 cycles	外观无缺陷，功能正常

NOTE: 以上测试后须在室温放置 2 小时检查样品