

3. General Specifications

Item	Contents	Unit	Note
LCD Type	TFT	-	
Display color	262K		
Viewing Direction	Free	O'Clock	
Operating temperature	-20~+70	℃	
Storage temperature	-30~+80	℃	
Module size	Refer to outline drawing	mm	
Active Area(W×H)	48.96X73.44	mm	
Number of Dots	320×480	dots	
Controller	ILI9488	-	
Power Supply Voltage	2.8	V	
Outline Dimensions	Refer to outline drawing	-	
Backlight	6-LEDs (white)	pcs	
Weight	---	g	
Interface	RGB-18Bit	-	

[illegible]

5. Absolute Maximum Ratings($T_a=25^{\circ}\text{C}$)

5.1 Electrical Absolute Maximum Ratings.($V_{ss}=0\text{V}$, $T_a=25^{\circ}\text{C}$)

Item	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V_{CC}	2.6	3.6	V	1, 2
Logic Signal Input /Output Voltage	V_{IOVCC}	1.8	3.6	V	

Notes:

1. If the module is above these absolute maximum ratings. It may become permanently damaged. Using the module within the following electrical characteristic conditions are also exceeded, the module will malfunction and cause poor reliability.
2. $V_{CC} > V_{SS}$ must be maintained.
3. Please be sure users are grounded when handing LCD Module.

5.2 Environmental Absolute Maximum Ratings.

Item	Storage		Operating		Note
	MIN.	MAX.	MIN.	MAX.	
Ambient Temperature	-30°C	80°C	-20°C	70°C	1,2
Humidity	-	-	-	-	3

1. The response time will become lower when operated at low temperature.
2. Background color changes slightly depending on ambient temperature.
The phenomenon is reversible.
3. $T_a \leq 40^{\circ}\text{C}$: 85%RH MAX.
 $T_a > 40^{\circ}\text{C}$: Absolute humidity must be lower than the humidity of 85%RH at 40°C .

6. Electrical Specifications

6.1 Electrical characteristics($V_{SS}=0V$, $T_a=25^{\circ}C$)

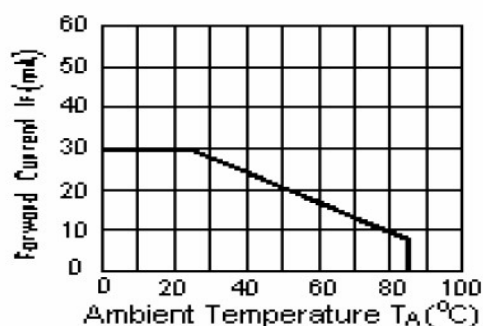
Parameter		Symbol	Condition	Min	Typ	Max	Unit	Note
Power supply		VCC	$T_a=25^{\circ}C$	2.6	2.8	3.3	V	
		V _{IOVCC}		1.8	2.8	3.3		
Input voltage	'H'	V _{IH}	VCC=2.8V	0.8VCC	-	VCC	V	
	'L'	V _{IL}	VCC=2.8V	0	-	0.2VCC	V	
Current Consumption		I _{CC1}	Normal mode	-	-	-	mA	1
		I _{CC2}	Sleep mode	-	-	-	mA	1

Note:

1: Tested in 1×1 chessboard pattern.

6.2 LED backlight specification($V_{SS}=0V$, $T_a=25^{\circ}C$)

Item	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply voltage	V _f	I _f =20mA	-	18	-	V	
Uniformity	ΔB_p	I _f =20mA	75			%	
Life Time	time	I _f =20mA		-		hours	1



6.3 Interface signals

Pin No.	Symbol	I/O	Function
1	GND	P	Ground.
2-3	A	P	LED back light(Anode)
4-5	K	P	LED back light(Cathode)
6-7	GND	P	Ground.
8	VCC	P	Power supply
9	IOVCC	P	Digital IO Pad power supply
10	RESET	I	Reset the display
11	VSYNC	I	Frame sync signal
12	HSYNC	I	Line sync signal
13	GND	P	Ground.
14	DOTCLK	I	Data clock
15	GND	P	Ground.
16	DE	I	Data enable pin
17-34	D17-D0	I	Data pin
35	SDO	I	Serial Output data bus
36	SDI	I	Serial Input data bus
37	RDX	I	MPU I/F Read Enable
38	SCL/WRX	I	Write enable pin I80 parallel bus system interface
39	D/CX	I	MPU I/F Date/Command Select
40	CSX	I	Chip select signal
41	TE	O	Touch Panel Control pin
42	XR	O	
43	YD	O	
44	XL	O	
45	YU	O	

7. Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Brightness	Bp	$\theta=0^\circ$	-	360	-	Cd/m ²	1
Uniformity	$\triangle Bp$	$\Phi=0^\circ$	75	-	-	%	1,2
Viewing Angle	3:00	$Cr \geq 10$	80	85	-	Deg	3
	6:00		80	85	-		
	9:00		80	85	-		
	12:00		80	85	-		
Contrast Ratio	Cr	$\theta=0^\circ$ $\Phi=0^\circ$	600	800		-	4
Response Time	T _r		-	25	-	ms	5
	T _f		-	25	-	ms	
Color of CIE Coordinate	W	x	-	0.30	-	-	1,6
		y	-	0.33	-	-	
	R	x	-	0.63	-	-	
		y	-	0.33	-	-	
	G	x	-	0.28	-	-	
		y	-	0.55	-	-	
	B	x	-	0.14	-	-	
		y	-	0.12	-	-	
Surface reflection (SCI)	-		-	60	-	%	

Note :

parameter is slightly changed by temperature, driving voltage and materiel

Note 1: The data are measured after LEDs are turned on for 5 minutes. LCM displays full white. The brightness is the average value of 9 measured spots. Measurement equipment PR-705 (Φ8mm)

Measuring condition:

- Measuring surroundings: Dark room.
- Measuring temperature: Ta=25 °C.
- Adjust operating voltage to get optimum contrast at the center of the display.

Measured value at the center point of LCD panel after more than 5 minutes while backlight