1. GENERAL DESCRIPTION

The LH350H01 is a Color Active Matrix Liquid Crystal Display with Light Emission Diode(LED) backlight system. The matrix employs a-Si Thin Film Transistor as the active element.
It is transflective type display operating in the normally white mode. This TFT-LCD has 3.54 inch diagonally measured active display area with (320*RGB*480) resolution. Each pixel is divided into Red, Green and Blue sub-pixels or dots which are arranged in vertical stripes.

Block Diagram

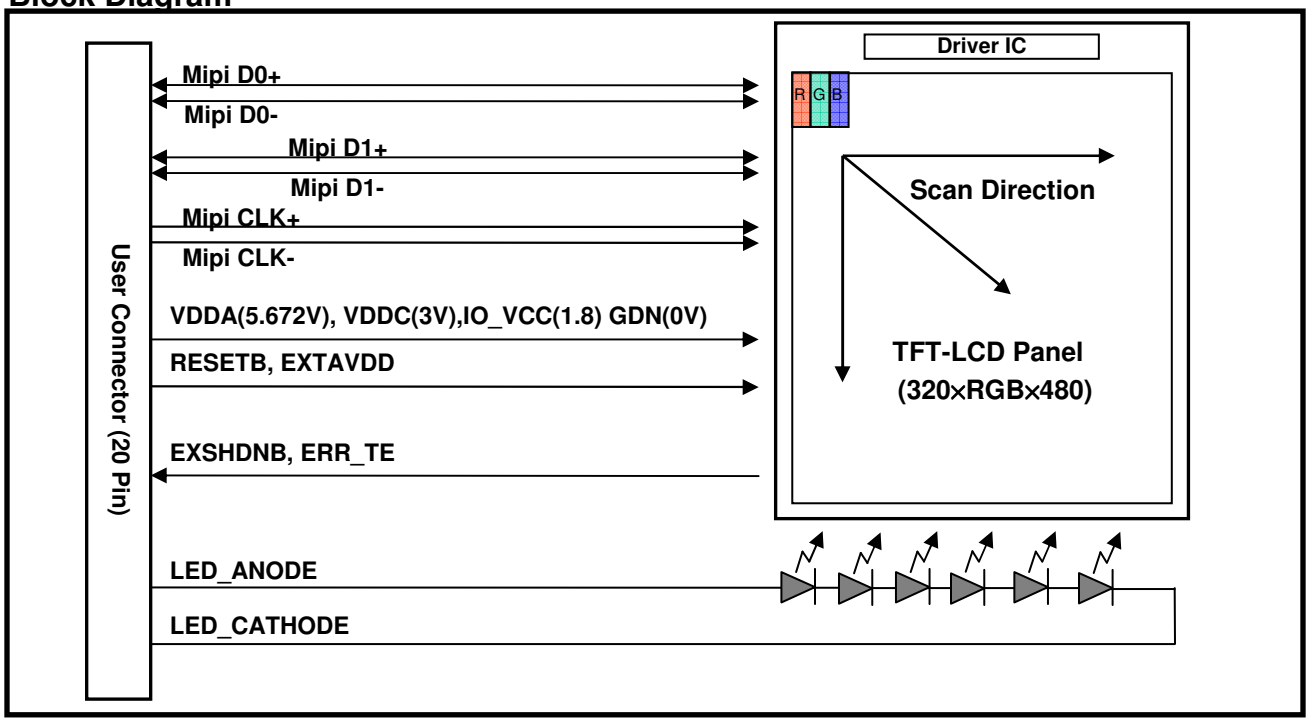


Fig 1.1 Block Diagram of TFT-LCD Module with LED Backlight Unit

General Features

Item	Specification
Active Screen Size	3.54” diagonal
Outline Dimension	55.14(H) x 82.84(V) x 1.65(T)
Pixel Pitch	0.156(H) x 0.156(V)
Pixel Format	320(H) x 480(V) (RGB Stripe)
Color Depth	24-bits (R8, G8, B8)
Interface	MIPI 2-lane 81MHz Typ. (D-PHY version 0.86, DSI version 1.01 r03, DCS version 1.01)
Power Consumption	490mW (typ. B/L on), 60mW (typ. B/L off)
Luminance	400nit(typ.) @20mA
Viewing Direction	7:30 o’clock (Non-inversion)

2. ABSOLUTE MAXIMUM RATINGS

The following are maximum values which, if exceeded, may cause faulty operation or damage to the unit.

Table 2.1 Absolute Maximum Ratings

Parameter	Symbol	Values		Units	Notes
		Min	Max		
Power Supply Input	VDDC	-0.3	4.0	V	
Power Supply Input	VDDA	-0.3	6.0	V	
Power Supply Input	IO_VCC	-0.3	2.5	V	
LED Power Consumption	P_{LED}	-	120	mW	1
LED Current	I_{LED}	-	35	mA	1, 2

Notes:
1. Applies to each LED individually.
2. Allowable forward current is refer to Fig 2.1

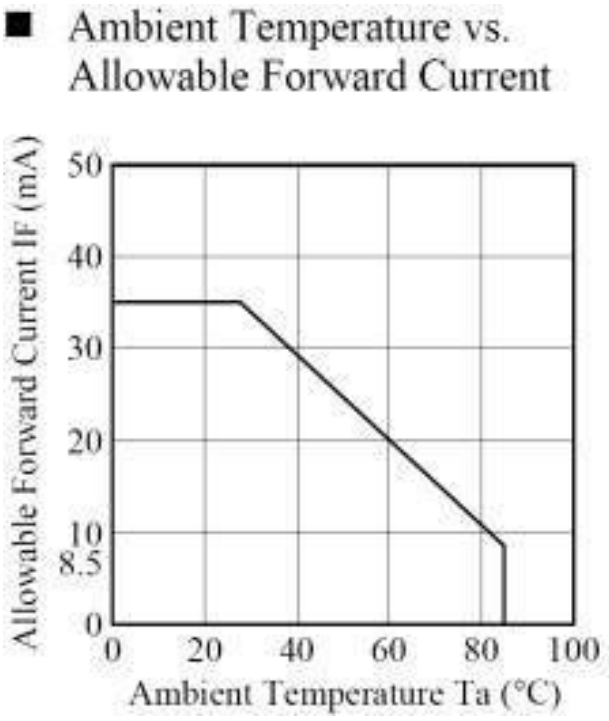


Fig 2.1 Ambient Temperature vs. Allowable Forward Current

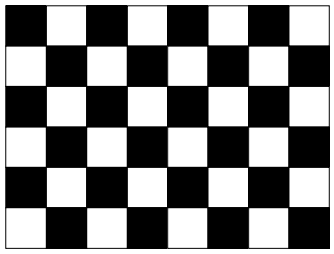
3. ELECTRICAL SPECIFICATIONS

3-1. ELECTRICAL CHARACTERISTICS

Table 3.1 Electrical Characteristics Of TFT-LCD Module

Parameter	Symbol	Values			Units	Notes
		Min	Typ	Max		
Power Supply Input	VDDC	2.9	3.0	3.1	V	
Power Supply Input	VDDA		5.672		V	
Power Supply Input	IO_VCC	1.7	1.8	1.9	V	
"H"Level Input Voltage	V_{IH}	0.8 V_{IO_VCC}	-	-	V	
"L"Level Input Voltage	V_{IL}	-	-	0.2 V_{IO_VCC}	V	
Power Consumption, Panel	P_B		60	80	mW	1

Notes:
1. Large black/white checker pattern(20 pixel blocks) at 60Hz



White : 255Gray
Black : 0Gray

3-2. BACK LIGHT UNIT

The edge-lighting type of back light unit consists of 6 LEDs which is connected in serial.

Table 3.2 Electrical Characteristics Of Back Light Unit

Parameter	Symbol	Values			Units	Notes
		Min	Typ.	Max		
LED Current	I_{LED}	-	20	25	mA	
LED Forward Voltage	V_{LED}	-	19.2	21.0	V	

3-3. INTERFACE CONNECTIONS

LCD Connector: AA03-S020VA1 (JAE)
System Mating Connector: AA03-P020VA1 (JAE)

Table 3.3 Module Connector Pin Configuration

Pin No.	Symbol	I/O	Description
1	GND	-	Ground Reference (0V)
2	LED-	Power	LED Cathode
3	D0-	I/O	MIPI Data
4	LED+	Power	LED Anode
5	D0+	I/O	MIPI Data
6	VDDA	Power	5.672V Power supply
7	GND	-	Ground Reference (0V)
8	VDDC	Power	3.0V Power supply
9	CLK-	I	MIPI Clock
10	IO_VCC	Power	1.8V Power supply
11	CLK+	I	MIPI Clock
12	RESETB	I	Reset (“L” Active)
13	GND	-	Ground Reference (0V)
14	ERR_TE	O	Error Test
15	D1-	I	MIPI Data
16	NC	-	No Connection
17	D1+	I	MIPI Data
18	EXSHDNB	O	External PMU shut down signal (When “sleep out”, It goes to “H”.)
19	GND	-	Ground Reference (0V)
20	EXTAVDD	I	PMU Configuration (For using external PMU, connect to “H”)