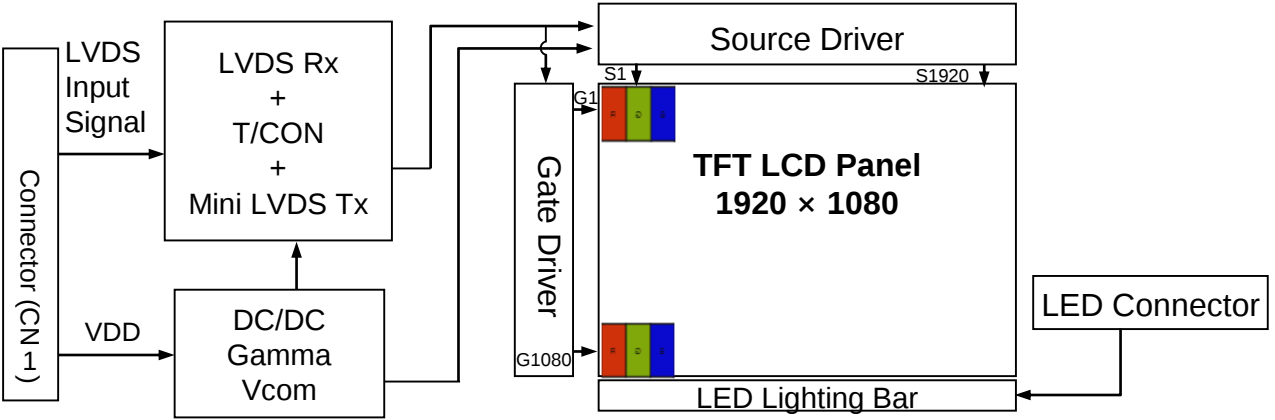


BOE	PRODUCT GROUP	REV	ISSUE DATE
	TFT LCD PRODUCT	P0	2019.07.29

1.0 GENERAL DESCRIPTION

1.0.1 Introduction

GV215FHM-N10 is a color active matrix TFT LCD module using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This module has a 21.5 inch diagonally measured active area with FHD resolutions (1920 horizontal by 1080 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 16.7M colors.



1.0.2 Features

- LVDS Interface with 2 pixel / clock
- High-speed response
- 0.5t Glass
- 6-bit (Hi-FRC) color depth, display 16. 7M colors
- Incorporated edge type back-light (One Light Bar)
- High luminance and contrast ratio, low reflection and wide viewing angle
- DE (Data Enable) only
- RoHS/Halogen Free
- Gamma Correction
- Landscape and Portrait Enabled

SPEC. NUMBER	SPEC TITLE	PAGE
	GV215FHM-N10 Product Specification	4 OF 27

BOE	PRODUCT GROUP	REV	ISSUE DATE
	TFT LCD PRODUCT	P0	2019.07.29

1.0.3 Application

- Desktop Type of PC & Workstation Use
- Slim-Size Display for Stand-alone Monitor
- Display Terminals for Control System
- Monitors for Process Controller
- Digital Signage for Class Information
- Storage Cabinet for Outdoor

1.0.4 General Specification

The followings are general specifications at the model GV215FHM-N10

<Table 1. General Specifications>

Parameter	Specification	Unit	Remarks
Active area	476.64(H) × 268.11(V)	mm	
Number of pixels	1920(H) × 1080(V)	pixels	
Pixel pitch	0.24825(H) x 0.24825(V)	mm	
Pixel arrangement	RGB Vertical stripe	-	
Display colors	16.7M	colors	
Display mode	Normally Black	-	
Dimensional outline	495.6(H) × 292.2(V) × 10.7(D) typ.	mm	Detail refer to drawing
Possible Display Type	Landscape and Portrait Enabled	-	
Weight	1.93	Kg	
Bezel width (L/R/U/D)	7.9/7.9/10.5/10.5	mm	
Surface Treatment	Haze 25%, 3H	-	
Back-light	Lower side 1-LED Light bar Type	-	

SPEC. NUMBER	SPEC TITLE GV215FHM-N10 Product Specification	PAGE 5 OF 27
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2.0 ABSOLUTE MAXIMUM RATINGS

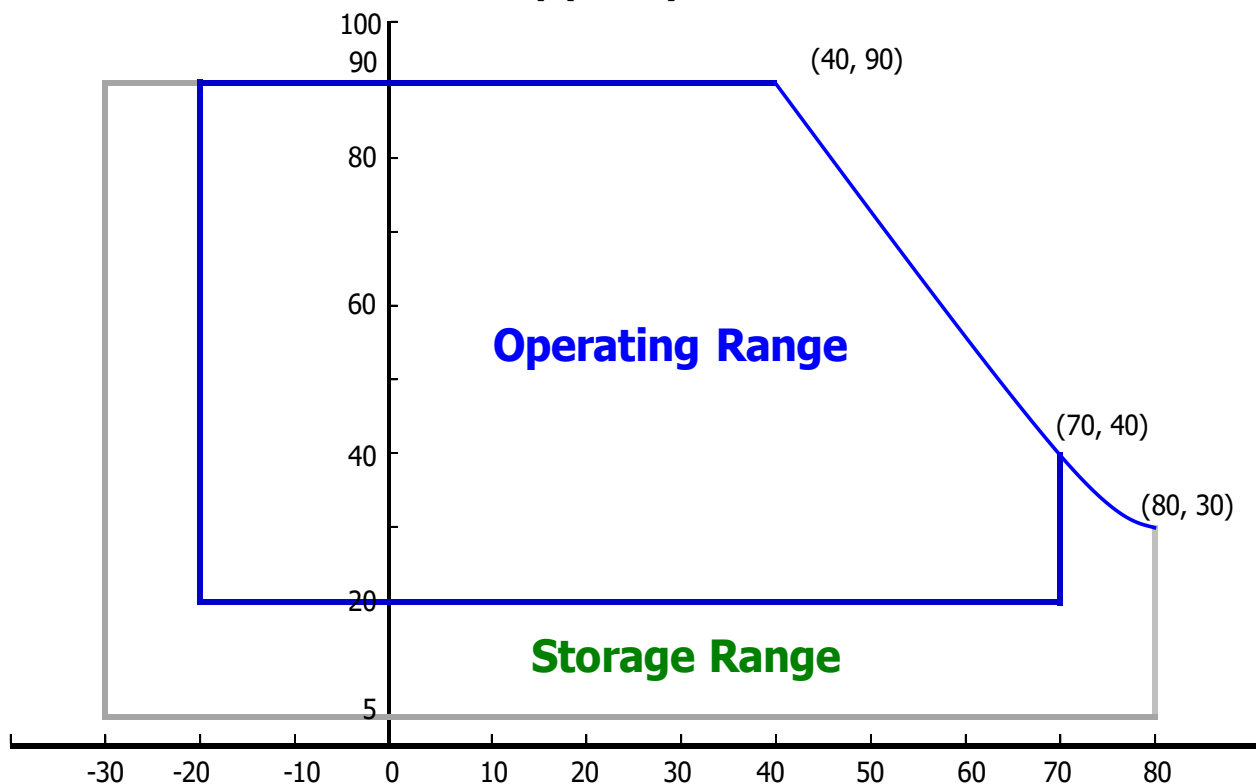
The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 2.

< Table 2. Absolute Maximum Ratings >

[VSS=GND=0V]

Parameter	Symbol	Min.	Max.	Unit	Remarks
Power Supply Voltage	V_{DD}	-0.3	5.5	V	Ta = 25 °C
Logic Supply Voltage	V_{IN}	VSS-0.3	$V_{DD}+0.3$	V	
Operating Temperature	T_{OP}	-20	+70	°C	
Storage Temperature	T_{ST}	-30	+80	°C	
Liquid crystal clear point	T_{Lc}	104.9		°C	Typ.

Relative Humidity (%RH)



3.0 ELECTRICAL SPECIFICATIONS

3.0.1 Electrical Specifications

< Table 3. Electrical specifications >

[Ta =25±2 °C]

Parameter		Min.	Typ.	Max.	Unit	Remarks
Power Supply Voltage	V _{DD}	4.5	5.0	5.5	V	Note1
Power Supply Current	I _{DD}	-	700	1200	mA	
In-Rush Current	I _{RUSH}	-	-	3	A	Note 2
Permissible Input Ripple Voltage	V _{RF}	-	-	300	mV	V_{DD} = 5.0V
High Level Differential Input Threshold Voltage	V _{IH}	-	-	+100	mV	
Low Level Differential Input Threshold Voltage	V _{IL}	-100	-	-	mV	
Differential input voltage	V _{ID}	200	-	600	mV	
Differential input common mode voltage	V _{cm}	1.0	1.2	1.5		V _{IH} =100mV, V _{IL} =-100mV
LED Voltage	V _L	-	3.0	3.3	V	
LED Channel Voltage	V _L	-	51	56.1	V	Duty 100%
LED Channel Current	I _L		90		mA	Duty 100%, Each channel
LED Lifetime		30000	-	-	Hrs	I _L =90 mA, Note 4
Power Consumption	P _D	-	3.5	5.4	W	
	P _{BL}	-	18.36	20.2	W	I _L =90mA, Note 3
	P _{total}	-	21.86	25.6	W	

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM.

The current draw and power consumption specified is for VDD=5.0V, Frame rate=60Hz. Test Pattern of power supply current

- a) Typ : Color Bar pattern
- b) Max : Gray Level 255 Pattern

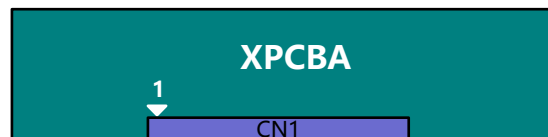
2. Duration of rush current is about 2 ms and rising time of VDD is 520 μs ± 20 %

3. Calculated value for reference (V_L × I_L) ×4(channel) excluding driver loss. (LED Light bar: 17S4P)

4. The lifetime is determined as the time at which luminance of LED become 50% of the initial brightness or not normal lighting at IPIN=90mA on condition of continuous operating at 25 ±2 °C

4.0 INTERFACE CONNECTION.

4.0.1 Electrical Interface Connection

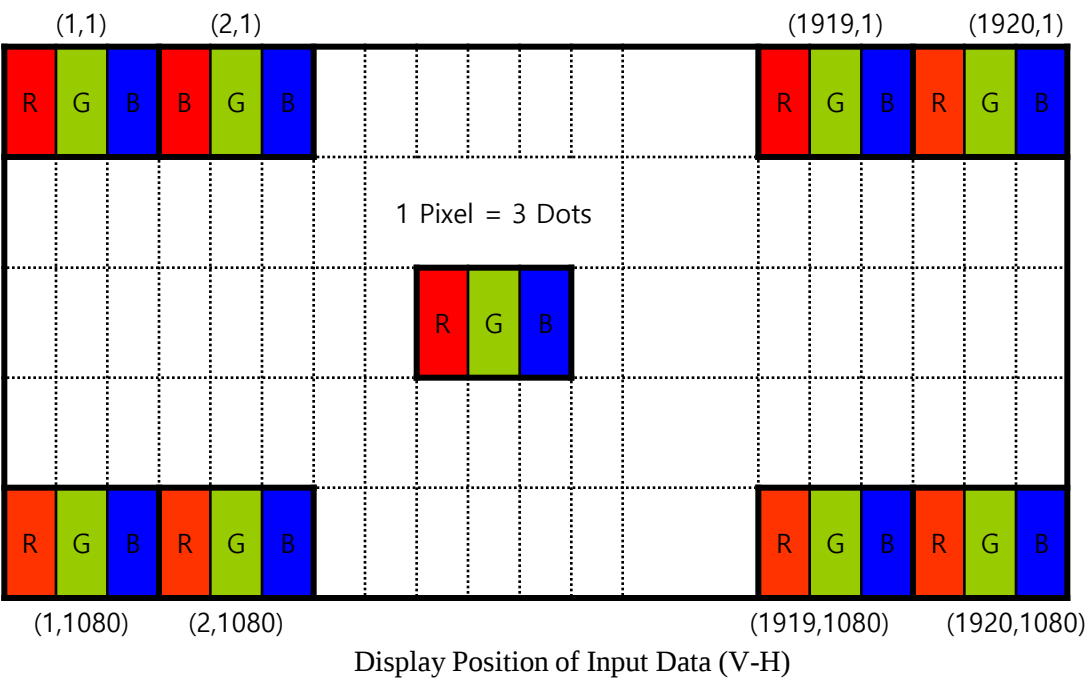


- CN1 Module Side Connector : UJU IS100-L300-C23 or MSBKT2407P30
 User Side Connector : JAE FI-X30H

Pin No	Symbol	Function	Remark
1	RX00-	Negative Transmission data of Pixel 0 (ODD)	
2	RX00+	Positive Transmission data of Pixel 0 (ODD)	
3	RX01-	Negative Transmission data of Pixel 1 (ODD)	
4	RX01+	Positive Transmission data of Pixel 1 (ODD)	
5	RX02-	Negative Transmission data of Pixel 2 (ODD)	
6	RX02+	Positive Transmission data of Pixel 2 (ODD)	
7	GND	Power Ground	
8	RXOC-	Negative Transmission Clock (ODD)	
9	RXOC+	Positive Transmission Clock (ODD)	
10	RX03-	Negative Transmission data of Pixel 3 (ODD)	
11	RX03+	Positive Transmission data of Pixel 3 (ODD)	
12	RXE0-	Negative Transmission data of Pixel 0 (EVEN)	
13	RXE0+	Positive Transmission data of Pixel 0 (EVEN)	
14	GND	Power Ground	
15	RXE1-	Negative Transmission data of Pixel 1 (EVEN)	
16	RXE1+	Positive Transmission data of Pixel 1 (EVEN)	
17	GND	Power Ground	
18	RXE2-	Negative Transmission data of Pixel 2 (EVEN)	
19	RXE2+	Positive Transmission data of Pixel 2 (EVEN)	
20	RXEC-	Negative Transmission Clock (EVEN)	
21	RXEC+	Positive Transmission Clock (EVEN)	
22	RXE3-	Negative Transmission data of Pixel 3 (EVEN)	
23	RXE3+	Positive Transmission data of Pixel 3 (EVEN)	
24	GND	Power Ground	Note 1
25	NC	Not connection, this pin should be open	
26	NC	Not connection, this pin should be open	
27	NC	Not connection	
28	VDD	Power Supply: +5V	
29	VDD		
30	VDD		

Note 1 : This pin should be connected with GND.

4.0.2 Data Input Format



4.0.3 Back-light Interface Connection

-LED connector：3707K-Q06N-08X manufactured by Entry

Pin No	Symbol	Description
1	IRLED1	LED current sense for string1
2	IRLED2	LED current sense for string2
3	VLED	LED power supply
4	VLED	LED power supply
5	IRLED3	LED current sense for string3
6	IRLED4	LED current sense for string4