

1. Application

This specification applies to color TFT-LCD module, LQ0DZA0115.

The device listed in these specification sheets was designed and manufactured for use in general electronic equipment.

In case of using the device for applications such as control and safety equipment for transportation (aircraft, trains, automobiles, etc.), rescue and security equipment and various safety related equipment which require higher reliability and safety, take into consideration that appropriate measures such as fail-safe functions and redundant system design should be taken.

Do not use the device for equipment that requires an extreme level of reliability, such as aerospace applications, telecommunication equipment (trunk lines), nuclear power control equipment and medical or other equipment for life support.

2. Overview

This module is a color active matrix LCD module incorporating amorphous silicon TFT (Thin Film Transistor). It is composed of a color TFT-LCD panel, driver ICs, control circuit and power supply circuit and a backlight unit. Graphics and texts can be displayed on a $800 \times 3 \times 600$ dots panel with about 12-million-color by using LVDS (Low Voltage Differential Signaling) system for interface and supplying +3.3V DC supply voltage for TFT-LCD panel driving and supply voltage for backlight.

The TFT-LCD panel used for this module is a low-reflection and higher-color-saturation type.

Therefore, this module is also suitable for the multimedia use. Viewing angle is 6 o'clock direction.

Backlight-driving DC/AC inverter is not built in this module.

3. Outline Specifications

Parameter	Specifications	Unit
Display size	31 (12.1") Diagonal	cm
Active area	246.0 (H) × 184.5 (V)	mm
Pixel format	800 (H) × 600 (V)	pixel
	(1 pixel=R+G+B dots)	
Aspect ratio	4 : 3	
Pixel pitch	0.3075 (H) × 0.3075 (V)	mm
Pixel configuration	R,G,B vertical stripe	
Display mode	Normally white	
Unit outline dimensions *1	276.0(W) × 209.0(H) × Max.11.0 (D) *Outline dimensions is shown in Fig.1	mm
Mass	MAX. 660	g
Surface treatment	Anti-glare and hard-coating 3H	

[*1 Note] excluding backlight cables.

4. Input Terminals

4-1. TFT-LCD panel driving

CN1 (LVDS signals , +3.3V DC power supply and Contorol signal)

Corresponding connector: DF14-20S-1.25C(Connector) [Hirose electric.,Ltd]

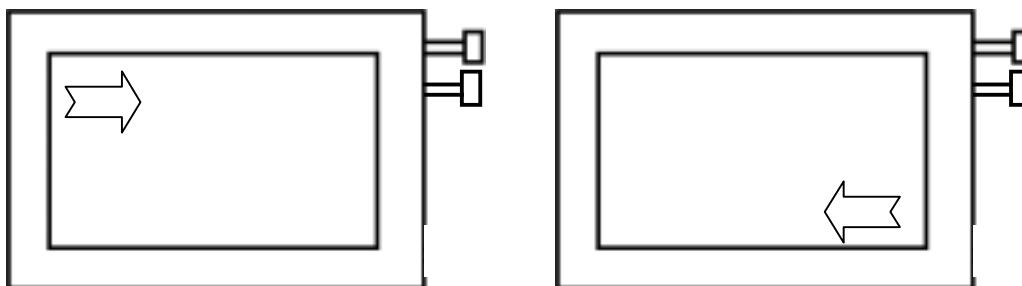
DF14-2628SCF(Terminal) [Hirose electric.,Ltd]

Pin No.	Symbol	Function	Remark
1	V _{CC}	+3.3V power supply	
2	V _{CC}	+3.3V power supply	
3	GND		
4	GND		
5	RXIN0-	Differential data input, CH0 (negative)	LVDS signal
6	RXIN0+	Differential data input, CH0 (positive)	LVDS signal
7	GND		
8	RXIN1-	Differential data input, CH1 (negative)	LVDS signal
9	RXIN1+	Differential data input, CH1 (positive)	LVDS signal
10	GND		
11	RXIN2-	Differential data input, CH2 (negative)	LVDS signal
12	RXIN2+	Differential data input, CH2 (positive)	LVDS signal
13	GND		
14	RXCLK IN-	Differential clock input (negative)	LVDS signal
15	RXCLK IN+	Differential clock input (positive)	LVDS signal
16	GND		
17	RXIN3-	Differential data input, CH3 (negative)	LVDS signal
18	RXIN3+	Differential data input, CH3 (positive)	LVDS signal
19	RL/UD	Horizontal/Vertical display mode select signal	[Note1]
20	SELLVDS	Select LVDS	[Note2]

[Note 1]

RL/UD = Low

RL/UD = High



[Note 2] Relation between LVDS signals and actual data shows below section (4- 4)

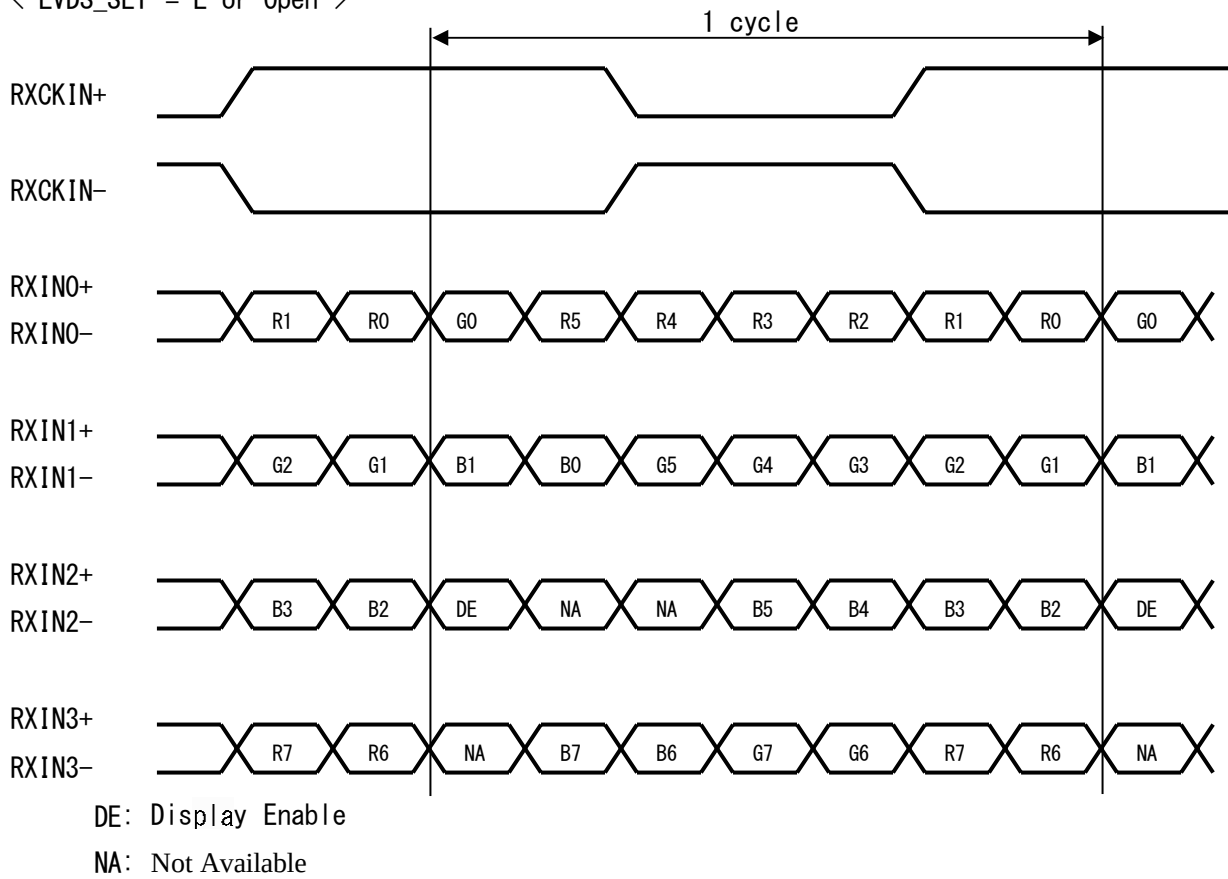
4-2 Data Mapping

1) 8 bit input

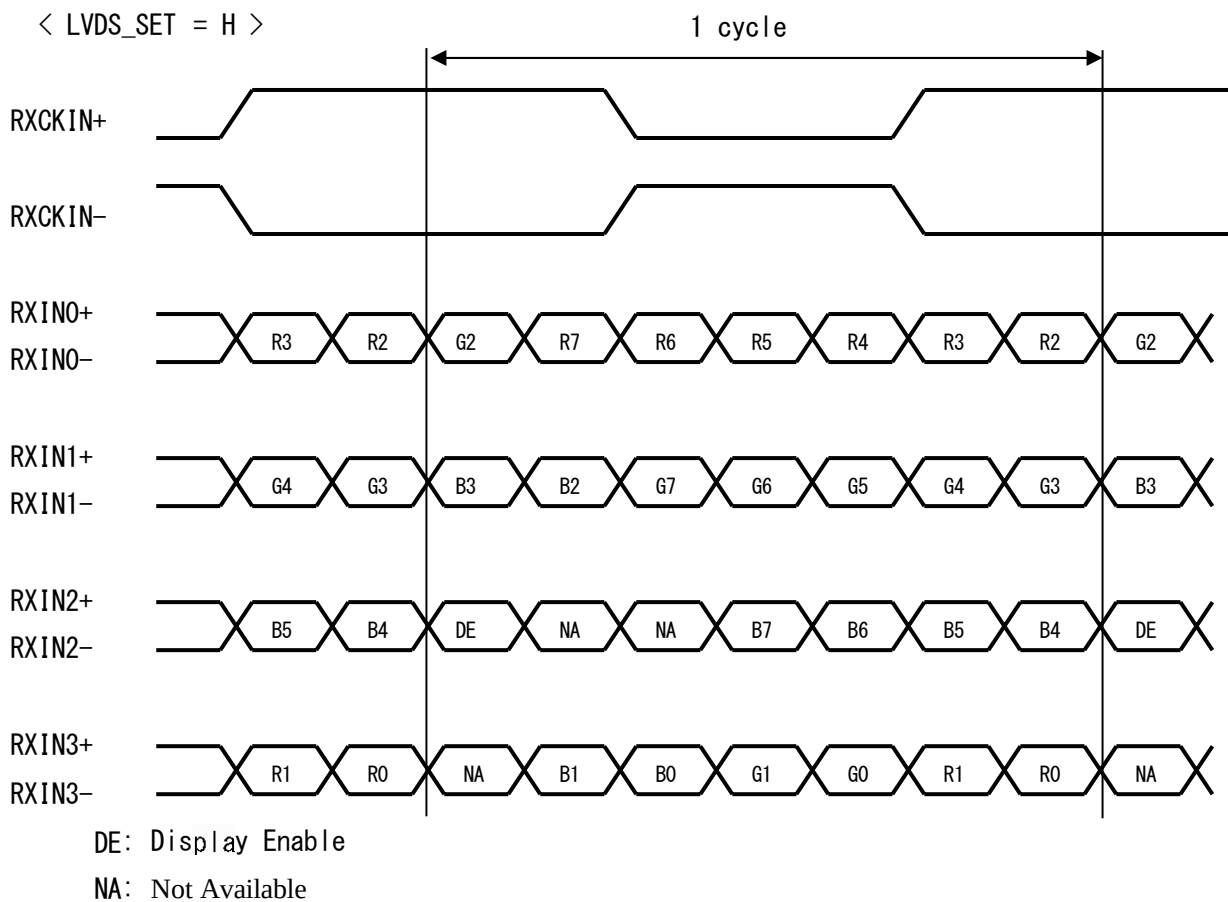
【note2】 pin assignment with LVDS_SET pin (Thine:THC63LVDM83R)

Transmitter		20pin LVDS_SET	
Pin No	Data	=L (GND) or Open	=H (3.3V)
51	TA0	R0 (LSB)	R2
52	TA1	R1	R3
54	TA2	R2	R4
55	TA3	R3	R5
56	TA4	R4	R6
3	TA5	R5	R7 (MSB)
4	TA6	G0 (LSB)	G2
6	TB0	G1	G3
7	TB1	G2	G4
11	TB2	G3	G5
12	TB3	G4	G6
14	TB4	G5	G7 (MSB)
15	TB5	B0 (LSB)	B2
19	TB6	B1	B3
20	TC0	B2	B4
22	TC1	B3	B5
23	TC2	B4	B6
24	TC3	B5	B7 (MSB)
27	TC4	(NA)	(NA)
28	TC5	(NA)	(NA)
30	TC6	DE	DE
50	TD0	R6	R0 (LSB)
2	TD1	R7 (MSB)	R1
8	TD2	G6	G0 (LSB)
10	TD3	G7 (MSB)	G1
16	TD4	B6	B0 (LSB)
18	TD5	B7 (MSB)	B1
25	TD6	(NA)	(NA)

< LVDS_SET = L or Open >



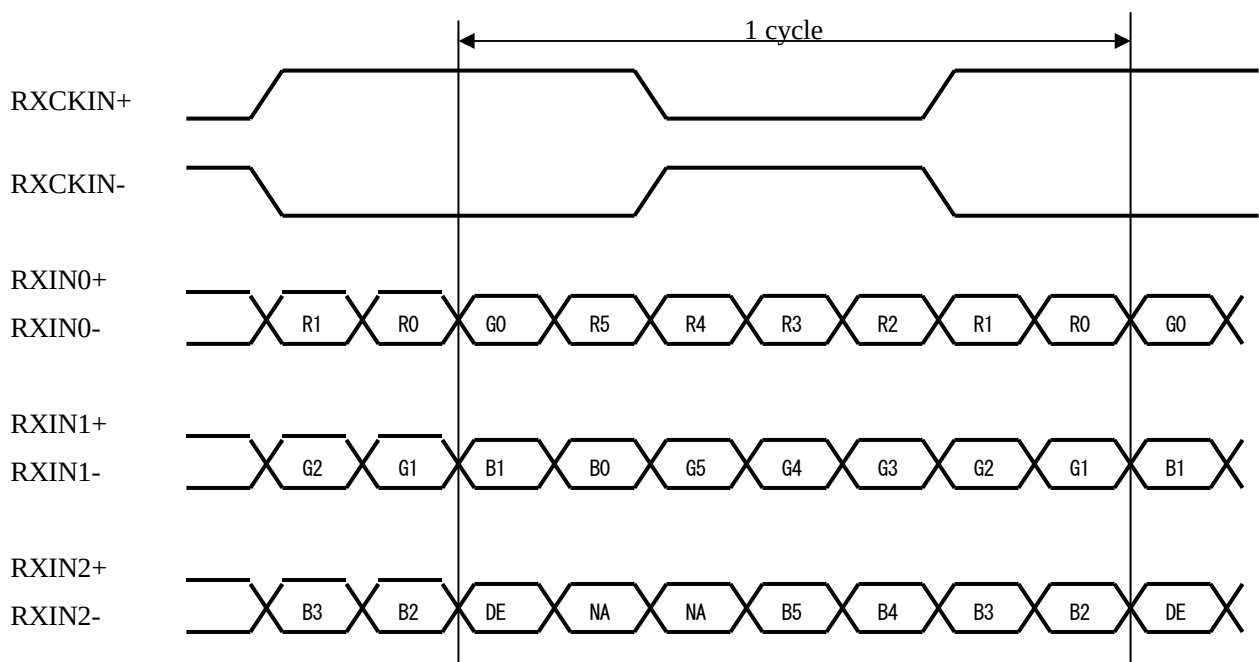
< LVDS_SET = H >



2) 6 bit input

【note2】 pin assignment with LVDS_SET pin (Thine:THC63LVDM83R)

Transmitter		20pin LVDS_SET	
Pin No	Data	=L (GND) or Open	=H (3.3V)
51	TA0	—	R0 (LSB)
52	TA1	—	R1
54	TA2	—	R2
55	TA3	—	R3
56	TA4	—	R4
3	TA5	—	R5 (MSB)
4	TA6	—	G0 (LSB)
6	TB0	—	G1
7	TB1	—	G2
11	TB2	—	G3
12	TB3	—	G4
14	TB4	—	G5 (MSB)
15	TB5	—	B0 (LSB)
19	TB6	—	B1
20	TC0	—	B2
22	TC1	—	B3
23	TC2	—	B4
24	TC3	—	B5 (MSB)
27	TC4	—	(NA)
28	TC5	—	(NA)
30	TC6	—	DE
50	TD0	—	GND
2	TD1	—	GND
8	TD2	—	GND
10	TD3	—	GND
16	TD4	—	GND
18	TD5	—	GND
25	TD6	—	(NA)



DE: Display Enable

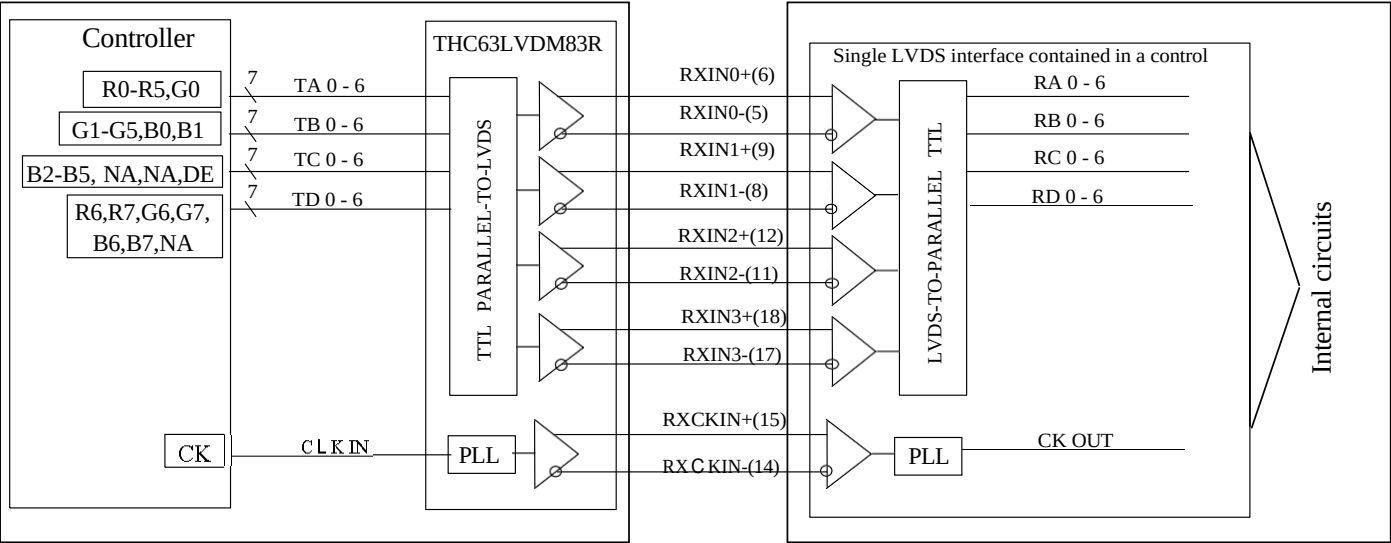
NA: Not Available

(Computer side)

(TFT-LCD side)

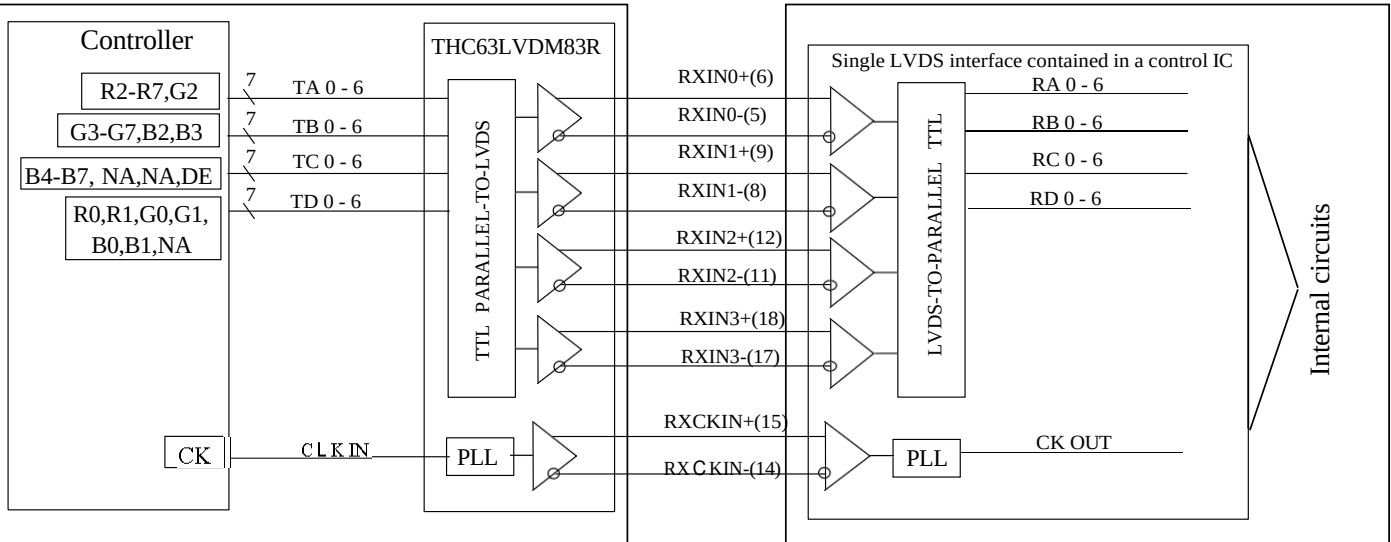
①8Bit Mode

LVDS_SET=L (20 pin=GND or OPEN)



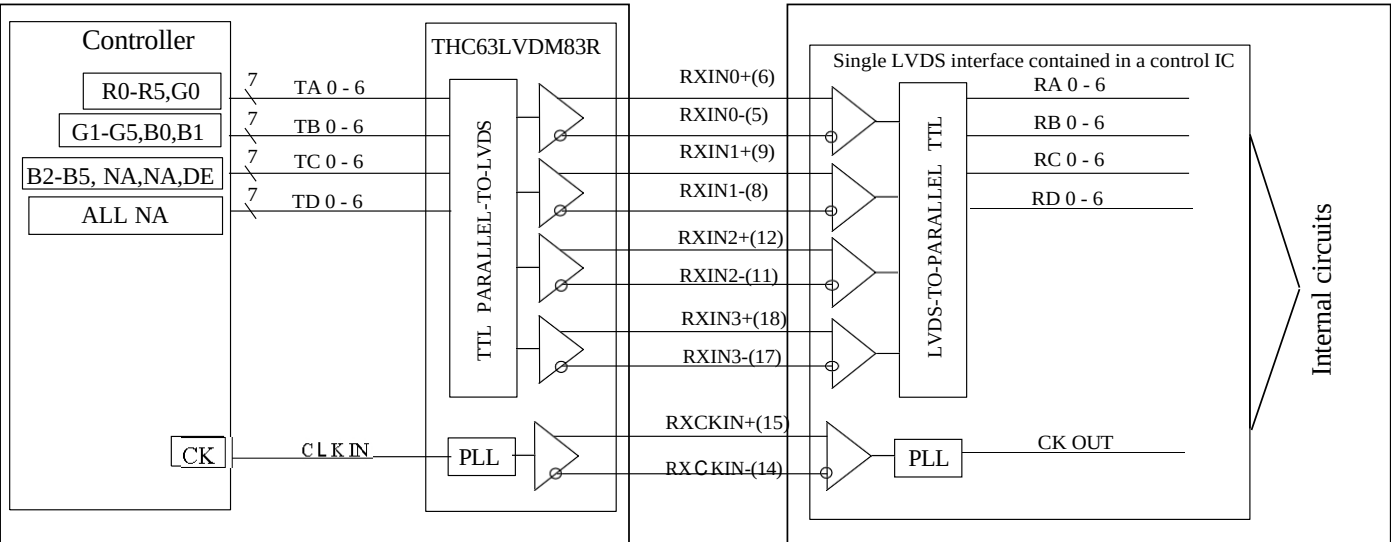
②8Bit Mode

LVDS_SET=H (20 pin=3.3[V])



③6Bit Mode

LVDS_SET=H (20 pin=3.3[V])



4-4. Backlight driving CN2 ,CN3

Used connector: BHR-02(8.0)VS-1N (JST)

Corresponding connector: SM02(8.0)B-BHS-1R-TB(JST)

SM02(8.0)B-BHS-1-TB (JST)

Connector No.	Pin No.	Symbol	function	FL Cable color	
				CN2	CN3
CN2,3	1	V _{HIGH}	Power supply for lamp (High voltage side)	White	Pink
	2	V _{LOW}	Power supply for lamp (Low voltage side)	Gray	White

5. Absolute Maximum Ratings

Parameter	Symbol	Condition	Pin name	Ratings	Unit	Remark
supply voltage	V _{cc}	Ta=25 °C	V _{cc}	-0.3 to 4.0	V	[Note1,4]
Input voltage	VI1	Ta=25°C	RXINi-/+(i= 0,1,2,3) RXCLK IN-/+	-0.3 to V _{cc} +0.3	V	
	VI2	Ta=25°C	RL/UD,SELLVDS	-0.3 to V _{cc} +0.3	V	
Lump input voltage	V _{HIGH}	-	V _{HIGH} (CN2,CN3)	0 to +2000	V _{rms}	[Note1,2]
Storage temperature	T _{stg}	-	-	-30 to +75	°C	[Note1]
Operating temperature	T _{opa}	Ambient	-	-10 to +75(panel surface)	°C	[Note1,3]

[Note1] Humidity: 95%RH Max. at Ta=<40°C.

Maximum wet-bulb temperature at 39°C or less at Ta>40 °C.

No condensation.

[Note2]A high voltage should be not able to be continued when the lamp doesn't light

[Note3] When used on condition of Operating temperature [$65^{\circ}\text{C} \leq T_{\text{OPA}} < 75^{\circ}\text{C}$],

degradation of display grace, such as screen stain etc, may be caused.

[Note4]Please use the one of 2A or more in current capacity about the power-supply voltage.

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