

ALP127ALX

3.8cm (1.5/inch) 521 x 218 dots

* This specification is tentative and subject to change without notice. Please contact us when you use this module on your production.

Overview

This low power consumption 1.5 inch low temperature poly-silicon TFT-LCD module is suitable for view finder of digital still camera.

Features

- Diagonal 3.8cm (1.5inch) display size.
- 521x218=113,578 dots.
- Transmissive type.
- RGB delta color arrangement.
- Prifferd viewing angle ; 6 o'clock (FPC is bottom)
- Polarizer ; Glare type.
- Low power consumption (panel TYP. 15mW) by common inversion drive (built-in negative power supply generater and gate level shifter).
- Up/down and right/left inverse function.
- Built-in level shifter circuit.
- Thinness ; 3mmt (include BL).
- Recommended IC ; LV4141W (analog I/F), LC15004 (digital I/F)
- Operating temperature (panel surface) ; -10 to +60°C.
- Storage temperature ; -20 to +70°C.
- Harnessless type (Option ; built-in harness).

Specifications

Item	Specifications	Unit	Remarks
Dot count(H)x(V)	521 x 218	dot	
Effective display dimensions (H)x(V)	30.247 x 22.672	mm	
Display size(diagonal)	3.8 (1.5inch)	cm	
Dot pitch(H)x(V)	0.058 x 0.104	mm	
Color arrangement	RGB Delta	-	
Module external dimensions(W)x(H)x(D)	TYP. 37 x 33.62 x 2.95	mm	Note1
FPC length	TYP.19.15	mm	
Weight	Approx. 9.5	g	

*Note1 : Excluding flexible cable and protrusions.

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Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production.

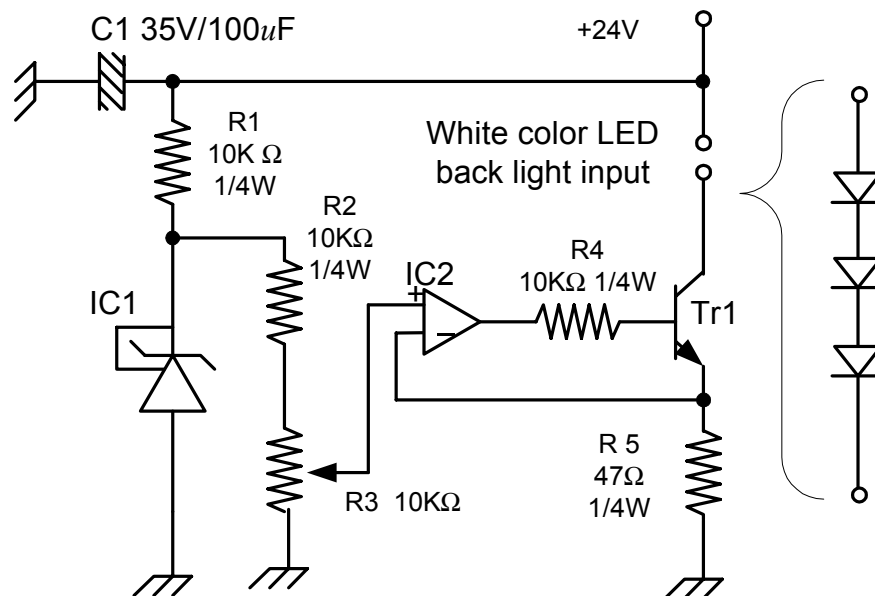
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Absolute Maximum Ratings at VSS = 0V

Item	Symbol	Ratings	Unit
H driver power supply voltage	HVDD	-1.0 to +10	V
V driver power supply voltage	VDD	-1.0 to -10	V
V driver negative power supply voltage	VBB	-6.0 to -1.0	V
Common electrode voltage	VCOM	-1.0 to +10	V
Driving direction signal voltage	CSH,CSV	-1.0 to +11	V
H driver/Drain storage gate voltage	STH,XSTH,CKH1,CKH2, DSG,XDSG	-1.0 to +10	V
V driver input voltage	STV,XSTV,CKV1,CKV2, ENB,XENB	-1.0 to +10	V
Video/Drain storage data signal input voltage	VG,VR,VB,VDS	-1.0 to +8	V
Operating temperature	Topr	-10 to +60	°C
Storage temperature	Tstg	-20 to +70	°C
Backlight input current	If	30* ¹	mA

*1 Ta = 25°C

Constant Current Circuit for Measurement



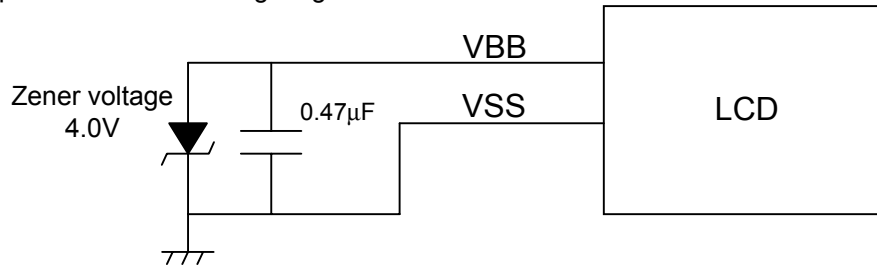
IC1=Diode 1431T
 IC2=OP amplifier M358
 Tr1=Transistor 2SC1213

Operating Conditions VSS=0V

Item	Symbol	MIN	TYP	MAX	Unit
Power supply voltage	HVDD	8.2	8.5	8.8	V
	VDD	8.2	8.5	8.8	V
VBB output voltage	VBB	-	-4.0	-	V

Negative Power Supply Generator

To stabilize VBB output voltage, VBB should be tied VSS through a zener diode with smoothing capacitor as the following diagram.



Input Signal

Item		Symbol	MIN	TYP	MAX	Unit
H driver/Drain storage gate voltage	Low	VHIL	-0.3	0.0	0.3	V
	High	VHIH	2.5	3.0	4.0	V
V driver input voltage	Low	VVIL	-0.3	0.0	0.3	V
	High	VVIH	2.5	3.0	4.0	V
CSH	Low	VHSIL	-0.3	0.0	0.3	V
	High	VHSIH	HVDD	HVDD	HVDD	V
CSV	Low	VVSIL	-0.3	0.0	0.3	V
	High	VVSIH	VDD	VDD	VDD	V
Video signal center voltage	analog I/F	VVC	3.30	3.50	3.70	V
	digital I/F	VVC	2.55	2.75	2.95	V
Video signal voltage (analog I/F)	Black(H)	Vblack(H)	5.05	5.25	5.45	V
	Black(L)	Vblack(L)	1.55	1.75	1.95	V
	White-Black	Vsig w-b			2.70	V
Video signal voltage (digital I/F)	Black(H)	Vblack(H)	4.30	4.50	4.70	V
	Black(L)	Vblack(L)	0.80	1.00	1.20	V
	White-Black	Vsig w-b			2.70	V
Common electrode signal center voltage	analog I/F	VCOM c	(VVC-0.25) -0.2	(VVC-0.25)	(VVC-0.25) +0.2	V
	digital I/F	VCOM c	(VVC-0.25) -0.2	(VVC-0.25)	(VVC-0.25) +0.2	V
Common electrode signal center range	analog I/F	VCOM p-p		3.5		V
	digital I/F	VCOM p-p		3.5		V
Drain storage data signal		VDSD		VVC		V

White LED Backlight Input Current/Voltage

Item	MIN	TYP	MAX	Unit
Forward current	19.5	20.0	20.5	mA
D.C. voltage(constant current ; 20 mA)	9.5	10.5	12.0	V

Power Consumption

Item	Symbol	Condition	MIN	TYP	MAX	Unit
Panel power consumption	PWR		-	15	-	mW
Backlight power consumption		Constant current 20mA	-	210	-	mW

Optical Specifications (Ta=25°C, SANYO standard measurement system)

Item	Symbol	Condition	MIN	TYP	MAX	Unit
Contrast ratio	CR	$\theta=0$	-	100	-	-
Viewing angle range	θT	$CR \geq 10$	-	15	-	°C
	θB			35		
	θL			45		
	θR			45		
Luminance	L	$\theta=0$	-	280	-	cd/m ²

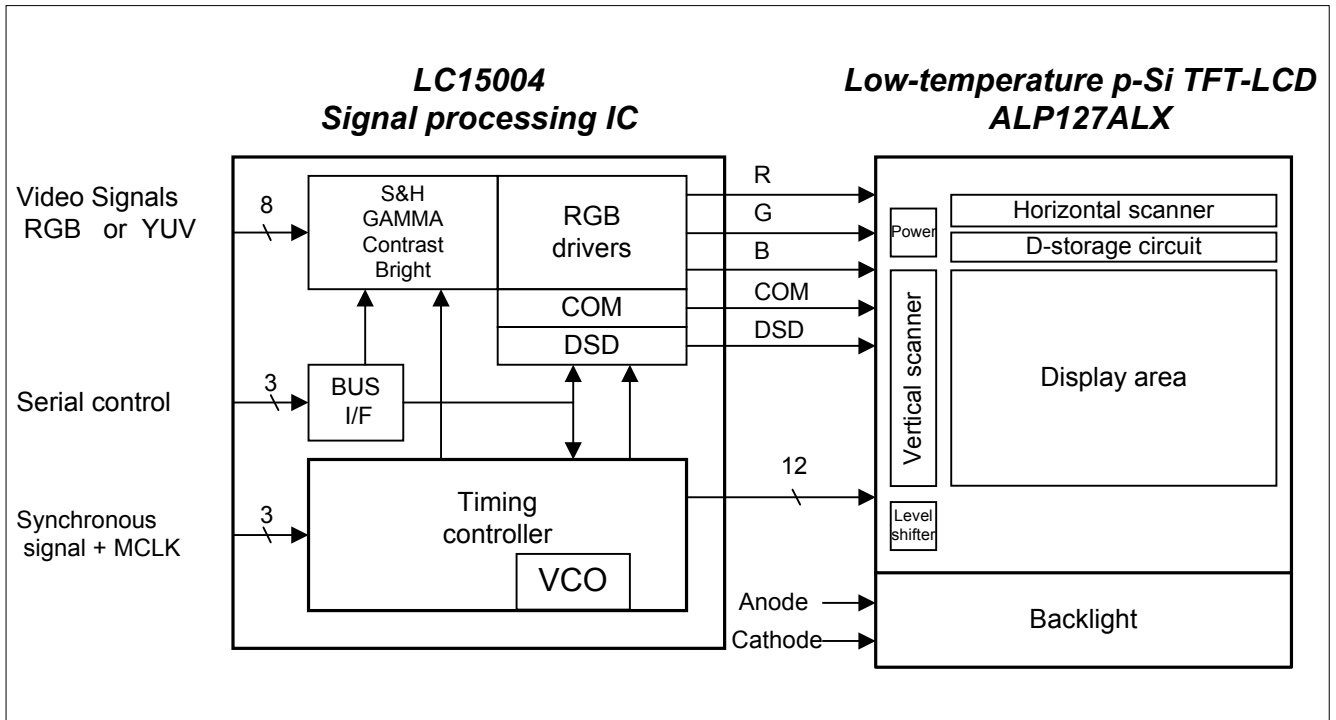
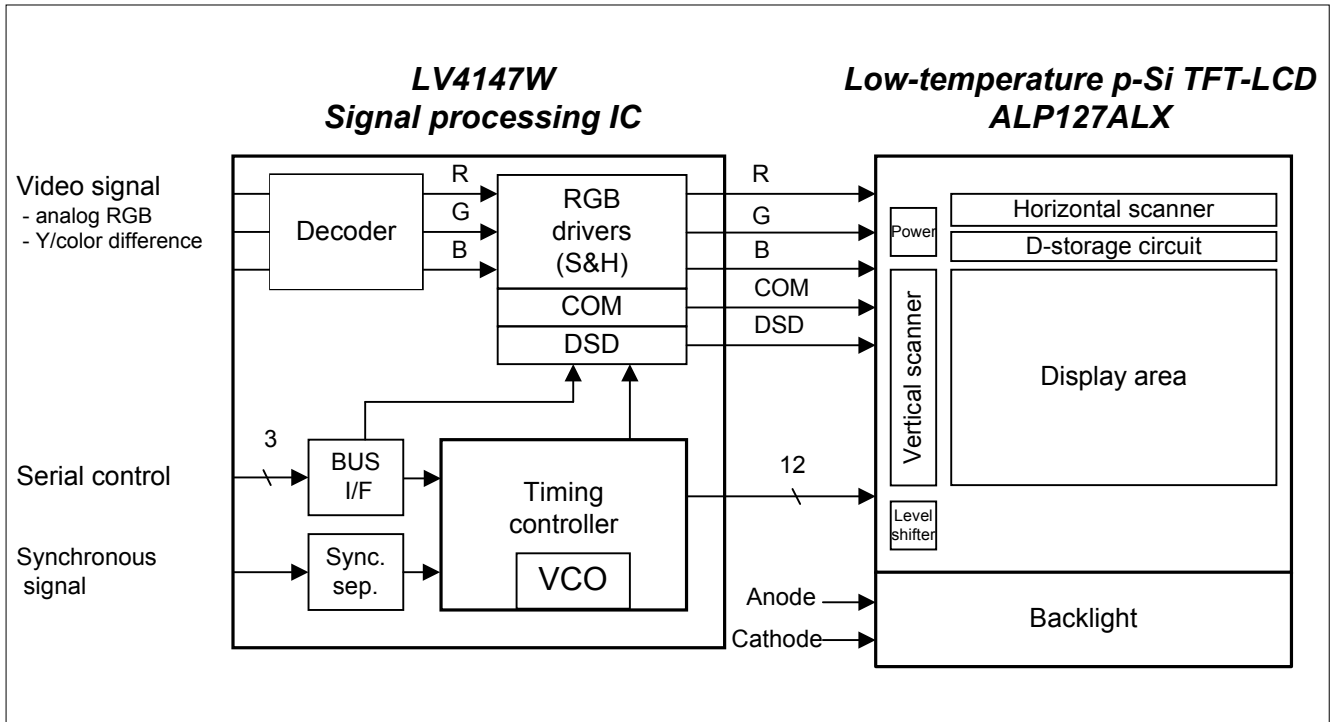
Pin Function

No.	Symbol	Function
1	COM	Common electrode voltage
2	CKV1	V clock1
3	CKV2	V clock2
4	STV	V start signal
5	XSTV	Inverted signal of STV
6	VVDD	VDD for H/V drive
7	ENB	Enabla signal
8	XENB	Inverted signal of ENB
9	CSV	Up/down inverse control signal (H:Normal scan, L:Reverse scan)
10	VBB	VBB output terminal
11	DSG	Drain storage data signal
12	XDSG	Inverted signal of DSG
13	DSD	Drain storage data signal
14	B	Video signal (B)
15	R	Video signal (R)
16	G	Video signal (G)
17	CSH	Right/left inverse controll signal (H:Normal scan, L:Reverse scan)
18	NC	"Open"
19	VSS	VSS for V and H drive
20	STH	H start signal
21	XSTH	Inverted signal of STH
22	HVDD	VDD for H drive
23	CKH1	H clock1
24	CKH2	H clock2

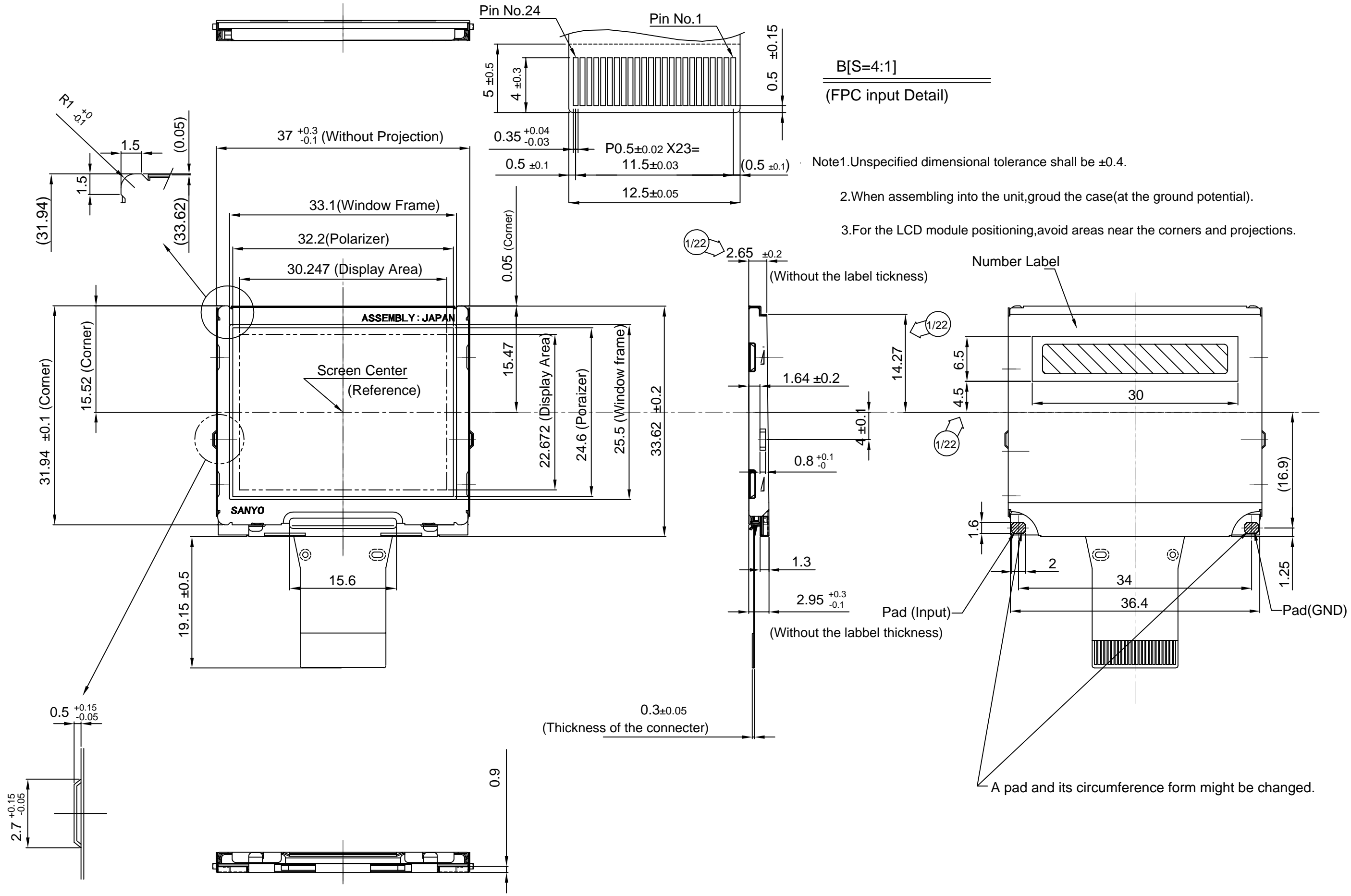
Backlight Pin Function

No.	Symbol	Function
1	Anode	LED input pin
2	Cathode	GND

System Configuration



Package Dimension Tentative



B[S=4:1]
(FPC input Detail)

- Note1. Unspecified dimensional tolerance shall be ± 0.4 .
- 2. When assembling into the unit, ground the case (at the ground potential).
- 3. For the LCD module positioning, avoid areas near the corners and projections.

A pad and its circumference form might be changed.