

**ALP230CCX**

Low-Temperature Polysilicon 2.0-inch TFT LCD Module

Overview

This 2 inch low temperature poly- silicon TFT-LCD module consists of LCD panel and backlight.
This is suitable for digital still camera or for digital video camera.

Features

- Diagonal 5.1cm (2.0inch) display size.
- $557 \times 234 = 130,338$ dots.
- RGB delta color arrangement.
- Operating temperature (Panel) is -10 to $+60^{\circ}\text{C}$. Ambient temperature during storage is -20 to $+70^{\circ}\text{C}$.
- Slim design, light weight and narrow frame. ($t=0.7\text{mm}$ glass)
- Up / down and right / left inverse function.
- Builds in level shifter circuit.
- Conform to NTSC, PAL when using recommended IC : LV4127W, LV4135W, LV4137W, (LV4139W : Under development).
- Anti-reflection (AR) coat.
- Builds in CCFL backlight unit. (Not contains inverter unit)
- Panel power consumption is Typ.100mW at NTSC. Backlight power consumption is 0.6W. (reference)
- Display surface luminance is typ 200cd/m².

Specifications

Item	Specifications	Unit	Remarks
Dot count (H) \times (V)	557 \times 234	dot	
Effective display dimensions (H) \times (V)	40.98 \times 30.77	mm	
Display size (diagonal)	5.1 (2.0inch)	cm	
Dot pitch (H) \times (V)	0.0735 \times 0.1315	mm	
Color arrangement	RGB Delta	-	
External Dimensions (W) \times (H) \times (D)	TYP 48.3 \times 42.1 \times 5.5	mm	Note1
Weight	Approx. 20	g	

*Note1: Excluding flexible cable and protrusions.

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ALP230CCX

Absolute Maximum Ratings at VSS=0V

Item	Symbol	Ratings	Unit
H driver power supply voltage	HVDD	-1.0 to +17	V
V driver power supply voltage	VVDD	-1.0 to +17	V
Common electrode voltage	VCOM	-1.0 to +17	V
Driving direction signal voltage	CSH, CSV	-1.0 to +17	V
H driver input voltage	STH, XSTH, CKH1, CKH2	-1.0 to +17	V
V driver / precharge data input voltage	STV, XSTV, CKV1, CKV2, ENB, XENB, PCG, XPCG	-1.0 to +17	V
Video / precharge data input voltage	VG, VR, VB, VPCD	-1.0 to +13	V
Operating temperature (panel)	Topr	-10 to +60	°C
Storage temperature	Tstg	-20 to +70	°C

Operating Conditions

Power supply voltage HVDD 15.0V \pm 0.5V, VVDD 15.0V \pm 0.5V, VSS 0V

Item		Symbol	MIN	TYP	MAX	Unit
H driver input 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
CSV, CSH	Low	VSIL	-0.3	0.0	0.3	V
	High	VSIH	11.5	VDD	VDD	V
Video signal center voltage		VVC	5.9	6.0	6.3	V
Video signal input voltage range *1		VG, VR, VB	VVC-3.5	-	VVC+3.5	V
Common electrode voltage*2		VCOM	(VVC-0.2)-0.2	(VVC-0.2)	(VVC-0.2)+0.2	V
Precharge data signal *1		VPCD	VVC \pm 1.5	VVC \pm 2.0	VVC \pm 2.5	V

*1 Video signal and precharge data signal shall be input symmetrically around VVC.

*2 Set common electrode voltage to the optimum voltage.

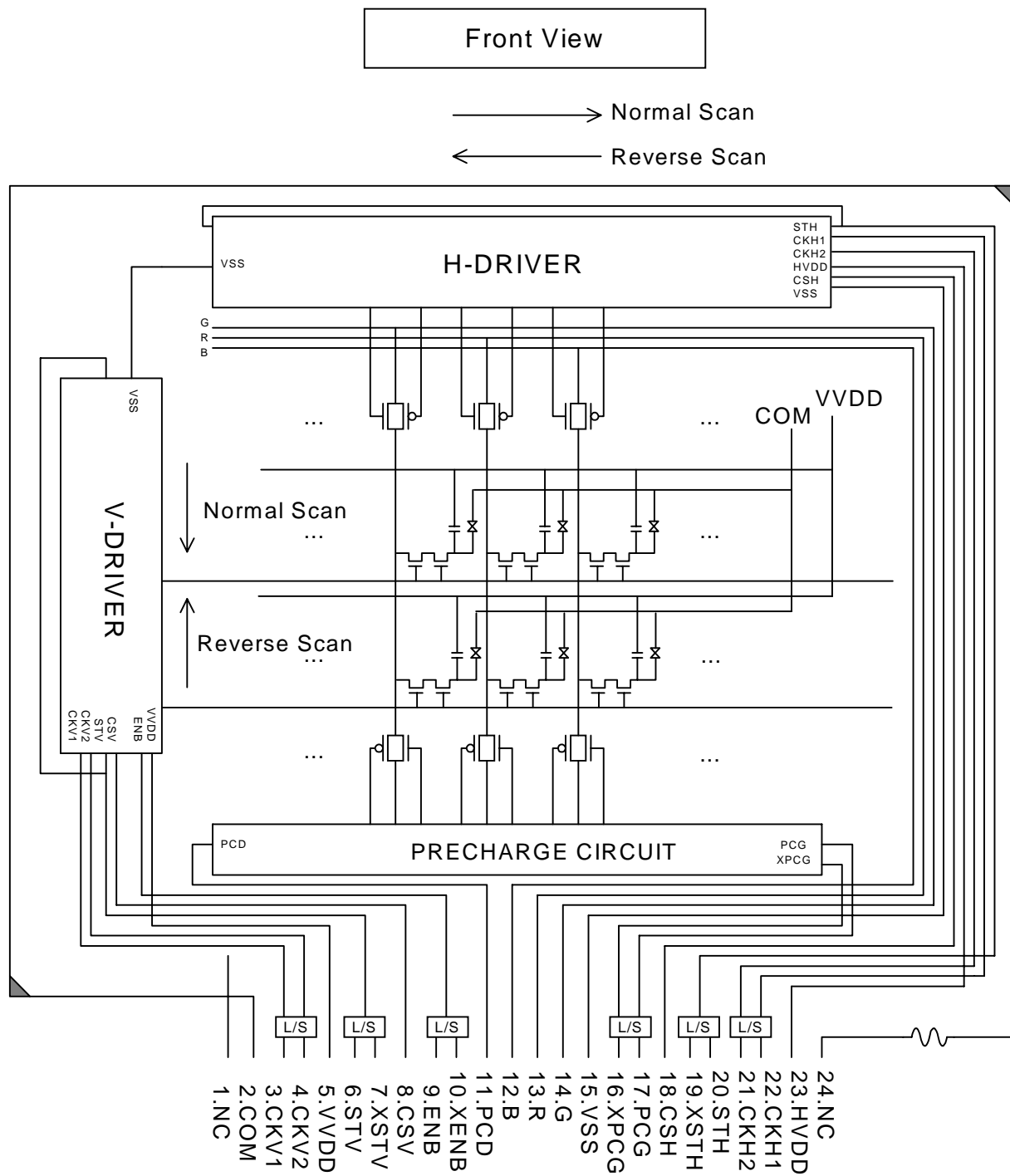
Optical Specifications

Item	Symbol	Condition	MIN	TYP	MAX	Unit
Contrast ratio	CR	25°C	-	100	-	-
Viewing angle range	θ T	CR \geq 10	-	15	-	deg
	θ B			35		
	θ L			45		
	θ R			45		

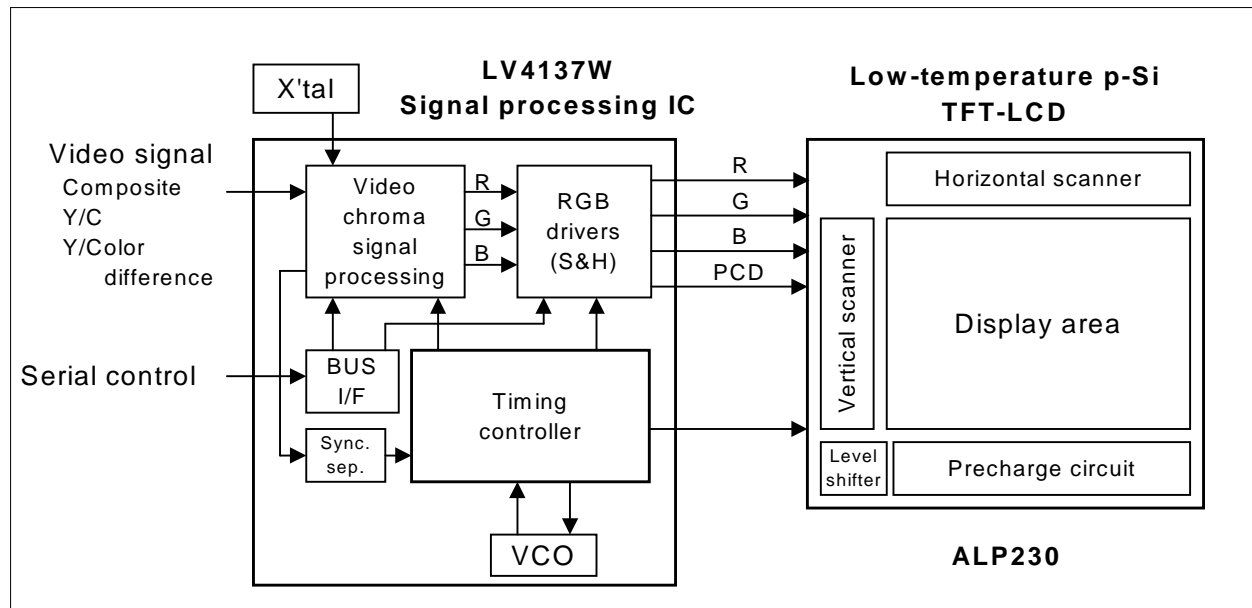
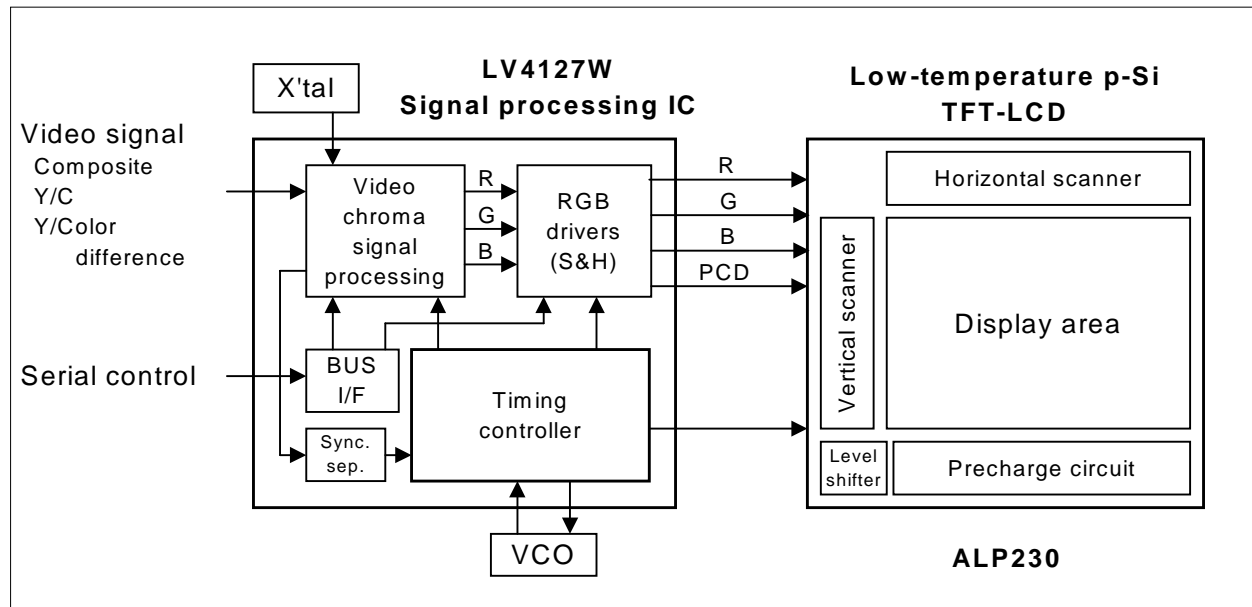
Pin Function

Pin No	Symbol	Function
1	NC	Leave this pin open
2	COM	Common electrode voltage
3	CKV1	V clock 1
4	CKV2	V clock 2
5	VVDD	VDD for V drive
6	STV	V start signal
7	XSTV	Inverted signal of STV
8	CSV	Up / down inverse control signal (H : Normal scan, L : Reverse scan)
9	ENB	Enable signal
10	XENB	Inverted signal of ENB
11	PCD	Precharge data signal
12	B	Video signal (B)
13	R	Video signal (R)
14	G	Video signal (G)
15	VSS	VSS for V and H drive
16	XPCG	Inverted signal of PCG
17	PCG	Precharge gate signal
18	CSH	Right / left inverse control signal (H : Normal scan, L : Reverse scan)
19	XSTH	Inverted signal of STH
20	STH	H start signal
21	CKH2	H clock 2
22	CKH1	H clock 1
23	HVDD	VDD for H drive
24	NC	Leave this pin open

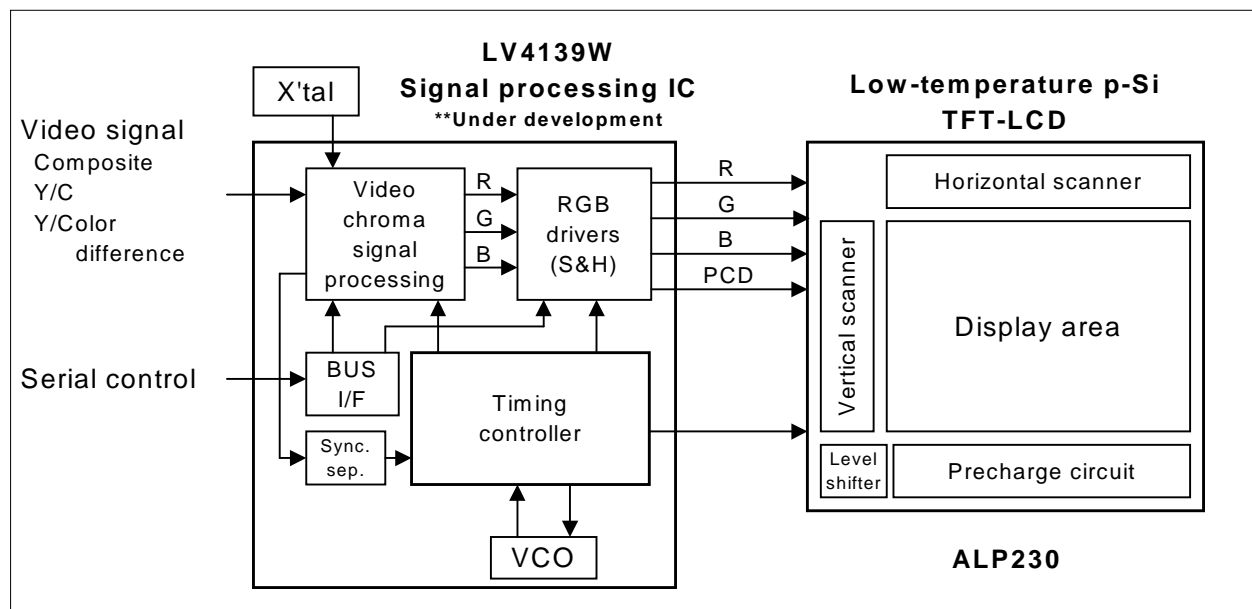
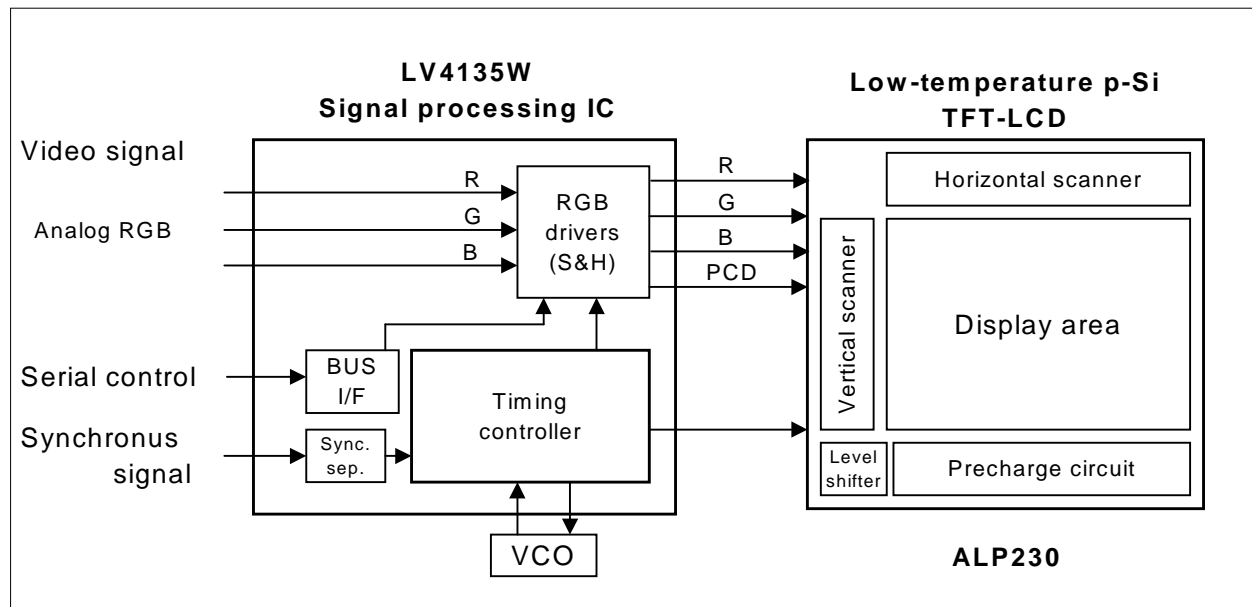
Block Diagram



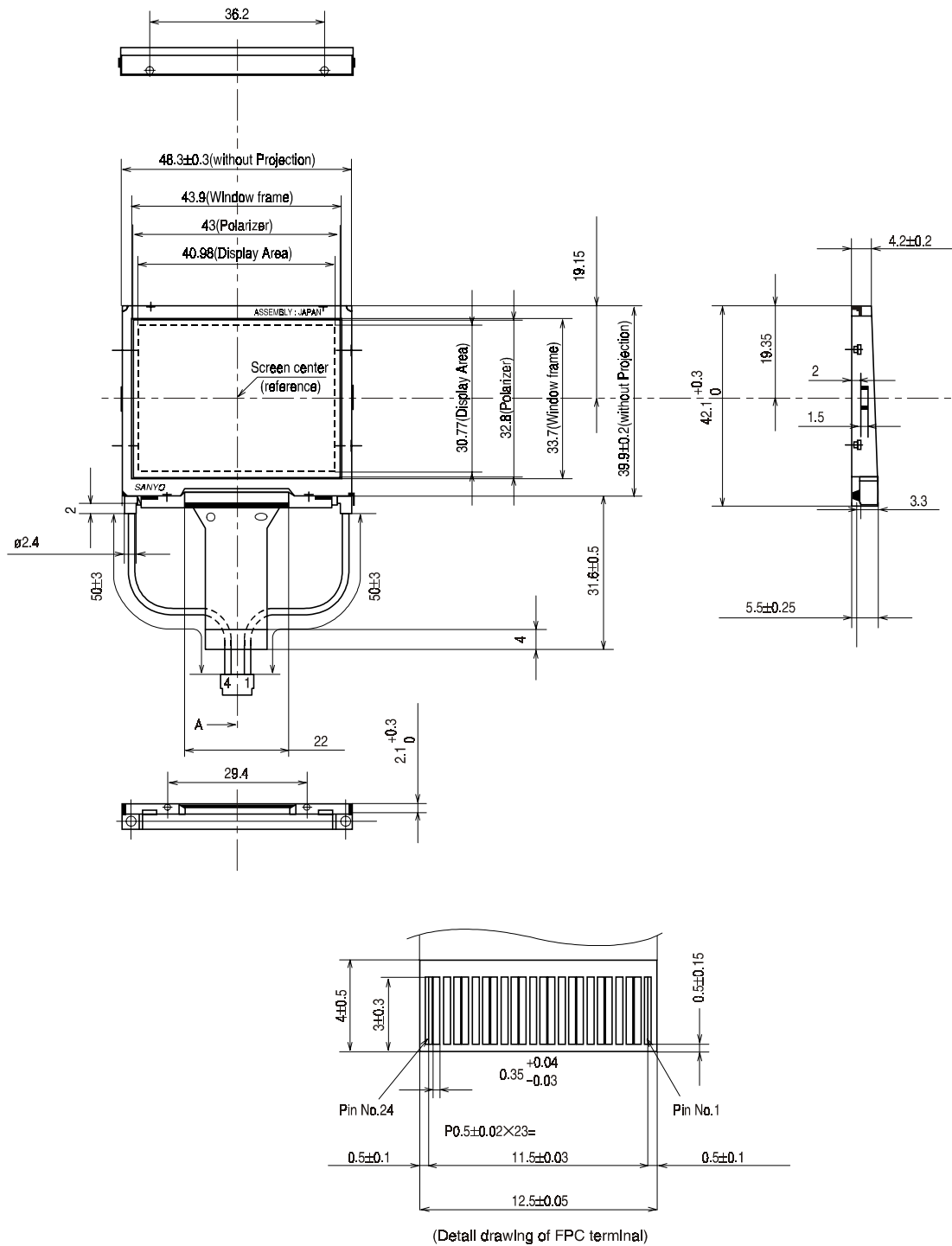
System Configuration



System Configuration



Package Dimension



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