Ordering number : ENN6759

LCD Module

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 × 234 = 130,338 dots.
- RGB delta color arrangement.
- Operating temperature (Panel) is -10 to +60°C. Ambient temperature during storage is -20 to +70°C.
- Slim design, light weight and narrow frame. (t=0.7mm 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) × (V)	557 × 234	dot	
Effective display dimensions (H) × (V)	40.98 × 30.77	mm	
Display size (diagonal)	5.1 (2.0inch)	cm	
Dot pitch (H) × (V)	0.0735 × 0.1315	mm	
Color arrangement	RGB Delta	-	
External Dimensions (W) × (H) × (D)	TYP 48.3 × 42.1 × 5.5	mm	Note1
Weight	Approx. 20	g	

*Note1: Excluding flexible cable and protrusions.

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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 ± 0.5V, VVDD 15.0V ± 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±1.5	VVC±2.0	VVC±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.

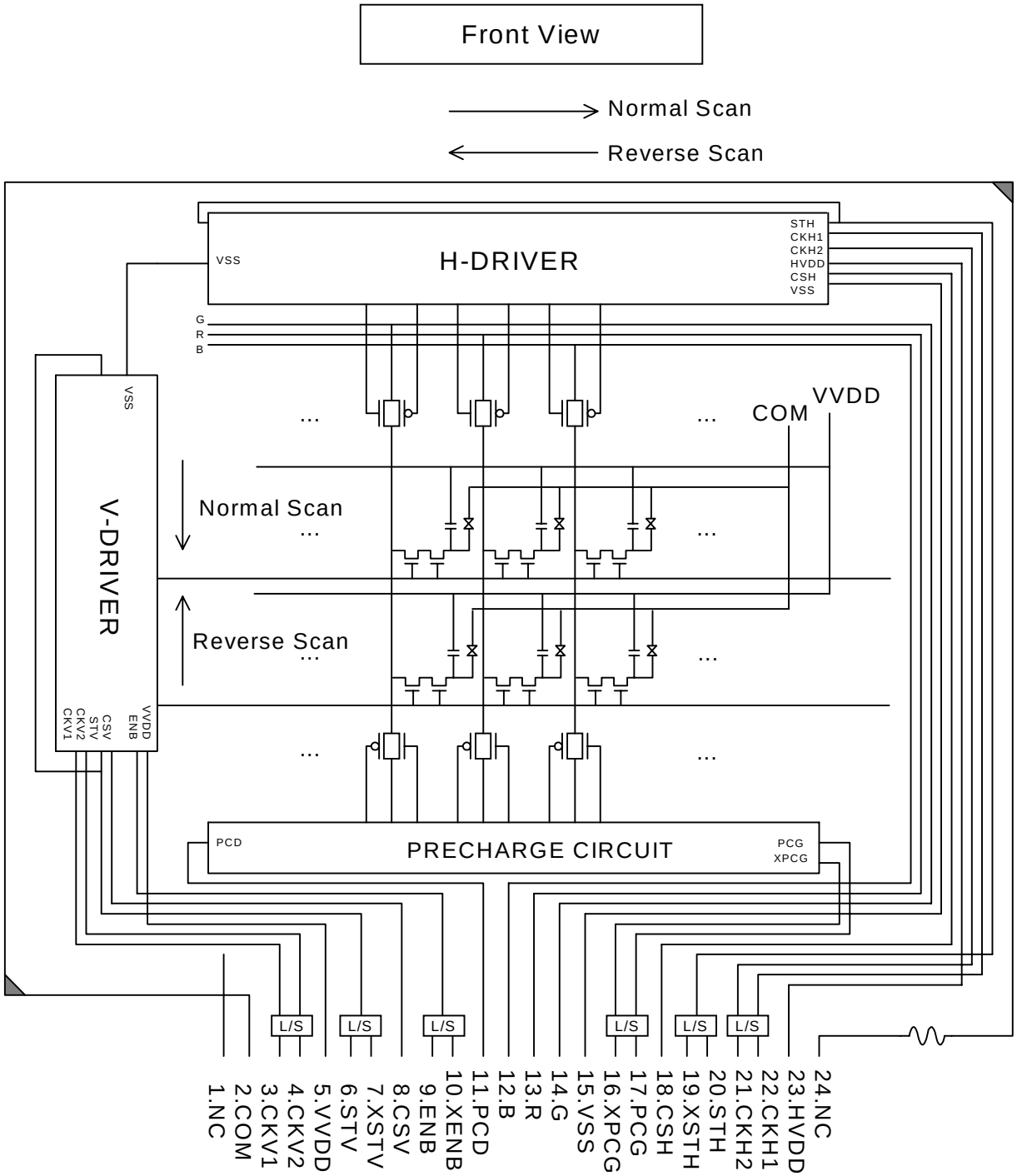
Optical Specifications

Item	Symbol	Condition	MIN	TYP	MAX	Unit
Contrast ratio	CR	25°C	-	100	-	-
Viewing angle range	θT	CR >= 10	-	15	-	deg
	θB			35		
	θL			45		
	θR			45		

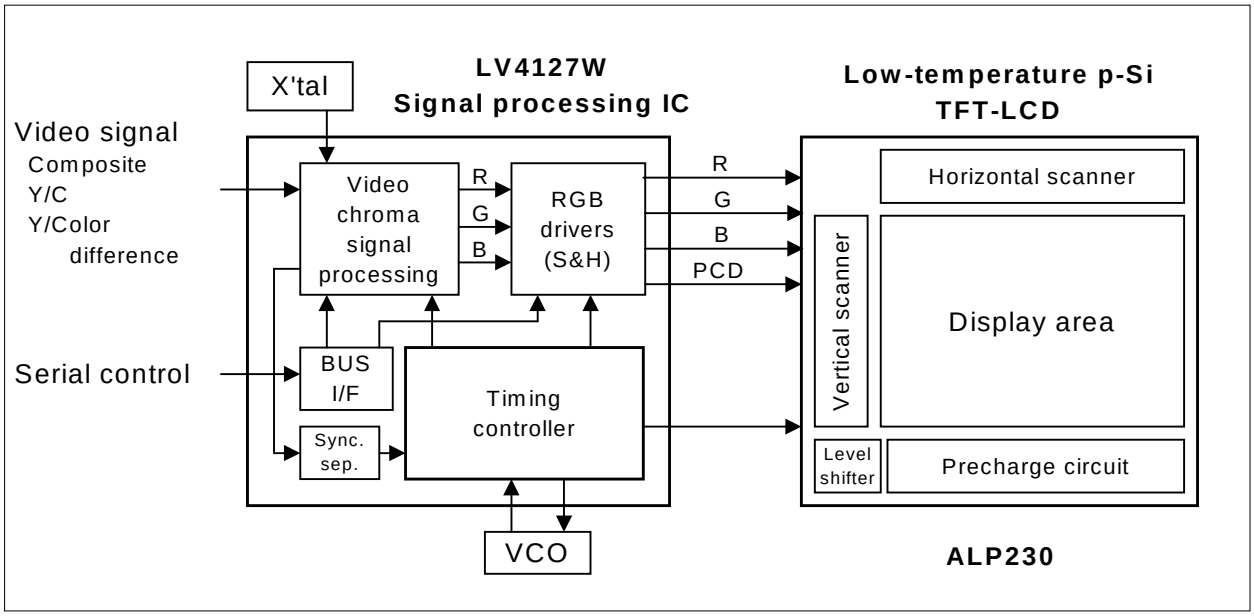
Pin Function

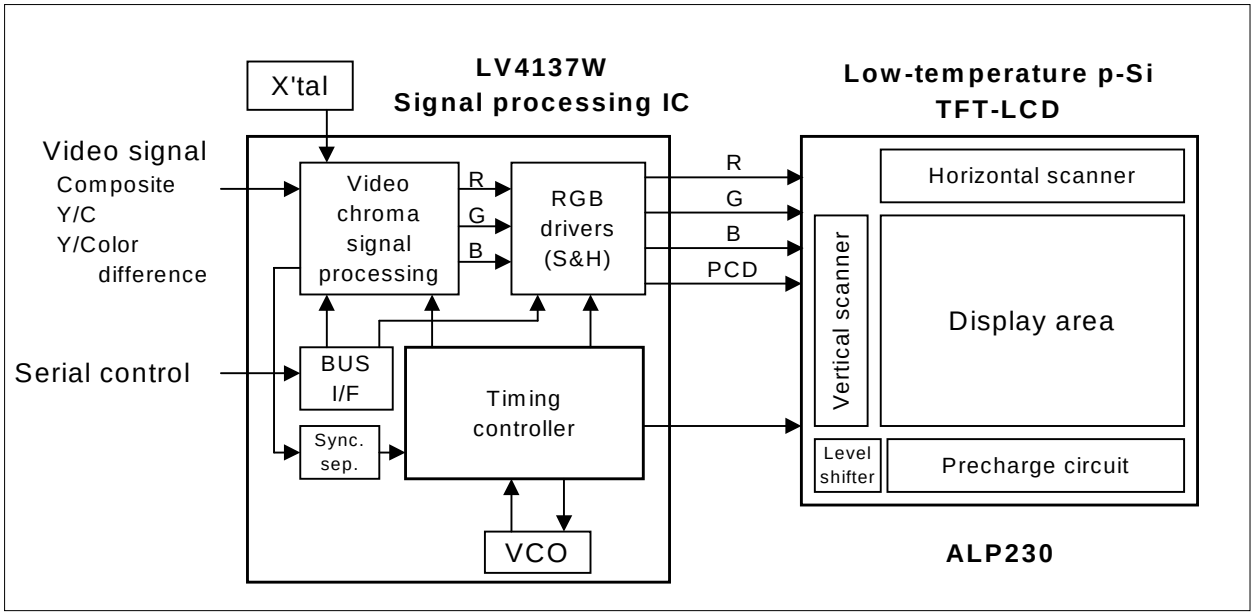
Pin No	Symbol	Function
1	NC	Leave this pin open
2	COM	Common electrode voltage
3	CKV1	V clock 1
4	CKV2	V clock 2
5	VVDD	VDD for V drive
6	STV	V start signal
7	XSTV	Inverted signal of STV
8	CSV	Up / down inverse control signal (H : Normal scan, L : Reverse scan)
9	ENB	Enable signal
10	XENB	Inverted signal 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

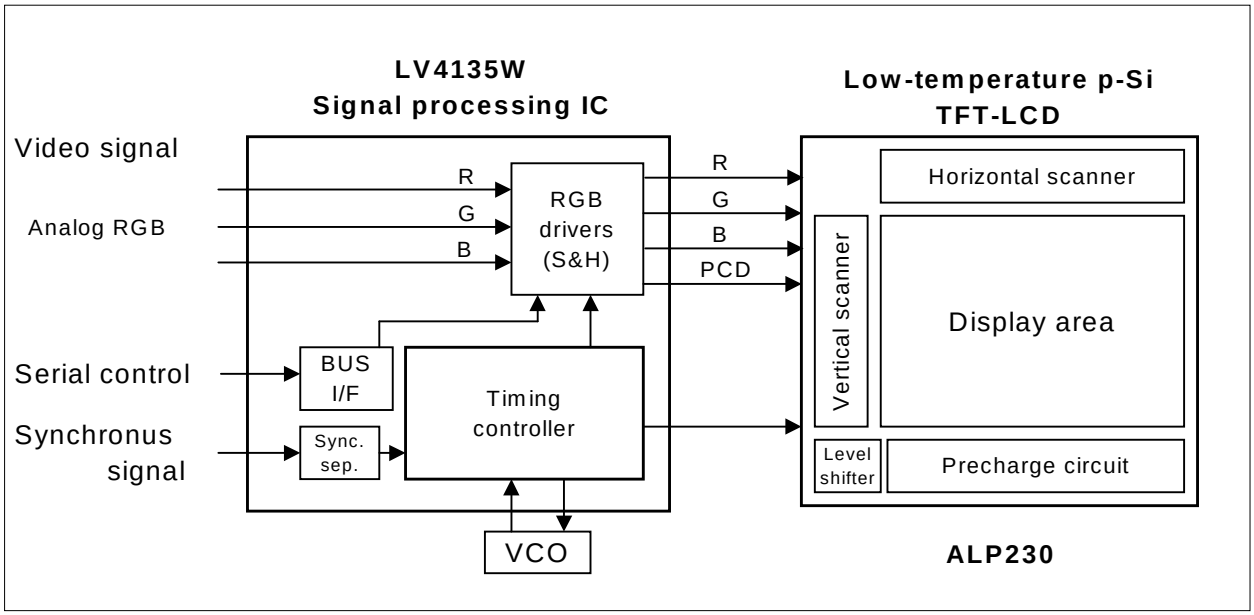


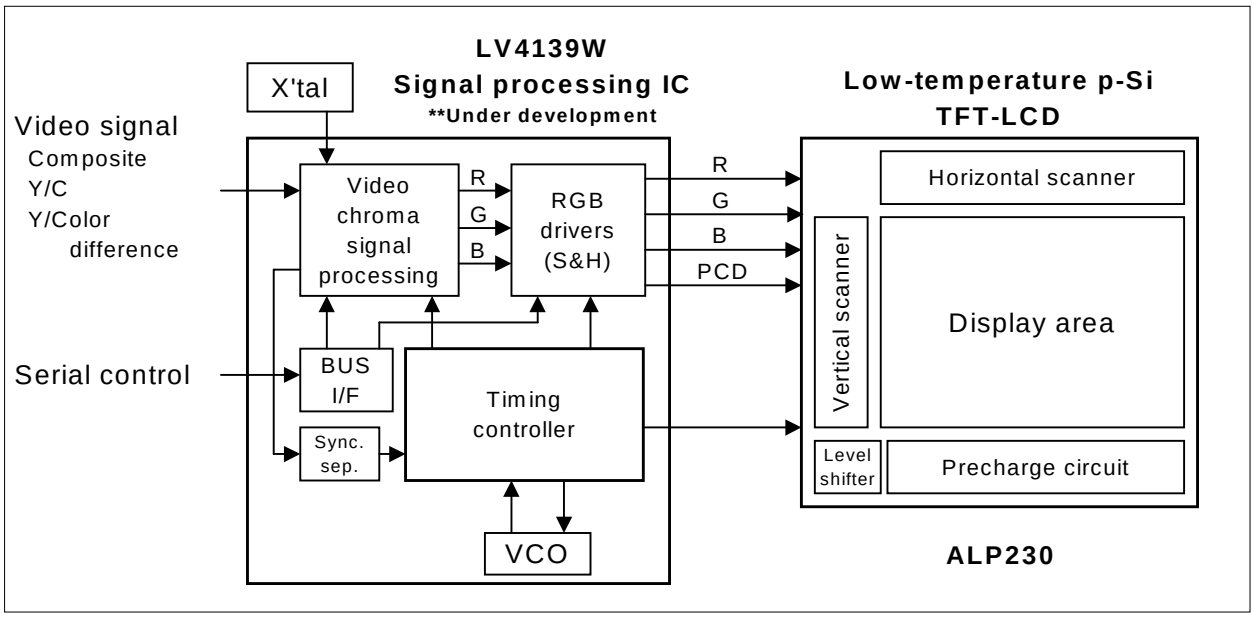
System Configuration



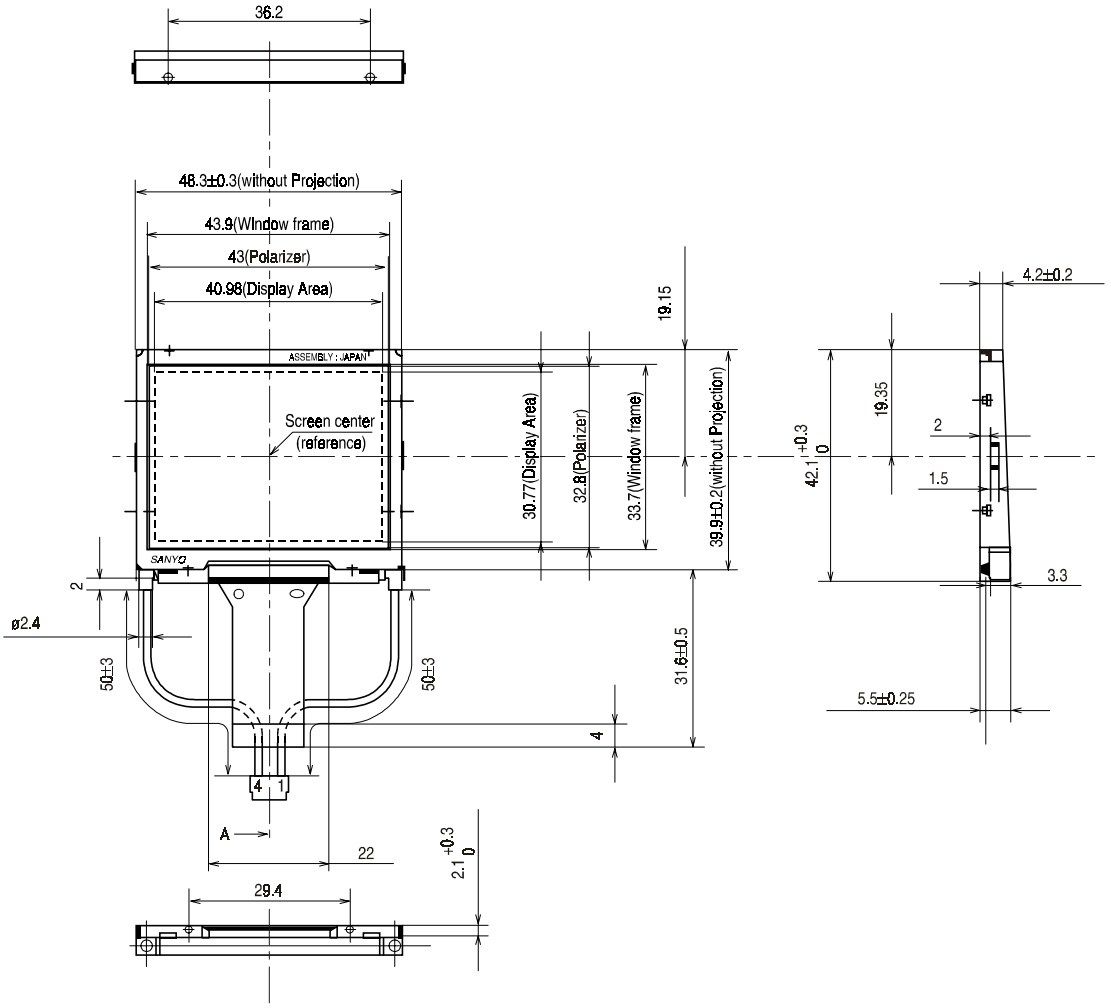


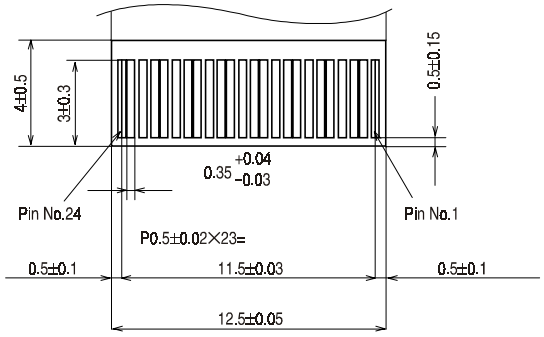
System Configuration





Package Dimension





(Detail drawing of FPC terminal)