

**ALR122FNX**

Low-Temperature Polysilicon 1.5-inch TFT LCD Module

Overview

This 1.5 inch reflective type low temperature poly-silicon TFT-LCD module consists of reflective type LCD panel and white LED front light. This is suitable for DSC.

Features

- Diagonal 3.8cm (1.5 inch) display size.
- $521 \times 218 = 113,578$ dots.
- RGB delta color arrangement.
- Reflective type low temperature poly-silicon TFT-LCD.
- Operating temperature (Panel) is -10 to $+60^{\circ}\text{C}$. Ambient temperature during storage is -20 to $+70^{\circ}\text{C}$.
- Slim design, lightweight and narrow frame.
- Up / down and right / left function.
- Built-in shifter circuit.
- Conform to NTSC / PAL by using recommended IC : LV4135W, LV4137W (LV4139W : Under development).
- PTME (Partially Tilted Mirror Electrode) is used for Reflector.
Combination of PTME and Diffusion film realizes high-reflection and high-contrast.
- Good visibility is realized by the front light with every environment.
- White-LED type Front light (Inverter is unnecessary).

Specifications

Item	Specifications	Unit	Remarks
Dot count (H) \times (V)	521 \times 218	dot	
Effective display dimensions (H) \times (V)	30.25 \times 22.67	mm	
Display size (diagonal)	3.8 (1.5inch)	cm	
Dot pitch (H) \times (V)	0.058 \times 0.104	mm	
Color arrangement	RGB Delta	-	
External Dimensions (W) \times (H) \times (D)	TYP 38.5 \times 35.8 \times 3.3	mm	Note1
Weight	TBD	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 +14	V
V driver power supply voltage	VVDD	-1.0 to +14	V
Common electrode voltage	VCOM	-1.0 to +14	V
Driving direction signal voltage	CSH, CSV	-1.0 to +14	V
H driver input voltage	STH, XSTH, CKH1, CKH2	-1.0 to +14	V
V driver / precharge data input voltage	STV, XSTV, CKV1, CKV2, ENB, XENB, PCG, XPCG	-1.0 to +14	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 12.5V±0.5, VVDD 12.5V±0.5, 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	T.B.D	T.B.D	T.B.D	V
Video signal input voltage range *1		VG, VR, VB	T.B.D	-	T.B.D	V
Common electrode voltage*2		VCOM	T.B.D	T.B.D	T.B.D	V
Precharge data signal *1		VPCD	-	T.B.D	-	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

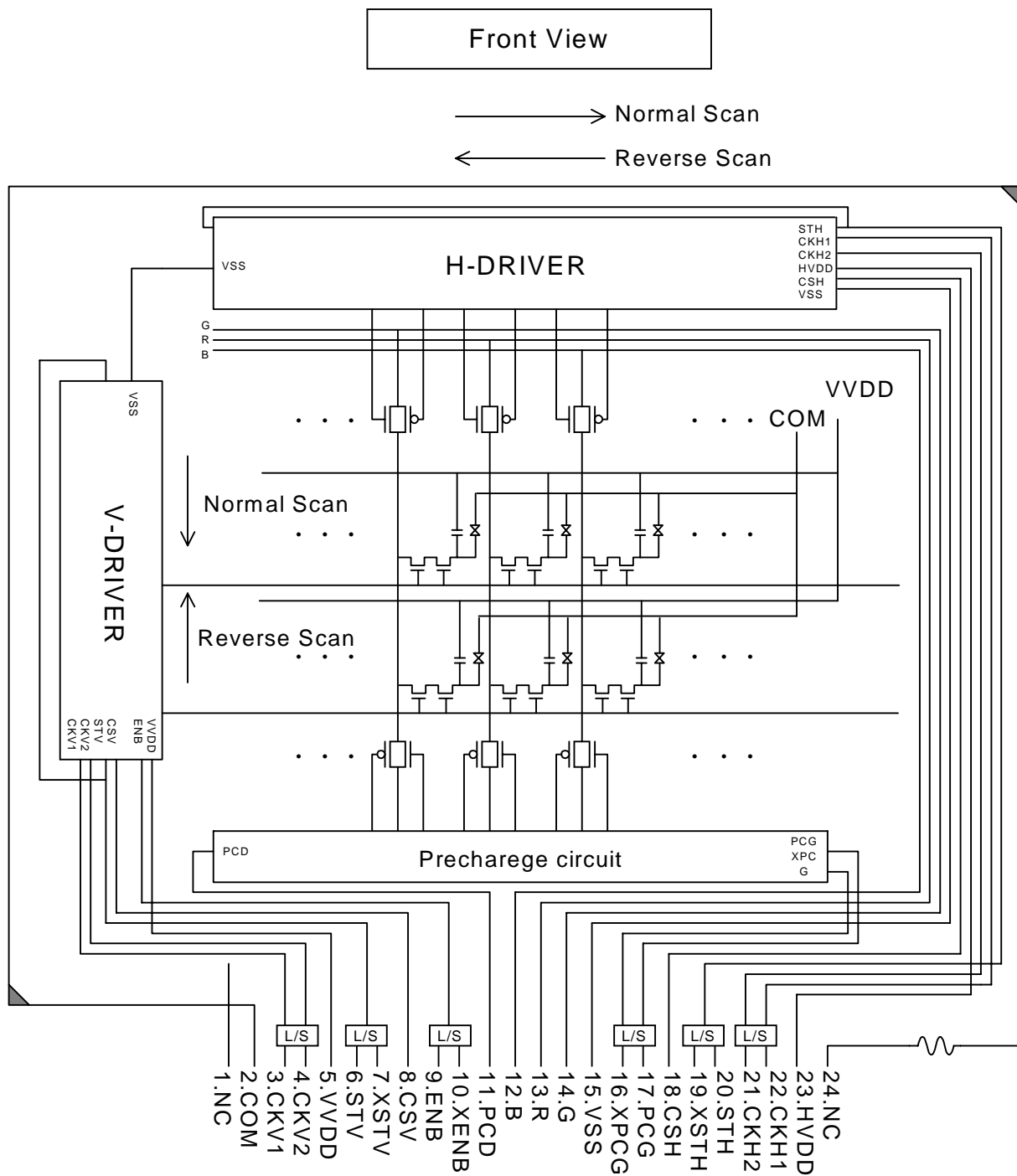
Item	Symbol	Condition	TYP	Unit
Contrast ratio	CR	-30deg input	>=30 (max)	-
			>=10 (0 to 50 deg)	
Reflection ratio	-	-30deg input	>=40 (10 to 50 deg)	%*
			>=100 (20 to 40 deg)	

* Compare to standard diffusion

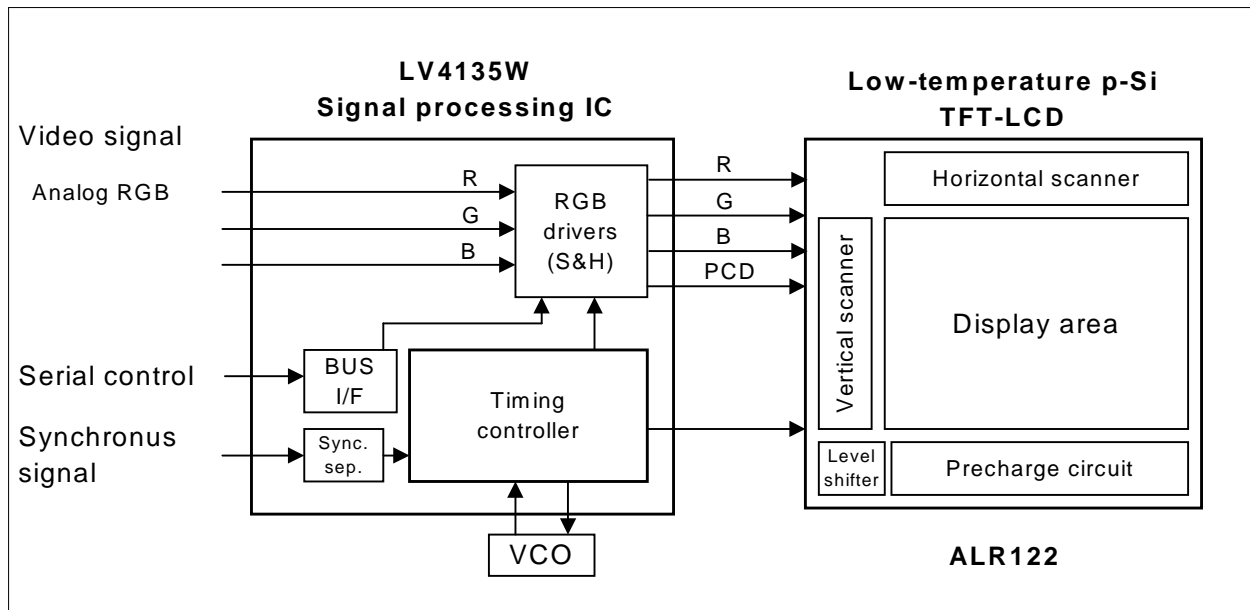
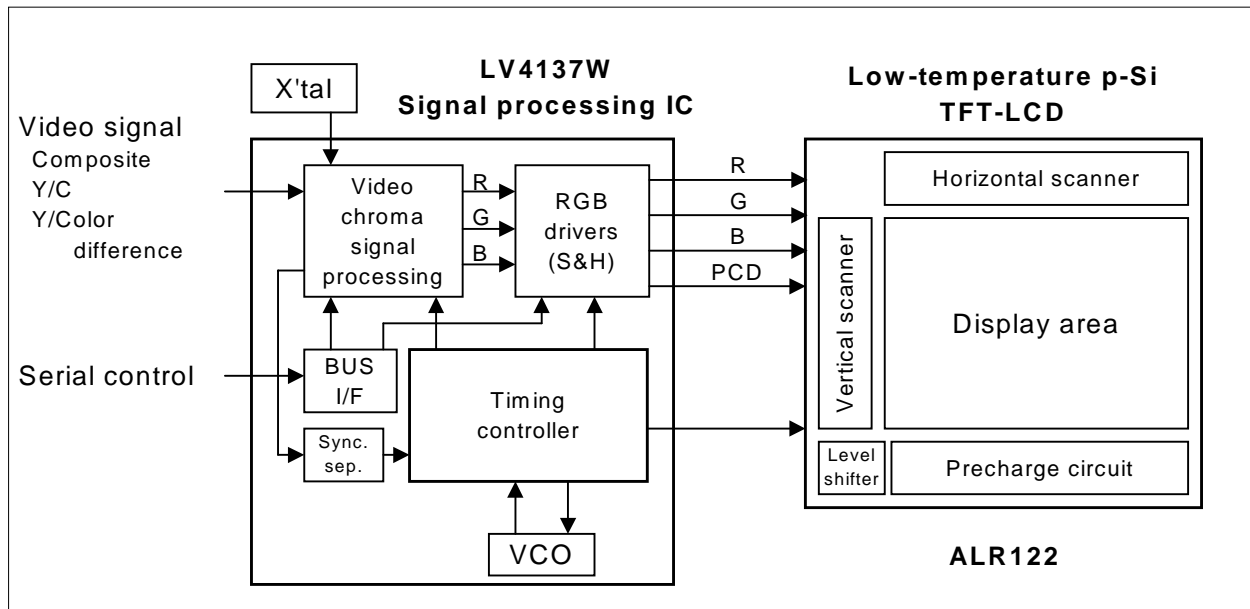
Pin Function

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

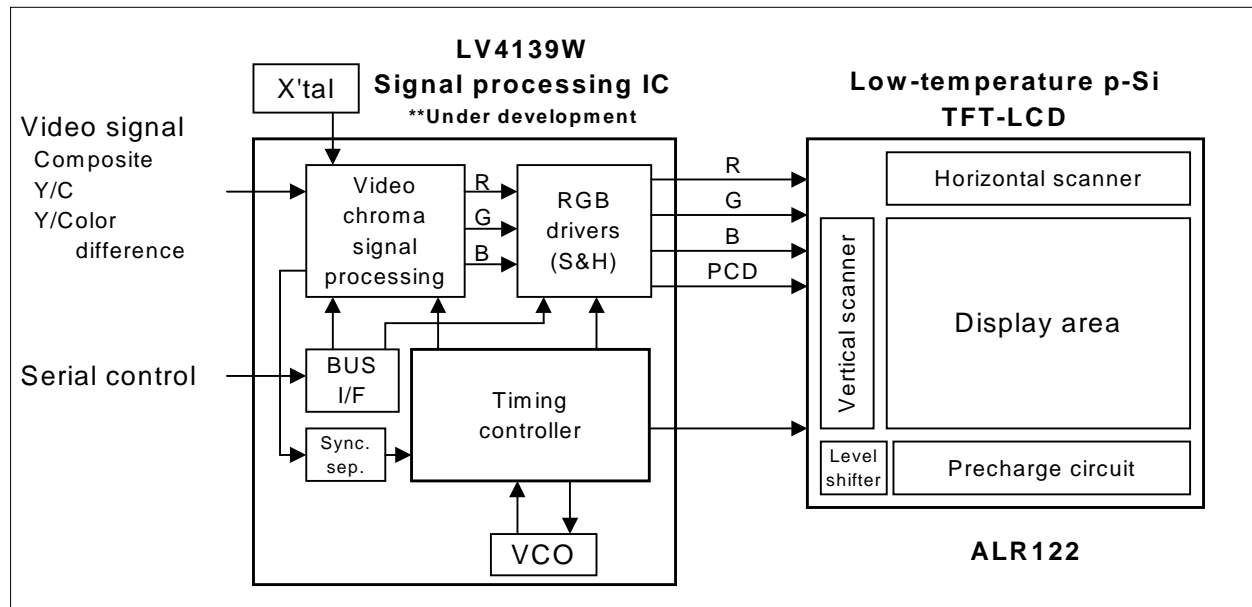
Block Diagram



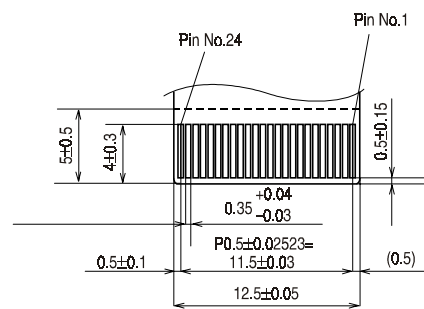
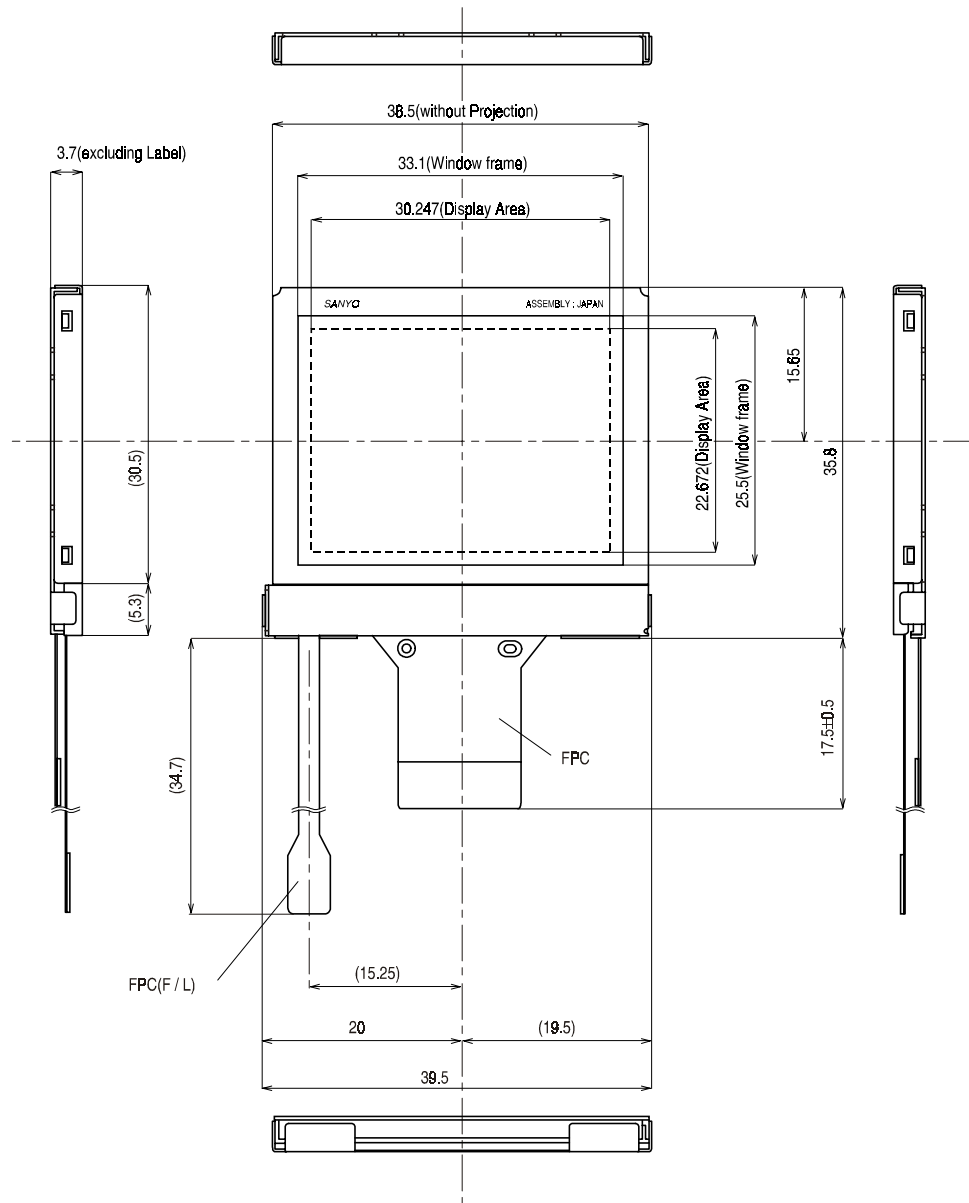
System Configuration



System Configuration



Package Dimension



Detail drawing of FPC terminal

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