



AND-TFT-25DM

160 x 234 Pixels LCD Color Monitor

The AND-TFT-25DM is a compact full color TFT LCD module, that is suitable for applications such as a portable television (NTSC) and a display for monitors. This device consists of a twisted nematic (TN) liquid crystal cell, that incorporates a TFT-array that has 160 x 234 pixels on a 2.5 inch diagonal screen, X and Y drivers, an LSI controller, and a built-in CCFL backlight.

Features

- PAL display available on special order
- High Resolution: 112,320 dots
- Low Power
- High Brightness
- Requires external chroma decoder and inverter

Mechanical Characteristics

Item	Specification	Unit
Screen Size	2.5 inch (6.4 cm) diagonal	inch
Outline Dimensions	68.3 (W) x 54.8 (H) x 12.7 (D)	mm
Active Area	50.88 x 37.67	mm
Input Signal	NTSC	–
Pixel Number (RGB trio)	160 (W) x 234 (H)	–
Sub Pixel No.	480 (W) x 234 (H)	–
Sub Pixel Arrangement	Delta	–
Dot Pitch	0.106 (W) x 0.161 (H)	mm
Weight	60	g

Absolute Maximum Rating

Item			Symbol	Conditions	Absolute Maximum Rating		Unit
					Min.	Max.	
Supply Voltage	for Source Driver		V_{SH}	$T_a = 25^{\circ}C$	0	16.0	V
	for Gate Driver	H Level	V_{GH}	$T_a = 25^{\circ}C$	0	26.0	V
		L Level	V_{GL}	$T_a = 25^{\circ}C$	-7.0	20.0	V
	for Controller		V_{DD}	$T_a = 25^{\circ}C$	0	6.5	V
DC Bias Voltage for Common Electrode			V_{com}	$T_a = 25^{\circ}C$	2	6	V
Analog Input Signals			V_B, V_R, V_G		–	12	V
Digital Input Signals					-0.5	5.5	V
Digital Output Signals					-0.5	5.5	V
Operating Temperature			Top	–	-10	60	°C
Storage Temperature			Tstg	–	-30	80	°C
Humidity (No condensation of water)			–	60°C	–	95%	RH



Electrical Specification

Item		Symbol	Conditions	Specifications			Units
				Min.	Typ.	Max.	
Current Consumption	for Video Circuit	ICC		–	0.26	–	W
	for Backlight Lamp			–	2.0	–	W
Supply Voltage		VDD		4.7	5.0	5.3	V

(Ta = RT, VSS = 0V)

Recommended Operating Conditions

Item			Symbol	Conditions	Specifications			Unit
					Min.	Typ.	Max.	
Supply Voltage	for Source Driver		V _{SH}	Ta = 25°C	13.5	14.0	14.5	V
	for Gate Driver	H Level	V _{GH}	Ta = 25°C	19.0	20.0	24.0	V
		L Level	V _{GL}	Ta = 25°C	-5.5	-5.0	-4.0	
	for Controller		V _{DD}	Ta = 25°C	4.7	5.0	5.3	V
Digital Input Voltage (1)		H Level		Ta = 25°C	2.4	4.0	5.0	V
		L Level		Ta = 25°C	-0.3	–	0.8	
Voltage		H Level		Ta = 25°C	2.4	4.0	5.0	V
		L Level		Ta = 25°C	0.0	–	0.45	
DC Bias Voltage			V _{COM}	compatible	+2.0	+3.4	+12.0	V
Analog Input Voltage			V _{RGB}	DC compound	+4.0	+6.0	+8.0	

Note 1: CSY

Optical Specifications

Item		Symbol	Conditions	Specifications			Unit
				Min.	Typ.	Max.	
Luminance		LUM		230	300	–	cd/m ²
Contrast Ratio (1)		CR	<u>Luminance when LCD is White</u> Luminance when LCD is Black	130	160	–	–
Reflectance		R		–	6.0	–	%
Viewing Angle	Horizontal	φ	CR>10	45	55	–	deg
	Vertical	φ (to 12 o'clock)		-10	-15	–	deg
		φ (to 6 o'clock)		30	35	–	deg
Lamp Life		Time		10,000	–	–	hr.

Note 1: Luminance when LCD is White
Luminance when LCD is Black

Interface Pin Assignment

Pin No.	Symbol	Function	Input/Output
1	HSY	Horizontal sync. input/output	Output
2	FRP	Video polarity alternating signal	Output
3	CSY	Composite sync. signal	Input
4	V _{GH}	Supply voltage for gate driver (hi level)	Input
5	V _{GL}	Supply voltage for gate driver (low level)	Input
6	V _B	Video signal (blue)	Input
7	VR	Video signal (red)	Input
8	VG	Video signal (green)	Input
9	GND	Ground	Input
10	V _{DD}	Supply voltage for controller	Input
11	V _{SH}	Supply voltage for source driver	Input
12	GND	Ground	Input
13	NC	No connection	Input
14	VSY	Vertical sync. input/output	Output
15	PSI	Synchronize pulse for backlight inverter	Output
16	GND	Ground	Output

Dimensional Outline
