

# **Documentation Release**

Model No. :	PMC070R		
Promate P/N :	PMC070R		
Description :	7.0 inch Color	TFT LCD Driv	ing Board
Customer P/N :			-

Revision: 0.1

Date : August 04, 2000

Customer Company Name :

Prepared By Design Engineer	Checked By Regulatory Engineer	Reviewed By Project Leader	Approved by CTO	Issued By D.C.C.
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Name of Document : 7.0 inch Color TFT LCD Driving Board Specification	File No: PMC070R
Model No. : PMC070R	Page: 1 of 3
1. Application :	
This specification is applied to the 7.0 inch, 1440 x 234 Dots color TFT	Liquid Crystal Display
Driving Board (including inverter to operate famp) by wingstar Electron	ne corp.
2. General Specification :	
2.0 Input Characteristic :	
2.0.1 Input Voltage : $12VDC \pm 1V$	
2.0.2 Input Power : 6.25W typical	
2.0.3 Input Signal : 1.0Vpp composite video (meet EIA's RS-170A standar	d and PAL standard)
2.0.4 User's control interface (15 PINs) : refer to page 2 for pin assignment	t
2.0.5 LCD panel input (26 PIN FPC) : refer to page 3 for pin assignment	
2.1 Display Characteristic :	
2.1.1 Display technology : a-Si Color TFT active matrix (Unipac's MTL070'	W01)
2.1.2 Display mode : NW (Normally White)	
2.1.3 White chromaticity : $x = 0.30$ , $y = 0.35$ (at view angle $\bullet = 0^{\circ}$ )	
2.1.4 Screen size (diagonal) : 7.0 inch	
2.1.5 Active display area : 154.08mm x 86.58mm (W x H)	
2.1.6 Display Resolution (dots) : 1440 (Horizontal) x 234 (Vertical)	
2.1.7 Number of pixels : 480 x 234	
2.1.8 Dot pitch : 0.107mm (Horizontal) x 0.370mm (Vertical)	
2.1.9 Color configuration : RGB stripe	
2.1.10 Display colors : Analog	
2.1.11 Gray scale : Analog	
2.1.12 Backlight : CCFL x 1	
2.1.13 Front Surface : Anti-glare hard coating	
2.2 Brightness (Luminance) : $400 \text{ cd/m}^2$ typical ( $300 \text{ cd/m}^2 \text{ min.}$ )	
2.3 Contrast Ratio : 150 typical (60 min.) (at optimized viewing angle)	
2.4 Viewing Angle :	
Left/Right : $\pm$ +/- 60 deg. (H) (at CR $\geq$ 10)	
Top/Bottom : $+/-30/60$ deg. (V) (at CR $\geq 10$ )	
2.5 Response Time : $Tr = 50ms max$ ., $Tf=60ms max$ . (at view angle •	=0°)
2.6 Inverter : included	
2.7 Module overall dimension (mm) : $166$ (W) x $100$ (H) x $6.79$ (D)	
2.8 Weight (g) : $385\pm20$ g (weight of driving board is 35g typical)	
2.9 Environmental condition :	
2.9.1 Operating Temperature : $-20^{\circ}C \sim +70^{\circ}C$	
2.9.2 Storage Temperature : $-30^{\circ}\text{C} \sim +85^{\circ}\text{C}$	
$2.9.5 \qquad \text{Humidity}: 10\% \text{ KH} \sim 90\% \text{ KH}$	
2.9.4 vibration (with carton): $5 \sim 200$ Hz Sweep Frequency	
2.9.5 Drop (with carton) : oucm at 1 corner, 3 edges, 6 surfaces.	
Remarks : For details of LCD panel specification, please refer to MTL070W01	ver. 1.
Rev.	Current
History	Rev. 0.1



#### **Remarks**:

1.	Pin assignment	of User	Control	Interface on	driving board :
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Pin No	Pin	1/0	Pin Description			
I III 190.	Assignment	цО				
1	/Hsync	Ο	Horizontal Sync. Output for specific Application			
2	/Vsync	0	Vertical Sync. Output	Vertical Sync. Output for specific Application		
2	NDC	1/0	NTSC/PAL	VTSC/PAL mode s *Note 1)		selection
3	NPC	1/0	(*Note 1)			
4	CW	т	Composite/Analog	RGB	Signal	Selection
4	4 SW		(*Note 2)			
5	CVS	Ι	<b>Composite Video Sigr</b>	nal Input		
6	Bin	Ι	Separated Blue Video Signal Input			
7	Rin	Ι	Separated Red Video Signal Input			
8	Gin	Ι	Separated Green Video Signal Input			
9	GND	Ι	Ground			
10	GNDS	Ι	Ground			
11	Vin	Ι	12 Voltage DC Input			
12	GNDS	Ι	Ground			
13	COL	Ι	Color(Hue) terminal	adjustment		
14	LR	т	Left/Right	scan		selection
		L	(*Note 3)			
15	UD	т	Up/Down	scan		selection
15	UD	I	(*Note 4)			

**Default means Factory Setting.** 

Note 1: Default is auto detect for NTSC and PAL system. (controlled by internal UPS015)

High for NTSC mode and Low for PAL mode.

Note 2: Default is Composite Signal (Low);

High is for separated Analog RGB signals.

Note 3: Default is reversed scanning (High) and Low is for normal scanning  $(L \rightarrow R)$ .

Please do force this pin to ground for normal scan, from left to right.

Note 4: Default is reversed scanning (High) and Low is for normal scanning (U —>D).

Please do force this pin to ground for normal scan from up to down.

2. User's control function :

VR	Description
VCOM	Brightness
COL	Hue
TIN	Tint
CNT	Contrast



Pin no.	Symbol	i/o	Description	Remark
1	GND	-	Ground for logic circuit	
2	Vcc	I	Supply voltage for control circuit of scan driver	
3	Vgl	I	Negative power for scan driver	
4	Vgн	I	Positive power for scan driver	
5	STVR	I/O	Vertical start pulse	Note 1
6	STVL	I/O	Vertical start pulse	Note 1
7	CKV	I	Shift clock input for scan driver	
8	U/D	I	UP/DOWN scan control input	Note 1, 2
9	OEV	I	Output enable input for scan driver	
10	VCOM	I	Common electrode driving signal	
11	VCOM	I	Common electrode driving signal	
12	L/R	I	LEFT/RIGHT scan control input	Note 1,2
13	Q1H	I	Analog signal rotate input	
14	OEH	Ι	Output enabler input for data driver	
15	STHL	I/O	Start pulse for horizontal scan line	Note 1
16	STHR	I/O	Start pulse for horizontal scan line	Note 1
17	CPH3	I	Sampling and shifting clock pulse for data driver	
18	CPH2	I	Sampling and shifting clock pulse for data driver	
19	CPH1	I	Sampling and shifting clock pulse for data driver	
20	Vcc	I	Supply voltage of control circuit for data driver	
21	GND	-	Ground for logic circuit	
22	VR	I	Alternated video signal input (Red)	
23	VG	I	Alternated video signal input (Green)	
24	VB	I	Alternated video signal input (Blue)	
25	AVdd	I	Supply voltage for analog circuit	
26	AVss	-	Ground for analog circuit	

# 3. LCD panel driving section (FPC 26pin)

Note 1 : Selection of scanning mode - refer to page 5 of MTL070W01 spec.

Note 2 : Definition of scanning direction – refer to page 5 of MTL070W01 spec.