

SAMPLE SPECIFICATIONS

MODULE NO. : T12832C018B REVISION : V1.0

DRAWING BY : JIN DATE : 2007-01-29

APPROVED BY : _____ DATE : _____

FOR CUSTOMER'S APPROVAL

CHECK BY: _____ DATE : _____

APPROVED BY: _____ DATE : _____

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COMMENT:

History of Versions and Modifications

Version	Modifications	Date
01	First	2007-01-29

SAMPLE SPECIFICATIONS

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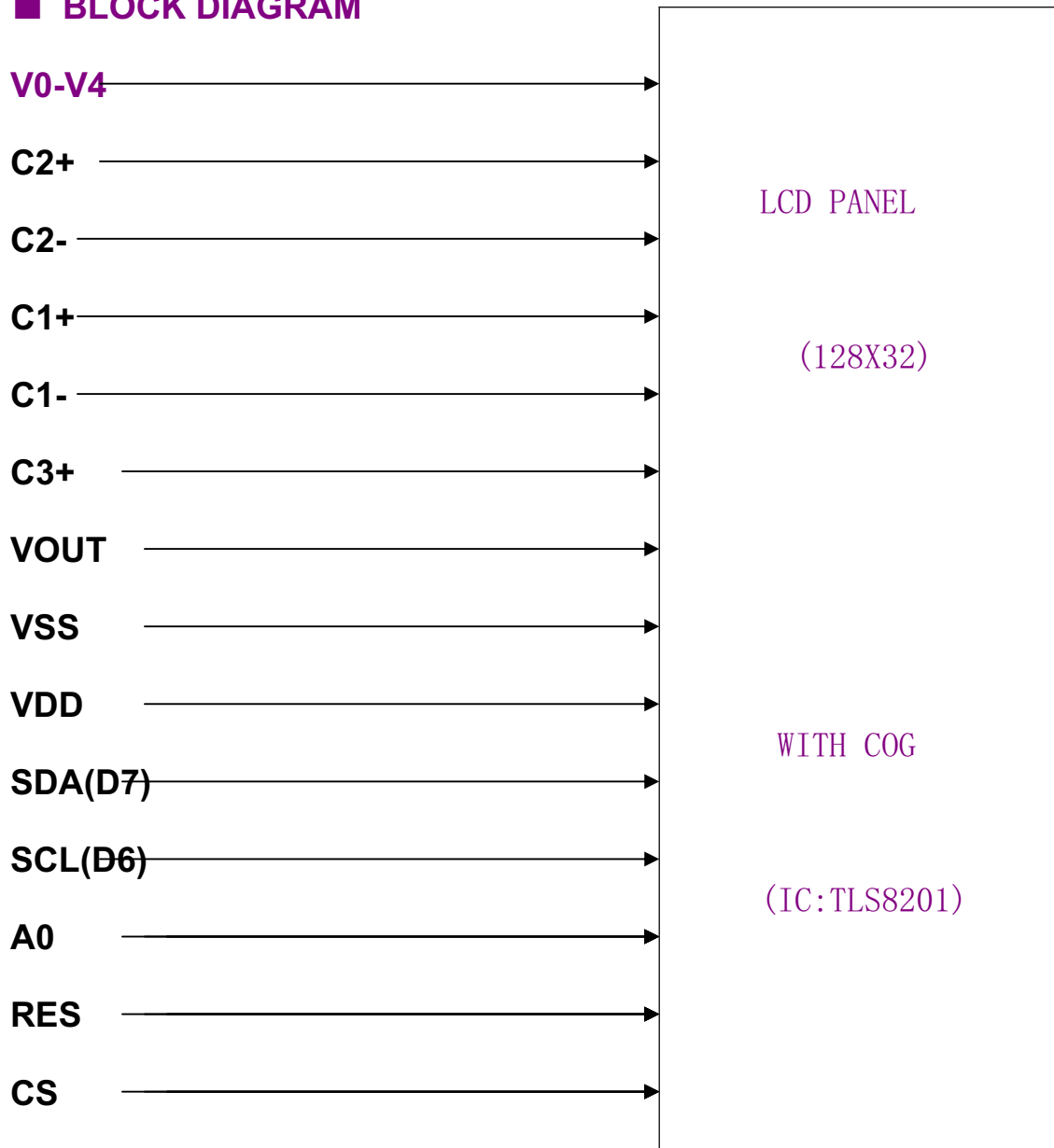
■ LCD MODULE PHYSICAL DATA

◆ General Description

Display Type	FSTN	
Viewing Direction	6 o'clock	
Connection Type	COG	
Operation temperature	-10℃ ~ +60℃	
Storage temperature	-20℃ ~ +70℃	
Driving IC	TLS8201	
Driving Method	Duty	1/33
	Bias	1/6
	Vop	5.0V
Polarizer Mode	Transflective/positive	

◆ Mechanical Description

Item	Standard Value	Unit
Number of dots	128X32 dots	
Module dimension	35.0(W) X16.4(H) X1.8(T)	mm
Viewing area	32.0(W) X 10.0(H)	mm
Active area	29.666(W) X 8.45(H)	mm
Dot size	0.202(W) X 0.235 (H)	mm
Dot pitch	0.232(W) X 0.265(H)	mm
Approx. weight	TBD	g
Backlight		

■ BLOCK DIAGRAM

■ ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Min	Max	Unit
Operating temperature	Top	-10	60	°C
Storage temperature	Tst	-20	70	°C
Input voltage VIN	VSS	-0.3	5.3	V
Supply voltage for logic	VDD	-0.3	5	V
Supply voltage for LCD	VLCD	-16	0.3	V

NOTE:

1. If the module is used above these absolute maximum ratings. It may become permanently damaged. Using the module within the following electrical characteristic conditions are also exceeded, the module will malfunction and cause poor reliability.
2. VDD>GND must be maintained.

■ ELECTRICAL CHARACTERISTICS(Vss=0V, VDD=2.4~3.6V Ta=25°C)

◆ DC Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Input high voltage	VIH	-	0.8VDD	-	VDD	V
Input low voltage	VIL	-	Vss	-	0.2VDD	V
Supply voltage for logic	VDD-VSS	Ta=25°C	2.4	-	3.6	V
Operating voltage for LCD VLCD	Ta=25°C		-13	-	-6	V
Current consumption for LCD normal operation	IDD	VDD =3.0V	-	70	117	uA

◆ AC Characteristics

IC DATA SHEET

◆ INSTRUCTION LIST

IC DATA SHEET

■ ELECTRO-OPTICAL CHARACTERISTICS

Item	Symbol	Condition	Min	Typ	Max	Unit
View angle(V)	θ	$Cr \geq 2$	-35	-	+35	deg
View angle(H)	Φ	$Cr \geq 2$	-35	-	+35	deg
Contrast ratio	Cr	Ta=25°C	-	5	-	-
Response time	Tr	Ta=25°C	-	200	400	ms
	Td	Ta=25°C	-	200	800	ms

■ INTERFACE PIN CONNECTIONS

NO.	SYMBOL	FUNCTION
1-5	V0-V4	Power supply for lcd driver connect capacitor between this terminal and the VSS terminal
6	C2+	DC/DC voltage converter connect capacitor between this terminal and the C2- terminal
7	C2-	DC/DC voltage converter connect capacitor between this terminal and the C2+ terminal
8	C1+	DC/DC voltage converter connect capacitor between this terminal and the C1- terminal
9	C1-	DC/DC voltage converter connect capacitor between this terminal and the C1+ terminal
10	C3+	DC/DC voltage converter connect capacitor between this terminal and the C1- terminal
11	VOUT	DC/DC voltage converter connect capacitor between this terminal and the VSS terminal
12	VSS	Ground
13	VDD	Power supply for LCD driver
14	SDA(D7)	This serial clock input
15	SCL(D6)	This serial data input
16	A0	Data control pin
17	RES	Initialized control pin
18	CS	Chip select input pin

■ SUGGESTIONS FOR USING LCD MODULES

◆ Handling of LCM

- (1) The LCD screen is made of glass. Don't give excessive external shock, or drop from a high place.
- (2) If the LCD screen is damaged and the liquid crystal leaks out, do not lick and swallow. When the liquid is attach to your hand, skin, cloth etc, wash it off by using soap and water thoroughly and immediately.
- (3) Don't apply excessive force on the surface of the LCM.
- (4) If the surface is contaminated ,clean it with soft cloth. If the LCM is severely contaminated , use Isopropyl alcohol/Ethyl alcohol to clean. Other solvents may damage the polarizer . The following solvents is especially prohibited: water , ketone Aromatic solvents etc.
- (5) Exercise care to minimize corrosion of the electrode. Corrosion of the electrodes is accelerated by water droplets, moisture condensation or a current flow in a high-humidity environment.
- (6) Install the LCD Module by using the mounting holes. When mounting the LCD module make sure it is free of twisting, warping and distortion. In particular, do not forcibly pull or bend the I/O cable or the backlight cable.
- (7) Don't disassemble the LCM.
- (8) To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.
 - Be sure to ground the body when handling the LCD modules.
 - Tools required for assembling, such as soldering irons, must be properly grounded.
 - To reduce the amount of static electricity generated, do not conduct assembling and other work under dry conditions.
 - The LCD module is coated with a film to protect the display surface. Exercise care when peeling off this protective film since static electricity may be generated.
- (9) Do not alter, modify or change the the shape of the tab on the metal frame.
- (10) Do not make extra holes on the printed circuit board, modify its shape or change the positions of components to be attached.
- (11) Do not damage or modify the pattern writing on the printed circuit board.
- (12) Absolutely do not modify the zebra rubber strip (conductive rubber) or heat seal connector
- (13) Except for soldering the interface, do not make any alterations or modifications with a soldering iron.
- (14) Do not drop, bend or twist LCM.

◆ Storage

- (1) Store in an ambient temperature of 5 to 45°C, and in a relative humidity of 40% to 60%.
Don't expose to sunlight or fluorescent light.
- (2) Storage in a clean environment, free from dust, active gas, and solvent.
- (3) Store in antistatic container.

◆ Soldering

- (1) Use the high quality solder. (60-63% tin mixed with lead)
- (2) Iron: no higher than 260°C and less than 3-4 sec during soldering.
- (3) Soldering: only to the I/O terminals.
- (4) Rewiring: no more than 3 times.

■ 外图电路参考



■ LCM DRAWING

