

ELECTRONICA HI FI SAC & HiFiKits

Especificaciones Para Módulo LCD **TS1620A-17(V1.0)**

MODULO: TS1620A-21(V1.0)

COMPRADOR:

[illegible]

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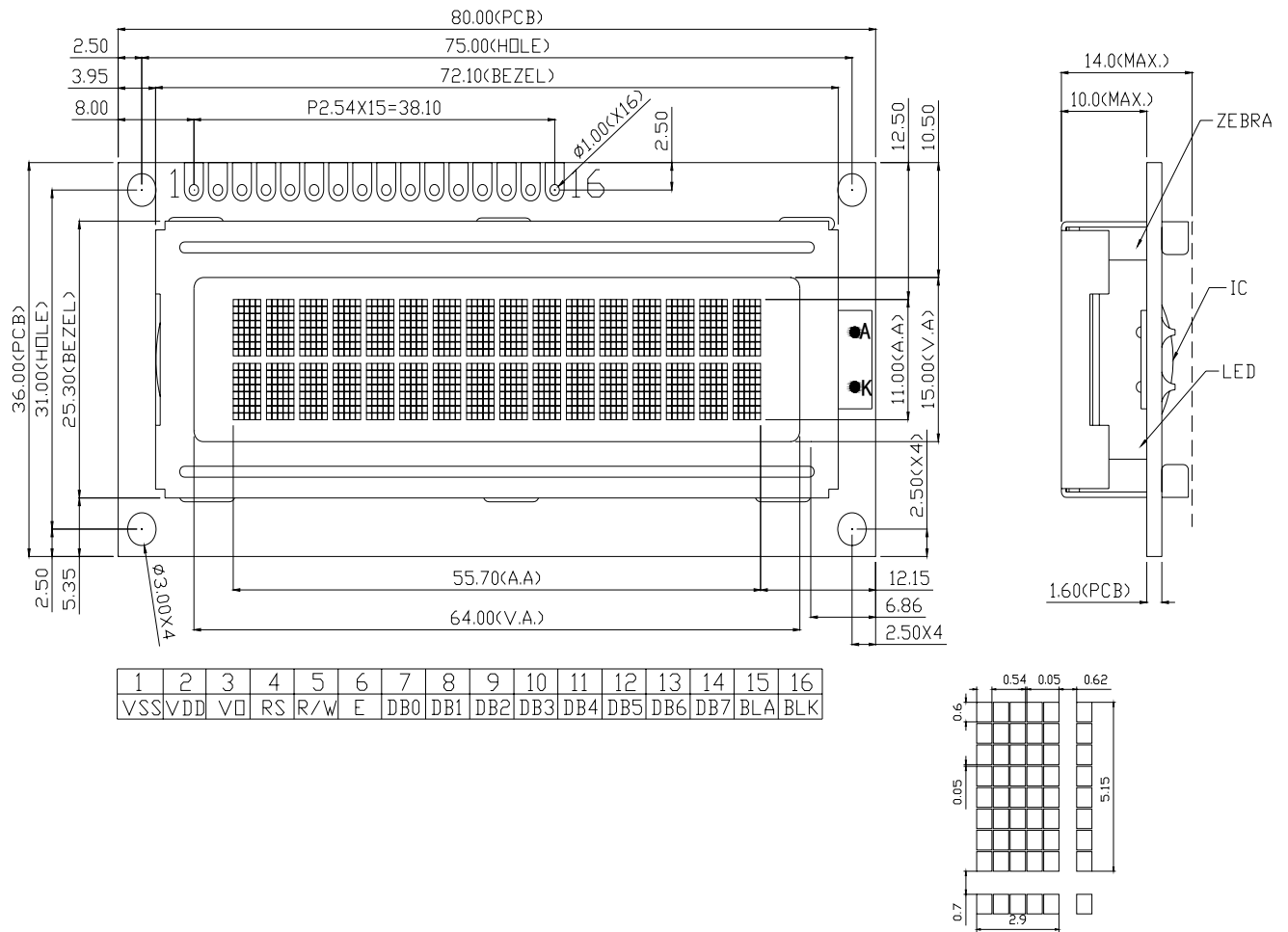
1.0 INTRODUCTION

This USER'S MANUAL is introduced the outside dimensions, optical characteristics, electrical characteristics, interface, controller commands, etc. of the custom design LCD module.

2.0 FEATURE

- Display Mode: STN, Negative, Transmission Blue or STN Positive,transmissive,YG
- Display forma: 16 Character x 2 Line
- Viewing Direction: 6:00 clock
- Display Font : 5 x 8 Dots
- Driving Scheme : 1/16Duty,1/5Bias
- Power Supply : Single Power Supply (+5V)
- VLCD Voltage: 4.7V
- Control IC: ST7066U-0A ,ST7065C
- Operating Temperature:-10°C - 60°C
- Storage Temperature:-20°C - 70°C
- BACKLIGHT : White light or yellow green

3.0DIMENSIODIAGRAM



4.0 MECHANICAL SPECIFICATIONS

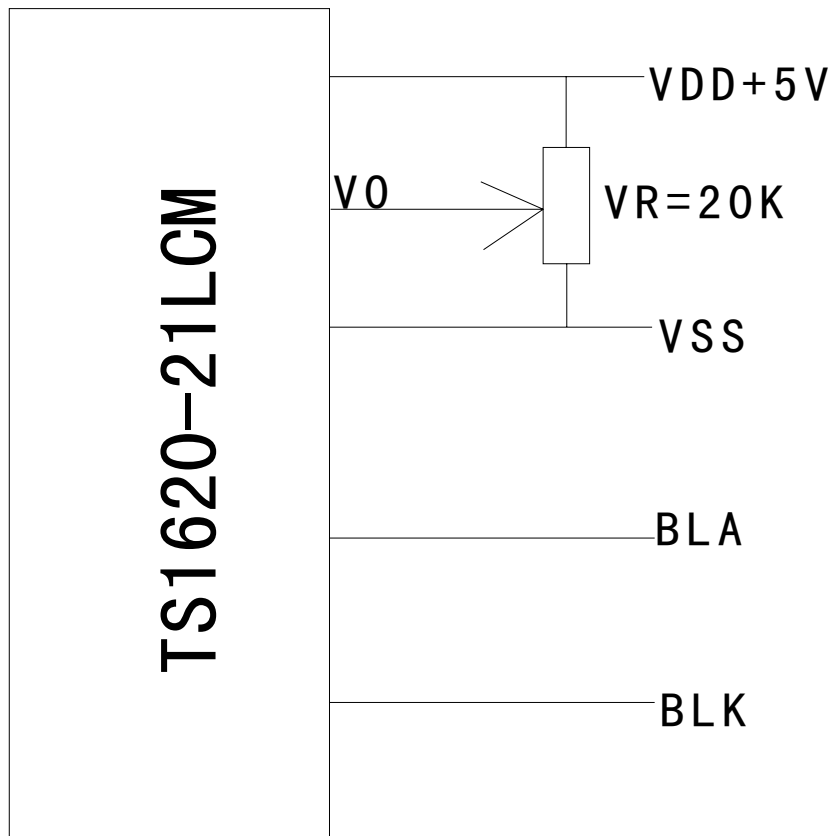
ITEM	STANDARD VALUE	UNIT
DOTS	5*8	-
DOT SIZE	5.15X2.9	mm
DOT PITCH	0.54X0.59	mm
MODULE DIMENSION	80 (W) × 36(H)	mm
EFFECTIVE DISPLAY AREA	64(W) ×15 (H)	mm

5.0 INTERFACE PIN FUNCTION DESCRIPTION

PIN NO	SYMBOL	FUNCTION
1	VSS	Ground.(0V)
2	VDD	Power supply for logic circuit (+5V)
3	V0	Power supply for LCD
4	RS	Select registers. 0:Instruction registers.(for write) Busy flag: address counter(for read) 1:Data register(for writer and read)
5	R/W	Select read or write 0:Write 1:Read
6	E	Starts data read/write
7-10	DB0-DB4	Four low order bi-directional tristate data bus Pins Used for data transfer and receive Between the MPU and the ST7066U.DB7 can Be used as busy flag.
11-14	DB5	Four low order bi-directional tristate data bus pins.Used for data tranfer and receive Between the MPU and the ST7066U. These pins are not used during 4-bit operation
15	BLA	Power supply for BACKLIGHT(+5V)

16	BLK	Power supply for BACKLIGHT(0V)
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6. POWER SUPPLY BLOCK DIAGRAM

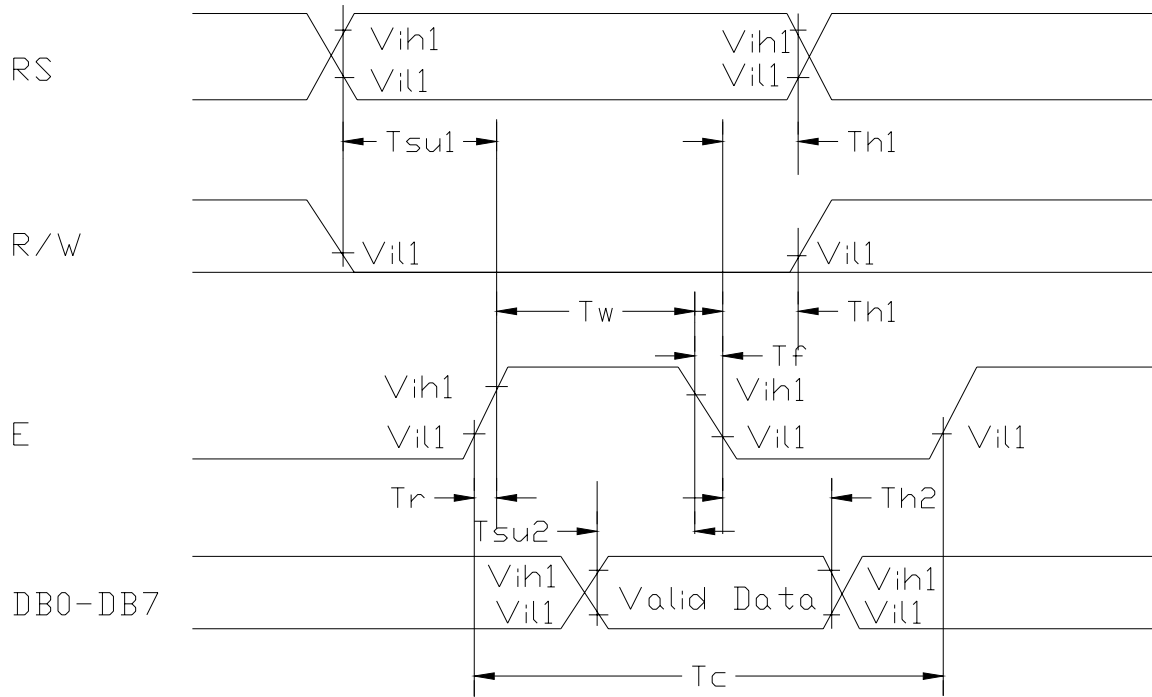


7. AC characteristics (VDD=5V±10%, Vss=0V Ta=25°C)

(1) Write mode (writing data from Micom to ST7066)

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Test pin
E cycle time	t_c	500	--	--	ns	E
E rise time	t_r	--	--	25	ns	E
E fall time	t_f	--	--	25	ns	E
E pulse width (High,Low)	t_w	220	--	--	ns	E

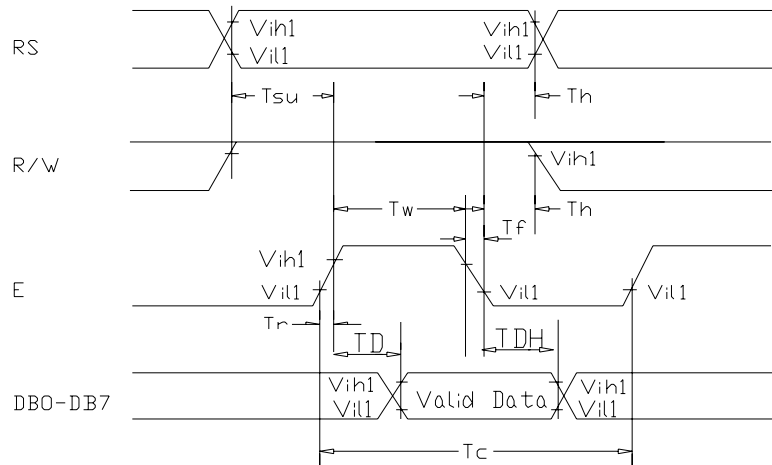
R/W and RS set-up time	t_{su1}	40	--	--	ns	R/W,RS
R/w and RS hold time	t_{h1}	10	--	--	ns	R/W,RS
Data set-up time	t_{su2}	60	--	--	ns	DB0~DB7
Data hold time	t_{h2}	10	--	--	ns	DB0~DB7



(2)Read mode(Reading data from ST7066 to Micom)

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Test pin
E cycle time	t_c	500	--	--	ns	E
E rise time	t_r	--	--	25	ns	E
E fall time	t_f	--	--	25	ns	E
E pulse width (High,Low)	t_w	220	--	--	ns	E
R/W and RS set-up time	t_{su1}	40	--	--	ns	R/W,RS
R/w and RS hold time	t_{h1}	10	--	--	ns	R/W,RS
Data set-up time	t_{su2}	--	--	120	ns	DB0~DB7

Data hold time	t_{h2}	20	--	--	ns	DB0~DB7
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8. CONTROL and DISPLAY COMMAND

Command	RS	R/W	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0	Remark
Display Clear	L	L	L	L	L	L	L	L	L	H	
Return Home	L	L	L	L	L	L	L	L	H	X	cursor move to first digit
Entry Mode Set	L	L	L	L	L	L	L	H	I/D	SH	I/D:set cursor move direction H-Increase L-Decrease SH:Specifies shift of display H-display is shifted L-Display is not shifted

Display On/Off	L	L	L	L	L	L	H	D	C	B	D:Display(H-on,L-off) C:Cursor(H-on,L-off) B:Blinking(H-on,L-off)
Shift	L	L	L	L	L	H	S/C	R/L	X	X	SC:(H-Display shift,L-Cursir move) R/L:(H-Right shift,L-Left shift)
Set Function	L	L	L	L	H	DL	N	F	X	X	DL:(H-8 bits interface,L-4 bits interface) N:(H-2 line display,L-1 line display) F:(H-5 x 10 dots,L-5 x 7 dots)
Set CG RAM Address	L	L	L	H	CG RAM address (corresponds to address)					CG RAM Data is sent and received after this setting	
Set DD RAM Address	L	L	H	DD RAM address					DD RAM Data is sent and received after this setting		
Read Busy Flag & Address	L	H	BF	Address Counter used for Both DD & CG RAM address					BF:(H-Busy ,L-Ready) --Reads BF indication internal operating is being performed --reads address counter contents		
Write Data	H	L	Write Data					Write data into DD or CG RAM			
Read Data	H	H	Read Data					Read data from DD or CGRAM			

