

**Specification**

**For**

**LCD Module**

**LH12864-7**

## ■ABSOLUTE MAXIMUM

Item	Symbol	Standard value	Unit
Power Supply Voltage	Vdd	0 ~ +5.5	V
Power supply for LCD Drive	Vlcd	- ~ 14	V
Input Voltage	Vin	-0.3 ~ Vdd+0.3	V
Operating Temperature	Top	-20 ~ +55	°C
Storage Temperature	Tstg	-30 ~ +70	°C

## ■MECHANICAL PARAMETERS

Item	Description	Unit
PCB Dimension	54.0 x 50.0x1.0	mm
Outline Dimension	54.0 x 50.0 x 6.5	mm
View Dimension	43.5 x 29.0	mm

## ■PIN ASSIGNMENT

Pin NO.	Symbol	Level	Function
1	VSS	0V	Power Ground
2	VDD	+5V	Power supply
3	VO	--	For LCD drive voltage(variable)
4	D/I	H/L	H: Display Data, L:Display Instruction
5	R/W	H/L	H: Read Signal, L: Write Signal
6	E	H/L	Enable Signal
7~14	DB0~DB7	--	Data bus
15	CS1	H/L	H:Select chip2
16	CS2	H/L	H:Select chip3
17	/RES	H/L	Reset Signal
18	VEE	--	Negative voltage(-10V)to LCD
19	BL(+)	--	Power (+)for EL Backlight
20	(NC)	--	--

## ■ELECTRICAL CHARACTERISTICS

### DC Characteristics(Ta=25°C;Vdd=5.0V±10%)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Operating Voltage(1)	VDD		4.5	5.0	5.5	V
Input Voltage	High	E,R/W,RS,DB0~DB7 Terminals	0.7VDD	--	VDD	V
	Low		0	--	0.3VDD	
Operating Current	Idd	During Display	--	--	--	mA

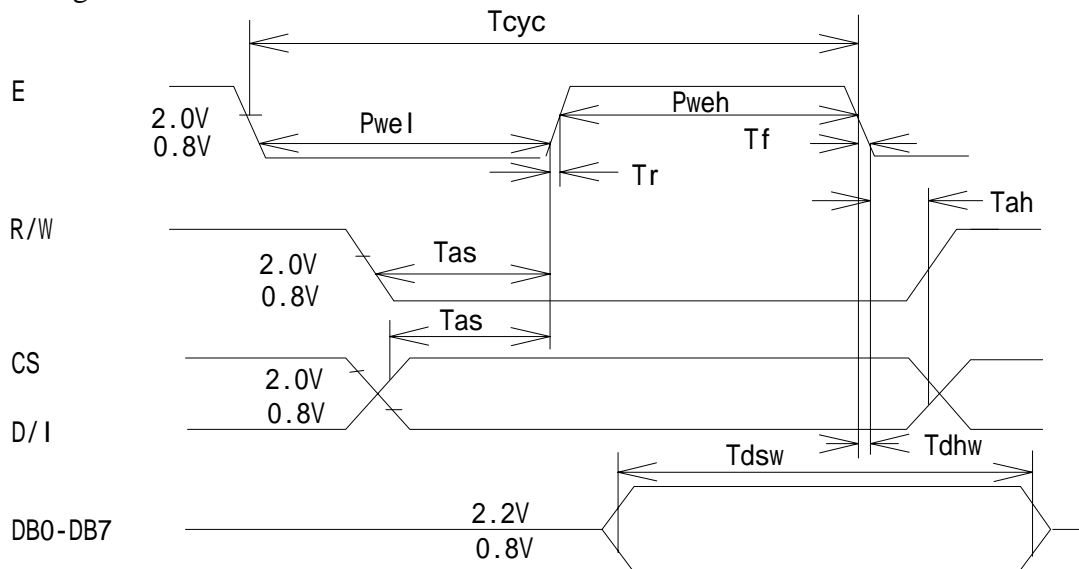
EL Backlight:  $\geq 50\text{cd/cm}^2$

\*LCD Module 内自带负压 (-10V DC)

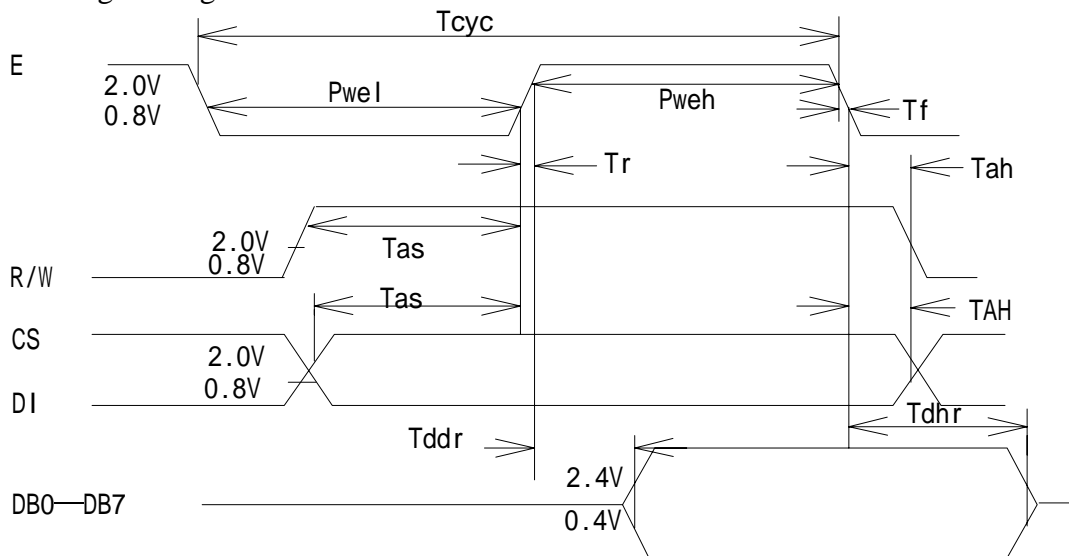
## AC characteristics (V<sub>dd</sub>=5V±10%, V<sub>ss</sub>=0V Ta=25°C)

Characteristic	Symbol	Min.	Max.	Unit
E Cycle	T <sub>cyc</sub>	1000	--	ns
E High Level Width	P <sub>weh</sub>	450	--	
E Low Level Width	P <sub>wel</sub>	450	--	
E Rise Time	T <sub>r</sub>	--	25	
E Fall Time	T <sub>f</sub>	--	25	
Address Set-Up Time	T <sub>as</sub>	140	--	
Address Hold Time	T <sub>ah</sub>	10	--	
Data Set-Up Time	T <sub>dsw</sub>	200	--	
Data Delay Time	T <sub>ddr</sub>	--	320	
Data Hold Time(Write)	T <sub>dhw</sub>	10	--	
Data Hold Time(Read)	T <sub>dhr</sub>	20	--	

### Writing timing



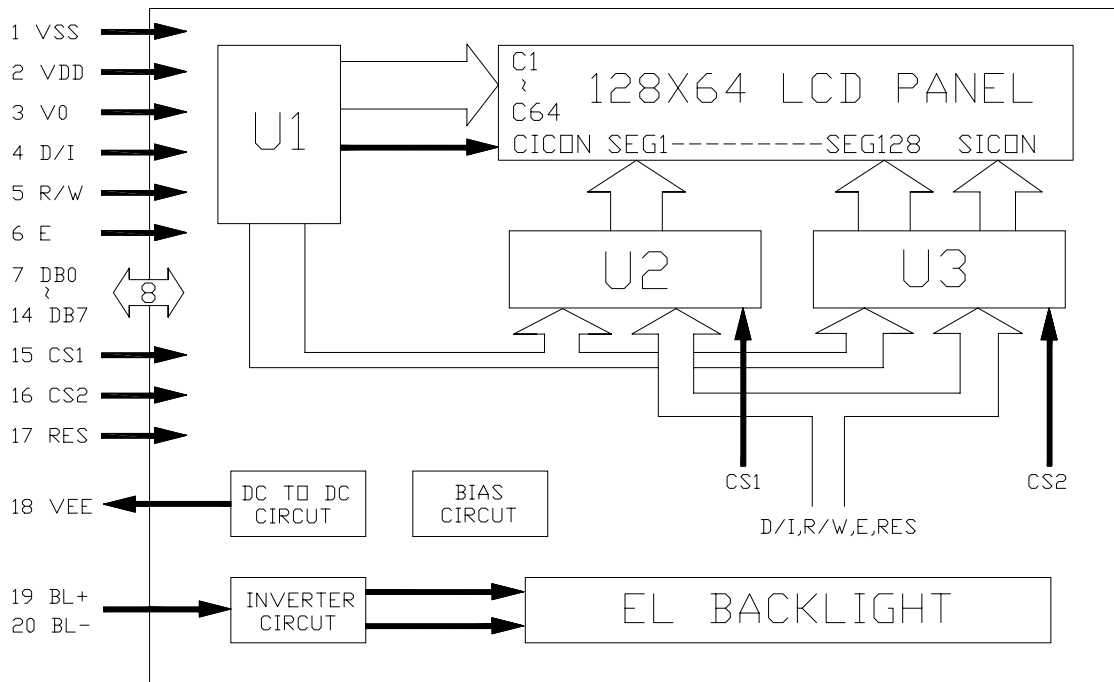
### Reading Timing



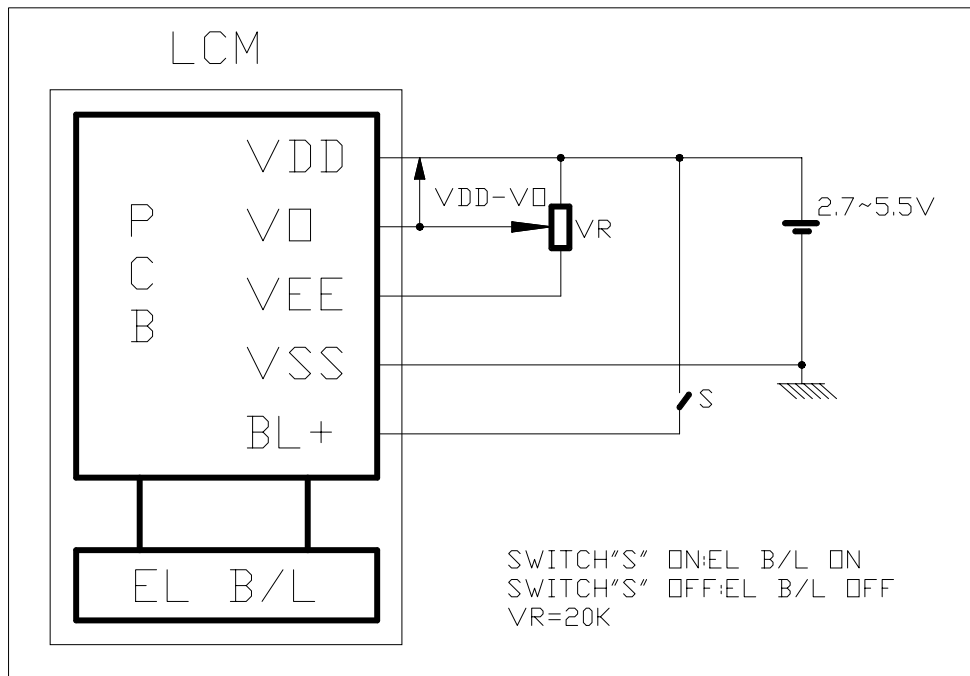
## ■CONTROL and DISPLAY COMMAND

Instruction	R/W	D/I	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0	Function	
Display on/off	L	L	L	L	H	H	H	H	H	L/H	Controls the display on or off. Internal status and display RAM data is not affected. L:OFF,H:ON	
Set Address	L	L	L	H	Y address (0~63)						Sets the Y address in the Y address counter.	
Set Page (X Address)	L	L	H	L	H	H	H	page (0~7)			Sets the X address at the X address register.	
Display Start Line	L	L	H	H	Display start line (0~63)						Indicates the display data RAM display at the top of the screen	
Status read	H	L	B U S Y	L	O N / O F F	R E S E T	L	L	L	L	Read the status : busy 1:working,0:ready ADC 1:clockwise output 0:counterclockwise ON/OFF 1:disp off 0:disp on RESET 1:reset 0:normal	
Write Display Data	L	H	Write Data									Write data (DB0:7) into display data RAM. After writing instruction, Y address is increased by 1 automatically.
Read Display Data	H	H	Read Data									Read data (DB0:7) from display data RAM to the data bus

## ■ SYSTEM BLOCK DIAGRAM



## ■ POWER SUPPLY



# ■ ASSEMBLY DIAGRAM

