



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司

SPECIFICATION

MODULE NO.: WO12864H

General Specification

Item	Dimension	Unit
Number of dots	128 x 64	—
Module dimension	80.0 x 54.0 x 9.5	mm
View area	70.7 x 38.8	mm
Active area	66.52 x 33.24	mm
Dot size	0.48 x 0.48	mm
Dot pitch	0.52 x 0.52	mm
Duty	1/65 , 1/9 Bias	
Backlight Type	LED	
IC	ST7567	
Interface	6800/8080/4-Line SPI	

Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	°C
Storage Temperature	T_{ST}	-30	—	+80	°C
Input Voltage	V_I	-0.3	—	$V_{DD}+0.3$	V
Digital Power Supply Voltage	$V_{DD}-V_{SS}$	-0.3	—	3.6	V
LCD Power supply voltage	V_0-XV_0	-0.3	—	16	V

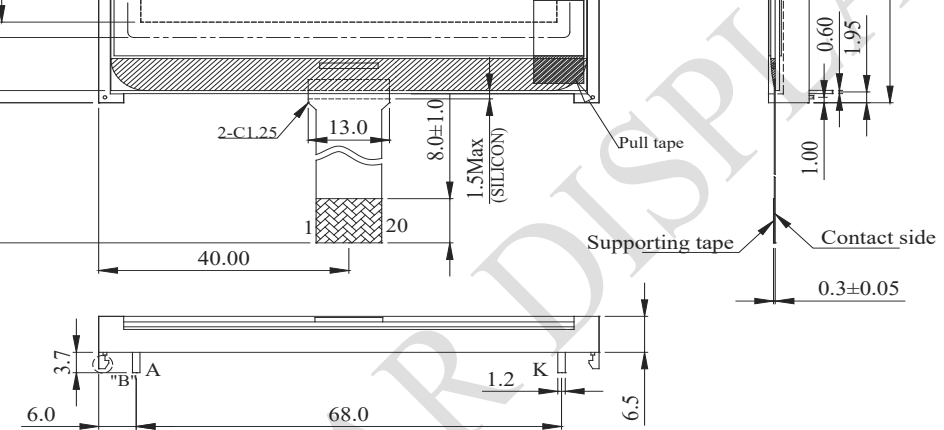
Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	$V_{DD}-V_{SS}$	—	3.0	3.3	3.6	V
Supply Voltage For LCM	XV_0-V_0	$T_a=-20^{\circ}\text{C}$	—	—	—	V
		$T_a=25^{\circ}\text{C}$	—	10.0	—	V
		$T_a=70^{\circ}\text{C}$	—	—	—	V
Input High Volt.	V_{IH}	—	$0.7V_{DD}$	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	V_{SS}	—	$0.3V_{DD}$	V
Output High Volt.	V_{OH}	—	$0.8 V_{DD}$	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	V_{SS}	—	$0.2V_{DD}$	V
Supply Current(No include LED Backlight)	I_{DD}	$V_{DD}=3.3\text{V}$	—	2.0	—	mA

Interface Pin Function

Pin No.	Symbol	Level	Description												
1	PSB	I	PSB selects the interface type: Serial or Parallel.												
2	C86	I	C86 selects the microprocessor type in parallel interface mode.												
			<table><tr><th>PSB</th><th>C86</th><th>Selected Interface</th></tr><tr><td>“H”</td><td>“H”</td><td>Parallel 6800 Series MPU Interface</td></tr><tr><td>“H”</td><td>“L”</td><td>Parallel 8080 Series MPU Interface</td></tr><tr><td>“L”</td><td>“X”</td><td>Serial 4-Line SPI Interface</td></tr></table>	PSB	C86	Selected Interface	“H”	“H”	Parallel 6800 Series MPU Interface	“H”	“L”	Parallel 8080 Series MPU Interface	“L”	“X”	Serial 4-Line SPI Interface
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“H”	“L”	Parallel 8080 Series MPU Interface													
“L”	“X”	Serial 4-Line SPI Interface													
3	VG	Power	VG is the LCD driving voltage for segment circuits.												
4	XV0	Power	XV0 is the LCD driving voltage for common circuits at positive frame.												
5	V0	Power	V0 is the LCD driving voltage for common circuits at negative frame.												
6	VSS	Power	This is a 0V terminal connected to the system GND.												
7	VDD	Power	Shared with the MPU power supply terminal VDD. (3.3 V)												
8-15	D7-D0	I/O	When using 8-bit parallel interface: (6800 or 8080 mode) 8-bit bi-directional data bus. Connect to the data bus of 8-bit microprocessor. When CSB is non-active (CSB=“H”), D[7:0] pins are high impedance.												
		I	When using serial interface: 4-LINE D7=SDA : Serial data input. D6=SCL : Serial clock input. D[5:0] are not used and should connect to “H” by VDD1 or VDDH. When CSB is non-active (CSB=“H”), D[7:0] pins are high impedance.												
16	ERD	I	Read/Write execution control pin. When PSB is “H”,												
			<table><tr><th>C86</th><th>MPU Type</th><th>ERD</th><th>Description</th></tr><tr><td>H</td><td>6800 series</td><td>E</td><td>Read/Write control input pin. R/W=“H”: When E is “H”, D[7:0] are in output mode. R/W=“L”: Signals on D[7:0] are latched at the falling edge of E signal.</td></tr><tr><td>L</td><td>8080 series</td><td>/RD</td><td>Read enable input pin. When /RD is “L”, D[7:0] are in output mode.</td></tr></table>	C86	MPU Type	ERD	Description	H	6800 series	E	Read/Write control input pin. R/W=“H”: When E is “H”, D[7:0] are in output mode. R/W=“L”: Signals on D[7:0] are latched at the falling edge of E signal.	L	8080 series	/RD	Read enable input pin. When /RD is “L”, D[7:0] are in output mode.
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L	8080 series	/RD	Read enable input pin. When /RD is “L”, D[7:0] are in output mode.												
ERD is not used in serial interface and should fix to “H” by VDD1 or VDDH.															

17	RWR	I	Read/Write execution control pin. When PSB is “H”,			
			C86	MPU Type	RWR	Description
			H	6800 series	R/W	Read/Write control input pin. R/W=“H”: read. R/W=“L”: write.
			L	8080 series	/WR	Write enable input pin. Signals on D[7:0] will be latched at the rising edge of /WR signal.
			RWR is not used in serial interface and should fix to “H” by VDD1 or VDDH.			
18	A0	I	It determines whether the access is related to data or command. A0=“H” : Indicates that signals on D[7:0] are display data. A0=“L” : Indicates that signals on D[7:0] are command.			
19	RSTB	I	Hardware reset input pin. When RSTB is “L”, internal initialization is executed and the internal registers will be initialized.			
20	CSB	I	Chip select input pin. Interface access is enabled when CSB is “L”.When CSB is non-active (CSB=“H”), D[7:0] pins are high impedance.			



A diagram showing a 3x3 grid of squares. To the left of the grid, there are two vertical arrows pointing upwards, labeled 0.52 and 0.48. To the right of the grid, there are two horizontal arrows pointing to the right, labeled 0.52 and 0.48. The arrows are positioned such that they appear to be entering and exiting the grid.