



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司

SPECIFICATION

MODULE NO.:

WO12864U

General Specification

Item	Dimension	Unit
Number of dots	128 x 64	—
Module dimension	58.2 x 44.7 x 3.9(MAX)	mm
View area	52.0 x 33.5	mm
Active area	47.76 x 30.29	mm
Dot size	0.40 x 0.35	mm
Dot pitch	0.42 x 0.37	mm
Duty	1/64	
Backlight Type	LED	
IC	ST7565P	

Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	°C
Storage Temperature	T_{ST}	-30	—	+80	°C
Power Supply Voltage	VDD	-0.3	—	3.6	V
Power supply voltage (VDD standard)	V0, VOUT	-0.3	—	14.5	V
Power supply voltage (VDD standard)	V1, V2, V3, V4	-0.3	—	V0+0.3	V

Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Voltage For Logic	$V_{DD}-V_{SS}$	—	3.0	—	3.3	V
Supply Voltage For LCD	V_{OP}	$T_a=-20^{\circ}\text{C}$	—	—	—	V
		$T_a=25^{\circ}\text{C}$	8.3	8.5	8.7	V
		$T_a=70^{\circ}\text{C}$	—	—	—	V
Input High Volt.	V_{IH}	—	$0.8V_{DD}$	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	V_{SS}	—	$0.2V_{DD}$	V
Output High Volt.	V_{OH}	—	$0.8V_{DD}$	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	V_{DD}	—	$0.2V_{DD}$	V
Supply Current	I_{DD}	$V_{DD}=3.3\text{V}$	—	1	2	mA

Interface Pin Function

Pin No.	Symbol	I/O	Description												
1	VDD	—	Power supply pin for logic.												
2	VSS	—	Ground pin, connected to 0V												
3	/CS1	I	Chip select input pin. Interface access is enabled when CS1B is “L” and CB2 is “H”. When chip is on-active (CS1B=“H” or CS2=“L”), D[7:0] pins are high impedance.												
4	CS2														
5	/RES	I	Hardware reset input pin. When RSTB is “L”, internal initialization is executed and the internal registers will be initialized.												
6	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.												
7	R/W	I	Read/Write execution control pin. When PSB is “H”, <table border="1"> <thead> <tr> <th>C86</th><th>MPU Type</th><th>RWR</th><th>Description</th></tr> </thead> <tbody> <tr> <td>H</td><td>6800 series</td><td>R/W</td><td>Read/Write control input pin. R/W=“H”: read. R/W=“L”: write.</td></tr> <tr> <td>L</td><td>8080 series</td><td>/WR</td><td>Write enable input pin. Signals on D[7:0] will be latched at the rising edge of /WR signal.</td></tr> </tbody> </table> RWR is not used in serial interface and should fix to “H” by VDD.	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.
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9-16	D0-D7	I/O	Data bus line												

17	C86	I	C86 selects the microprocessor type in parallel interface mode.		
			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
			Please refer to “APPLICATION NOTES” and “Microprocessor Interface” (Section 6) for detailed connection of the selected interface.		
18	P/S	I	PSB selects the interface type: Serial or Parallel.		



PIN NO.	SYMBOL
1	VDD
2	VSS
3	/CS1
4	CS2
5	/RES
6	A0
7	R/W
8	E
9	D0
10	D1
11	D2
12	D3
13	D4
14	D5
15	D6
16	D7
17	C86
18	P/S

The non-specified tolerance of dimension is $\pm 0.3\text{mm}$.