



**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 <sub>OP</sub>	-20	—	+70	°C
Storage Temperature	T <sub>ST</sub>	-30	—	+80	°C
Power Supply Voltage	V <sub>DD</sub>	-0.3	—	3.6	V
Power supply voltage (VDD standard)	V <sub>0</sub> , V <sub>OUT</sub>	-0.3	—	14.5	V
Power supply voltage (VDD standard)	V <sub>1</sub> , V <sub>2</sub> , V <sub>3</sub> , V <sub>4</sub>	-0.3	—	V <sub>0</sub> +0.3	V

# Electrical Characteristics

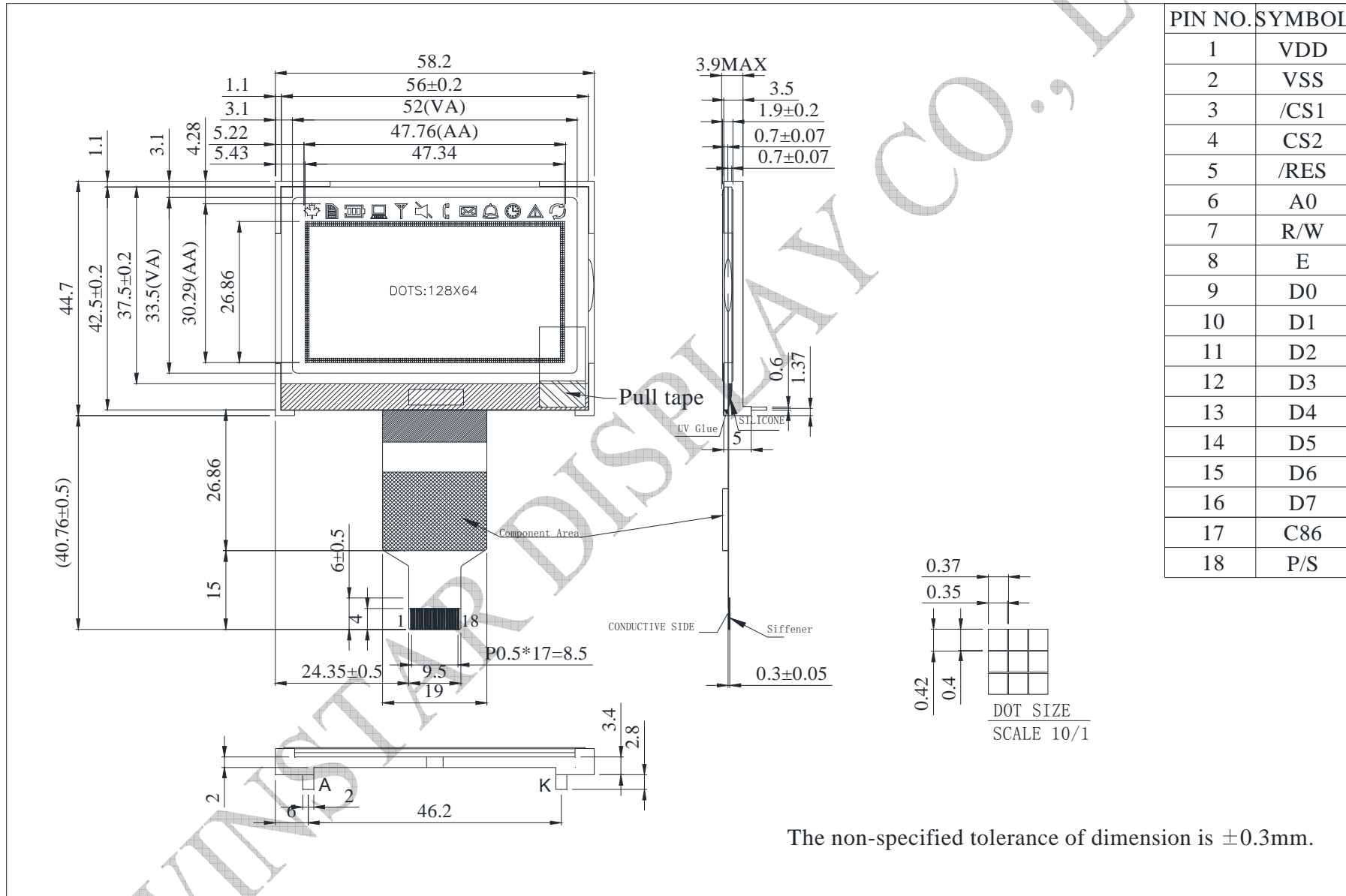
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Voltage For Logic	V <sub>DD</sub> -V <sub>SS</sub>	—	3.0	—	3.3	V
Supply Voltage For LCD	V <sub>OP</sub>	T <sub>a</sub> =-20°C	—	—	—	V
		T <sub>a</sub> =25°C	8.3	8.5	8.7	V
		T <sub>a</sub> =70°C	—	—	—	V
Input High Volt.	V <sub>IH</sub>	—	0.8V <sub>DD</sub>	—	V <sub>DD</sub>	V
Input Low Volt.	V <sub>IL</sub>	—	V <sub>SS</sub>	—	0.2V <sub>DD</sub>	V
Output High Volt.	V <sub>OH</sub>	—	0.8V <sub>DD</sub>	—	V <sub>DD</sub>	V
Output Low Volt.	V <sub>OL</sub>	—	V <sub>DD</sub>	—	0.2V <sub>DD</sub>	V
Supply Current	I <sub>DD</sub>	V <sub>DD</sub> =3.3V	—	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”,												
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RWR is not used in serial interface and should fix to “H” by VDD.															
8	E	I	Read/Write execution control pin. When PSB is “H”,												
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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.		
			<b>PSB</b>	<b>C86</b>	<b>Selected Interface</b>
			"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.		

# Contour Drawing



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 ±0.3mm.