WINSTAR Display Co.,Ltd.

華凌光電股份有限公司

SPECIFICATION

MODULE NO.:   WO12864T-TFH#

General Specification

Item	Dimension	Unit
Number of dots	128 x 64	—
Module dimension	38.0 x 26.42 x 8.8	mm
View area	29.58 x 16.22	mm
Active area	25.58 x 14.06	mm
Dot size	0.18 x 0.20	mm
Dot pitch	0.20 x 0.22	mm
Duty	1/65 DUTY,1/9 BIAS	
Backlight Type	LED	
IC	ST7565P	

Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	℃
Storage Temperature	T_{ST}	-30	—	+80	℃
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}	Ta=-20℃	—	—	—	V
		Ta=25℃	8.9	9.1	9.3	V
		Ta=70℃	—	—	—	V
Input High Volt.	V_{IH}	—	0.8 V_{DD}	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	Vss	—	0.2 V_{DD}	V
Output High Volt.	V_{OH}	—	0.8 V_{DD}	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	Vss	—	0.2 V_{DD}	V
Supply Current	I_{DD}	V_{DD}=3.3V	—	—	2.0	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", | C86	MPU Type	RWR	Description
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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 VDD.
8	E	I	Read/Write execution control pin. When PSB is "H", | C86	MPU Type	ERD	Description
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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. | ERD is not used in serial interface and should fix to "H" by VDD.
9-16	D0-D7	I/O	Data bus line

| 17 | C86 | I | C86 selects the microprocessor type in parallel interface mode. |

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. |

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
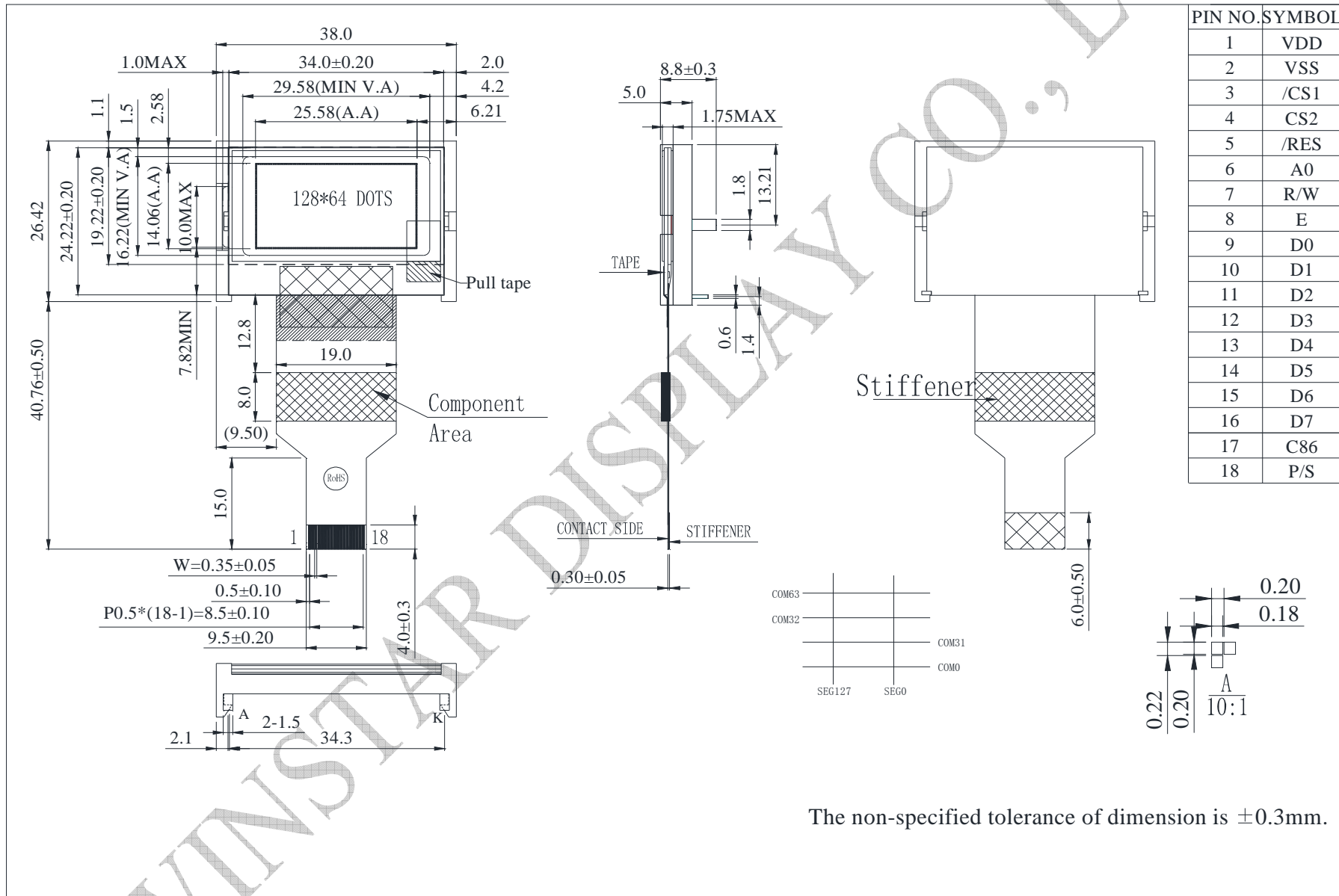
The non-specified tolerance of dimension is ±0.3mm.