



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司

SPECIFICATION

MODULE NO.: WO12864T1

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	25.58x 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	
View direction	6 o'clock	
Backlight Type	LED	
IC	ST7567S	
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	—	4.0	V
LCD Power supply voltage	V_0-XV_0	-0.3	—	14.0	V

Electrical Characteristics

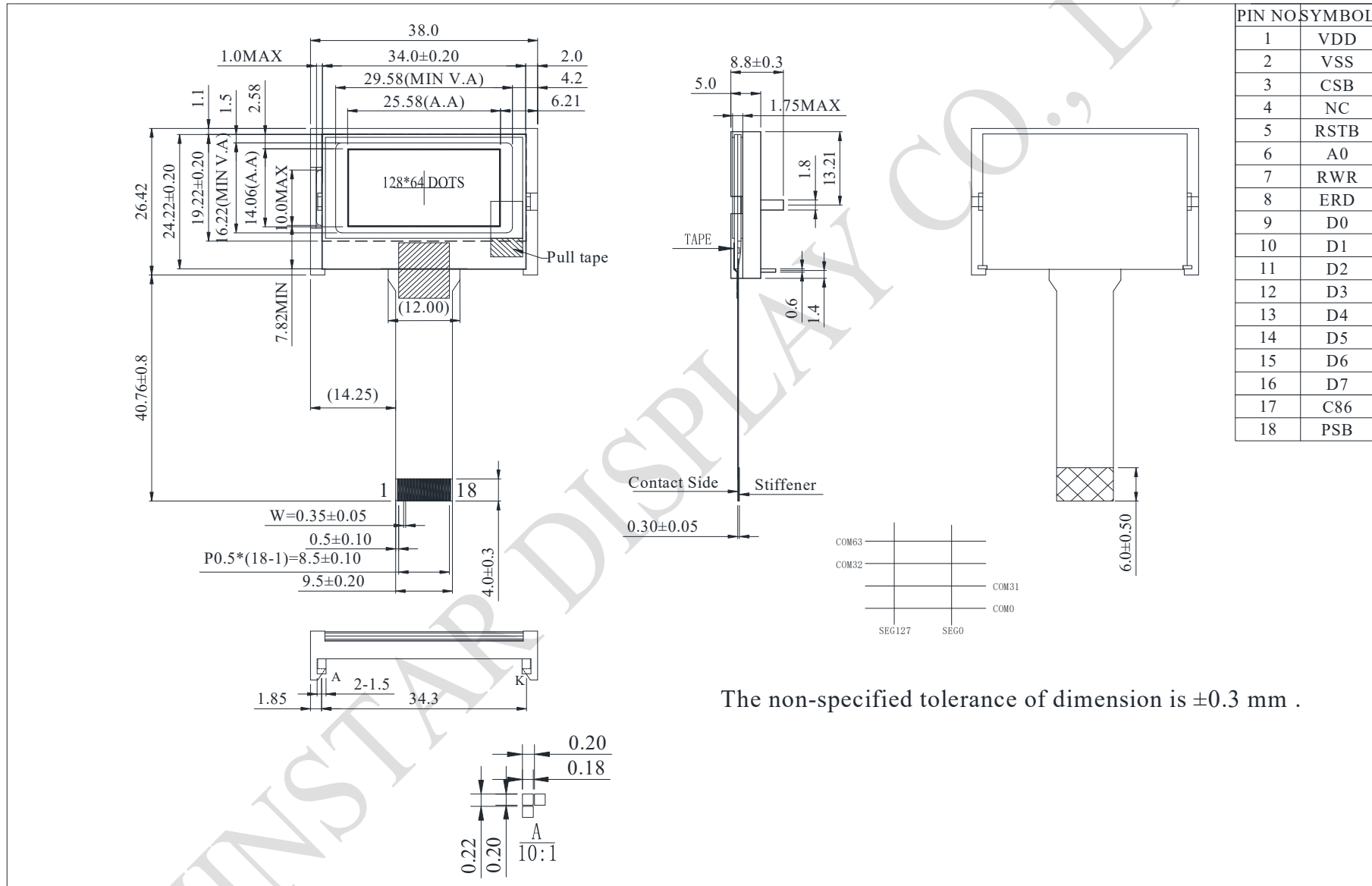
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Voltage For Logic	$V_{DD}-V_{SS}$	—	2.7	3.0	3.3	V
Supply Voltage For LCD	V_{OP}	$T_a=-20^{\circ}C$	—	—	—	V
		$T_a=25^{\circ}C$	8.9	9.1	9.3	V
		$T_a=70^{\circ}C$	—	—	—	V
Input High Volt.	V_{IH}	—	$0.7V_{DD}$	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	V_{SS}	—	$0.3V_{DD}$	V
Output High Volt.	V_{OH}	—	$0.8V_{DD}$	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	V_{DD}	—	$0.2V_{DD}$	V
Supply Current	I_{DD}	$V_{DD}=3.0V$	—	—	1.5	mA

Interface Pin Function

Pin No.	Symbol	Description			
1	VDD	Power supply pin for logic.			
2	VSS	Ground pin, connected to 0V			
3	CSB	Chip select input pin.			
4	NC	NC			
5	RSTB	Hardware reset input pin			
6	A0	It determines whether the access is related to data or command.			
7	RWR	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 4-line SPI interface and should fix to "H" by VDD					
8	ERD	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.
ERD is not used in 4-Line SPI interface and should fix to "H" by VDD					

9~16	D0~D7	<p>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</p>		
		<p>When using serial interface: 4-line SPI D[0]=SCL: Serial clock input. D[1]=SDA_IN: Serial data input. D[2:3]=SDA_OUT: Serial data output. D[1:3] must be connected together as SDA. D[4:7]=(1,1,1,1): ID Pin. D[4:7] should fix to "H" or "L" by VDDH or VSSL. ID[0:3] can be read 4-bit ID only for serial interface from D[4:7].</p>		
17	C86	C86 selects the microprocessor type in parallel interface mode.		
		PSB	C86	Selected Interface
		"L"	"H"	Serial 4-Line SPI Interface
		"H"	"L"	Parallel 8080 Series MPU Interface
"H"	"H"	Parallel 6800 Series MPU Interface		
18	PSB	PSB selects the interface type: Serial or Parallel.		

Contour Drawing



PIN NOS	SYMBOL
1	VDD
2	VSS
3	CSB
4	NC
5	RSTB
6	A0
7	RWR
8	ERD
9	D0
10	D1
11	D2
12	D3
13	D4
14	D5
15	D6
16	D7
17	C86
18	PSB

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