

Sept. 2020

## Shipping Arrangement before Taiwan & China Holidays

Winstar Headquarters in Taiwan will be closed from October 1st thru October 4th, 2020 for National Holidays and China factories and China Customs will be closed from October 1st to October 8th, 2020 for China National Day (Golden Week). Please notice the shipping date before and after holidays. Please work with your Winstar sales person closely before the holidays if your shipment might be affected. Thank you.

### Shipping From Taiwan

- Last shipping date: September 30, 2020
- First shipping date: October 5, 2020

### Shipping From China

- Last shipping date: September 29, 2020
- First shipping date: October 9, 2020

## Shipping Arrangement Before Taiwan & China Holidays

### Shipping From Taiwan

- Last shipping date: Sep 30, 2020
- First shipping date: Oct 5, 2020

### Shipping From China

- Last shipping date: Sep 29, 2020
- First shipping date: Oct 9, 2020

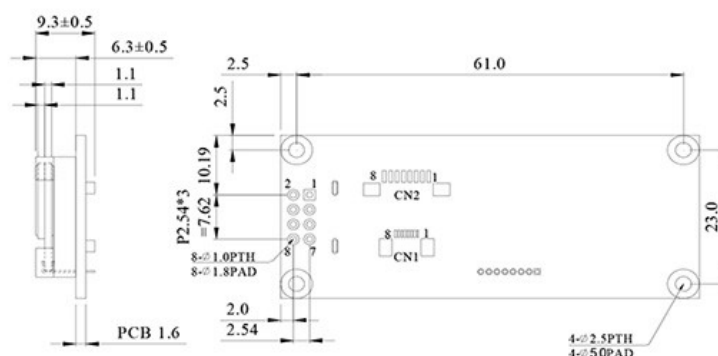
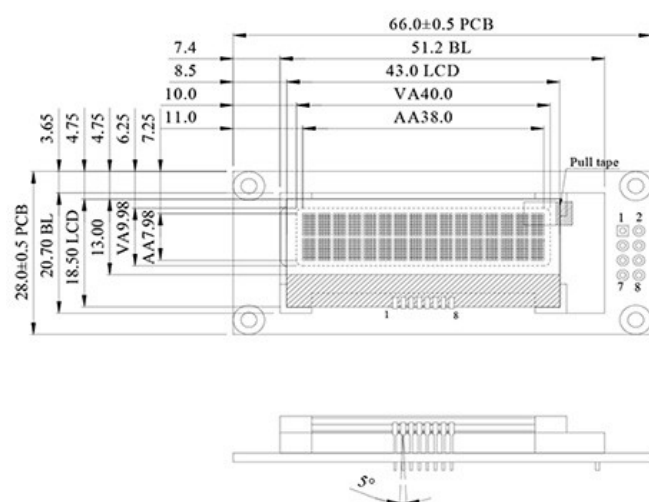


## WO1602I3/WO1602I5: 16x2 COG LCD module with PCB

WO1602I3 and WO1602I5 are two models of 16 characters by 2 lines of COG LCD P/N WO1602I with PCB board on module. WO1602I3 and WO1602I5 are built in with ST7032i IC; it supports I2C interface. The advantage of WO1602I3/WO1602I5 is having circuit layout on PCB board and with screw holes which make modules can be fixed on customers' applications easily. Also, there are three kinds of connector pitch sizes of 2.54mm (default), 1.0mm and 0.5mm for options.

The supply voltage for logic (VDD) of WO1602I3 is 3.3V; as to the WO1602I5 is 5V, 1/16 duty circle, 1/5 bias. The module can be operating at temperatures from -20°C to +70°C; its storage temperatures range from -30°C to +80°C. WO1602I3 and WO1602I5 are available in FSTN positive Transflective LCD and with White LED backlight; please contact us if you need different types of LCDs or LED combinations.

WO1602I3/WO1602I5	Dimension
Number of Characters	16 Characters x 2 Lines
Module dimension	66.0 x 28.0 x 9.3 mm
View area	40.0 x 9.98 mm
Active area	38.0 x 7.98 mm
Dot size	0.36 x 0.43 mm
Dot pitch	0.41 x 0.48 mm
Character size	2.00 x 3.79 mm
Character pitch	2.40 x 4.19 mm
LCD type	FSTN Positive Transflective
Duty	1/16 , 1/5 Bias
View direction	6 o'clock
Backlight Type	LED, White
Interface	I2C
IC	ST7032i

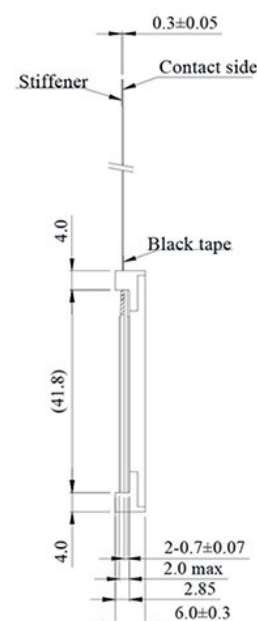
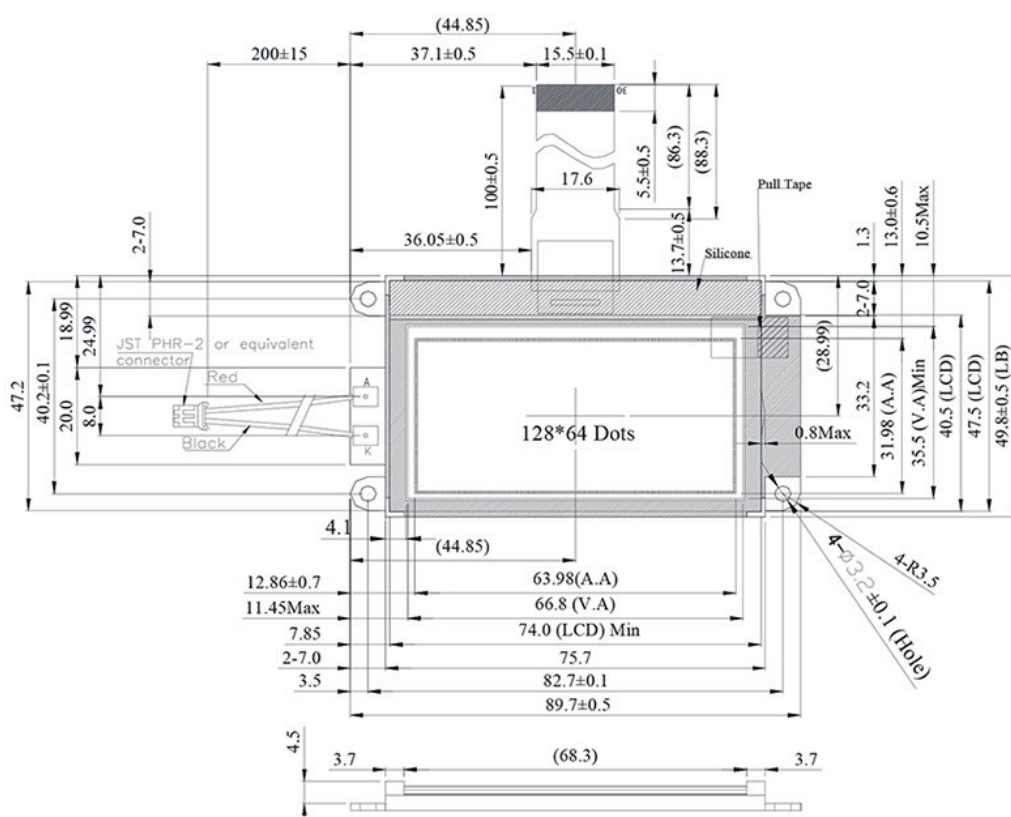
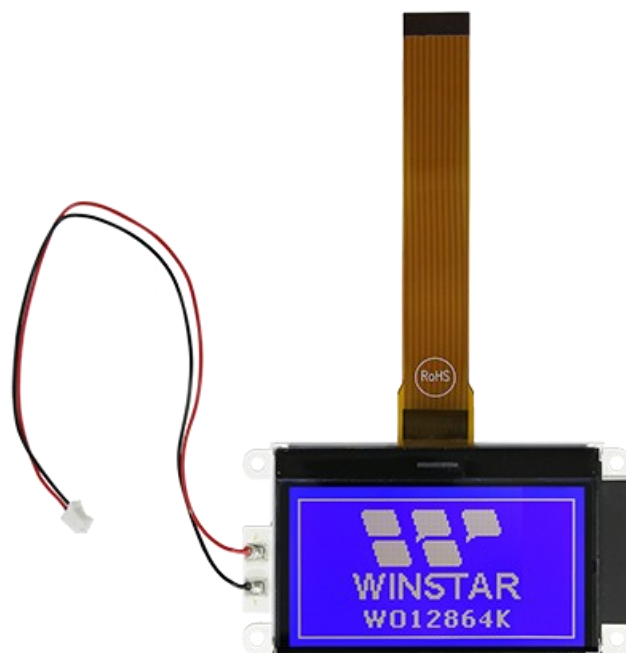


## Graphic COG LCD Module WO12864K and WO12864K1

WO12864K and WO12864K1 models are monochrome COG graphic LCD modules made of 128x64 dot matrix format. WO12864K/WO12864K1 COG Module is built in with ST7565 IC, it supports 8-bit 6800, 8-bit 8080 parallel and 4-wire serial SPI interface, power supply voltage 3V, VOP 9.5V, 1/65 duty. The WO12864K item is adopted ST7565V IC which is built-in with negative voltage, as to the WO12864K1 item is adopted ST7565P IC which is built-in with positive voltage.

This module can be operating at temperatures from -20°C to +70°C ; its storage temperatures range from -30°C to +80°C . WO12864K/K1 are available in STN Negative, Blue Transmissive LCD and with White LED backlight. Please contact us if you need different types of LCDs or LED combinations.

WO12864K/WO12864K1	Dimension
Number of dots	128 x 64
Module dimension	89.7 x 49.8 x 6.0 mm
View area	66.8 x 35.5 mm
Active area	63.98 x 31.98 mm
Dot size	0.48 x 0.48 mm
Dot pitch	0.50x 0.50 mm
LCD type	STN Negative, Blue Transmissive
Duty	1/65duty , 1/9 Bias
View direction	6 o'clock
Backlight Type	LED ,White
Interface	8080, 6800, SPI
IC	ST7565



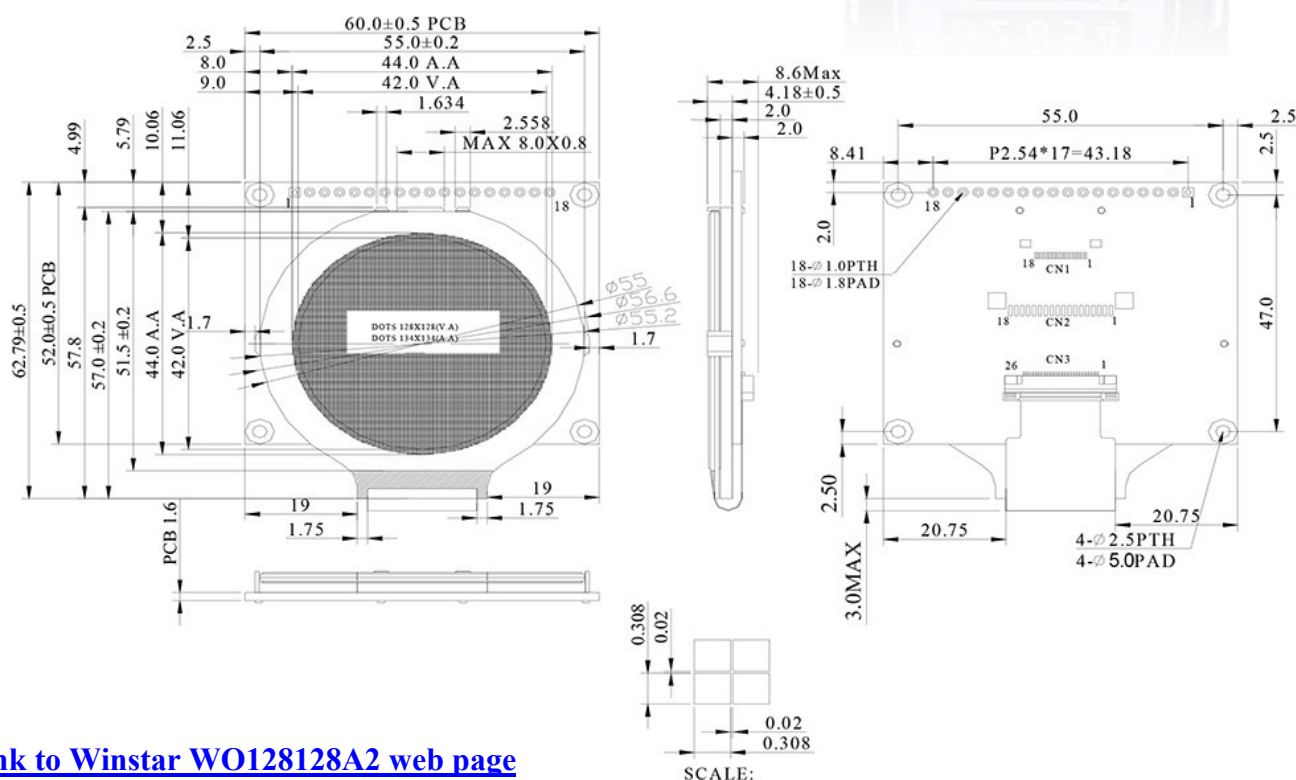


## Round COG LCD WO128128A2-with PCB on Module

WO128128A2 model is a round COG LCD display WO128128A model with a PCB board on module. This Round STN COG module is built in with ST75161 IC; it supports 8080 parallel (default), 6800 parallel, 3-wire and 4-wire serial SPI, I2C interface, power supply voltage 3V, 1/136 driving duty, 1/12 BIAS. The advantage of WO128128A2 is having circuit layout on PCB board and with screw holes which make modules can be fixed on customers' applications easily. Also, there are three kinds of connector pitch sizes of 2.54mm (default), 1.0mm and 0.5mm for options. WO128128A2 also have VDD 5V power supply voltage for optional.

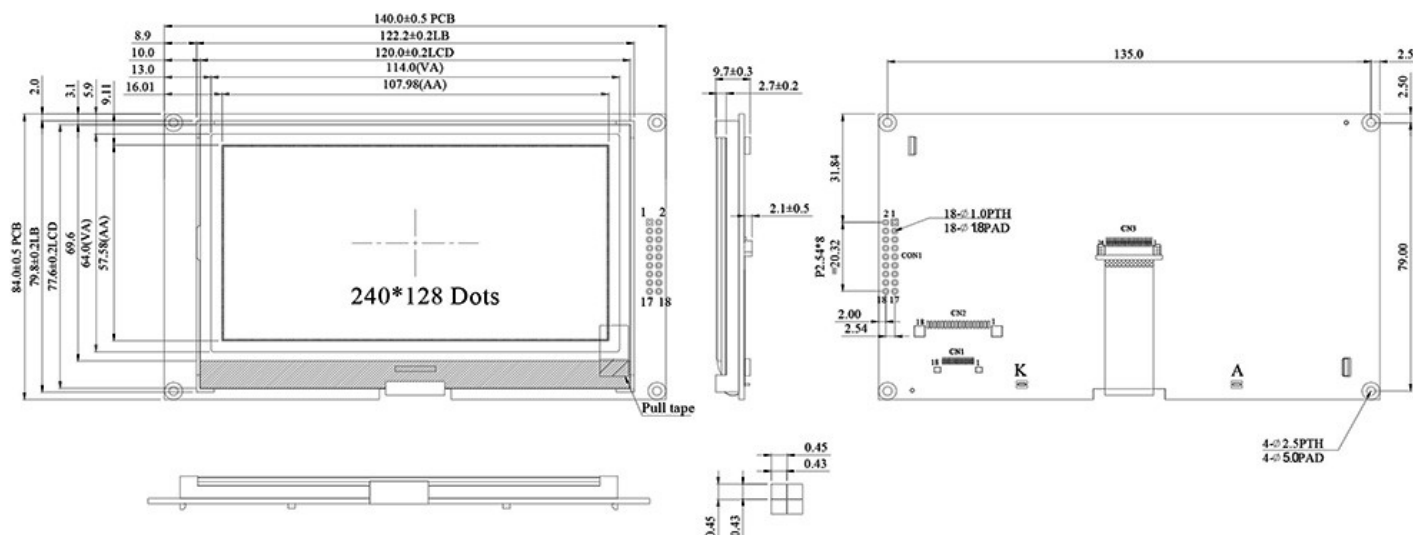
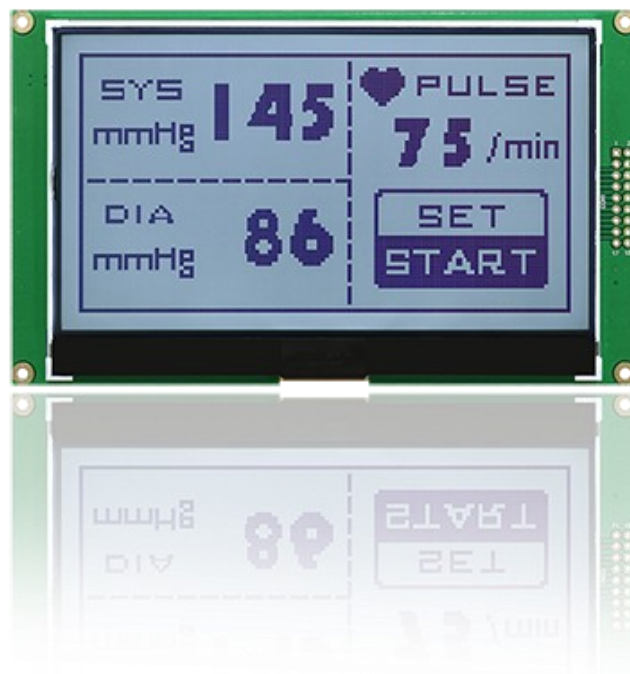
The supply voltage for logic of WO128128A2 is 2.7V to 3.3V, typical value 3V. This module can be operating at temperatures from -20°C to +70°C; its storage temperatures range from -30°C to +80°C. WO128128A2 is available in FSTN positive LCD type with white LED backlight. Please contact us if you need different types of LCDs or LED combinations.

WO128128A2	Dimension
Number of dots	128 x 128
Module dimension	60.0 x 62.79 x 8.6 mm
View area	42.0 x 42.0 mm
Active area	44.0 x 44.0 mm
Dot size	0.308 x 0.308 mm
Dot pitch	0.310 x 0.310 mm
LCD type	FSTN Positive Transflective
Duty	1/136 Duty, 1/12 Bias
View direction	6 o'clock
Backlight Type	LED White
Interface	Default 8080, Option 6800, SPI, I2C
IC	ST75161



This WO240128B2 module can be operating at temperatures from -20°C to +70°C; its storage temperatures range from -30°C to +80°C. The WO240128B2 is available for FSTN positive Transflective with white LED backlight. Please contact us if you need different types of LCDs or LED combinations.

WO240128B2	Dimension
Number of dots	240 x 128
Module dimension	140.0 x 84.0 x 9.7 mm
View area	114.0 x 64.0 mm
Active area	107.98 x 57.58 mm
Dot size	0.43 x 0.43 mm
Dot pitch	0.45 x 0.45 mm
LCD type	FSTN Positive Transflective
Drive Method	1/128Duty , 1/12Bias
View direction	6 o'clock
Backlight Type	LED, White
Interface	Default 6800, Option 8080, SPI
IC	ST7586S



## COG LCD WO256128A2-with PCB on Module

WO256128A2 model is a COG LCD display WO256128A model featured with a PCB board on module which is made of 256x128 dots, diagonal size 2.9 inch. WO256128A2 is built in with ST75256 controller IC, it supports 8080 8-bit parallel (default), 6800 8-bit and 4-wire serial SPI and I2C interface, power supply voltage 3.3V, 1/128 duty, 1/12 Bias. The advantage of WO256128A2 is having circuit layout on PCB board and with screw holes which make modules can be fixed on customers' applications easily. Also, there are three kinds of connector pitch sizes of 2.54mm (default), 1.0mm and 0.5mm for options. WO256128A2 also have VDD 5V power supply voltage for optional.

WO256128A2 module can be operating at temperatures from -20°C to +70°C; its storage temperatures range from -30°C to +80°C. The WO256128A2 is available for FSTN positive Transflective with white LED backlight. Please contact us if you need different types of LCDs or LED combinations.

WO256128A2	Dimension
Number of dots	256 x 128
Module dimension	93.0 x 54.0 x 9.5 mm
View area	70.7 x 38.8 mm
Active area	66.54 x 33.26 mm
Dot size	0.24 x 0.24 mm
Dot pitch	0.26 x 0.26 mm
LCD type	FSTN Positive Transflective
Drive Method	1/128 Duty, 1/12 Bias
View direction	6 o'clock
Backlight Type	LED, White
Interface	Default 8080, Option 6800, SPI, I2C
IC	ST75256

