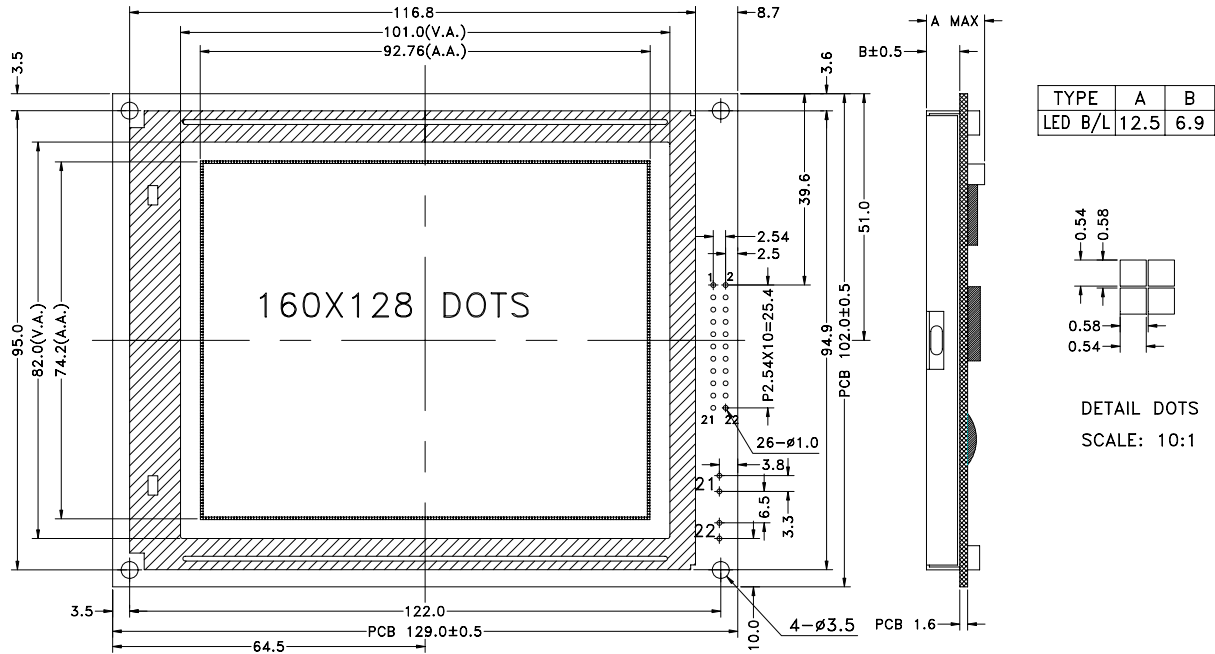


## Outline Dimension



## Graphic Type

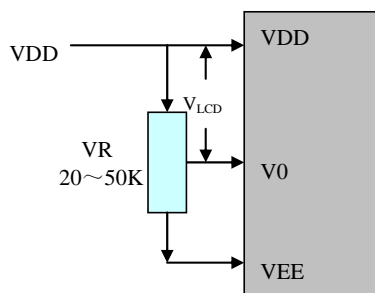
### Feature :

- 160x128 dot-matrix
- STN/Transmissive/Negative/Blue
- Backlight: White/side backlight
- Operating Temp.: -20°C ~ +70°C
- 1/128 duty cycle, 1/12 Bias
- Built-in Controller (T6963C or equivalent)
- Viewing angle: 6 o'clock

### Absolute Maximum Rating :

Item	Symbol	Standard value			Unit
		M <sub>IN</sub>	T <sub>YP</sub>	M <sub>AX</sub>	
Power supply for logic	V <sub>DD</sub> -V <sub>SS</sub>	-0.3	--	7.0	V
Input voltage	V <sub>I</sub>	-0.3	--	V <sub>DD</sub> +0.3	V

### Adjusting Display Contrast :



Note: Adjust V0 to VDD as an initial setting. When the module is operational, readjust V0 for optimal display appearance.

### Electrical Characteristic : (V<sub>SS</sub>=0V, T<sub>a</sub> = 25°C)

Parameter	Symbol	Condition	M <sub>IN</sub>	T <sub>YP</sub>	M <sub>AX</sub>	Unit
Supply voltage for logic	V <sub>DD</sub>	--	4.8	5.0	5.2	V
Supply current for logic	I <sub>DD</sub>	--	--	20	--	mA
Operating voltage for LCD	V <sub>LCD</sub>	-20°C	--	--	--	V
		+25°C	--	15.2	--	V
		+70°C	--	--	--	V
Supply voltage for Backlight	V <sub>BL</sub>	--	--	5.0	--	V
Supply current for Backlight	I <sub>BL</sub>	--	--	120	--	mA

### Interface Pin Connections :

Pin No.	Symbol	Level	Description
1	FG	0V	Ground for Frame.
2	VSS	0V	Ground output for pad option.
3	VDD	+5.0V	Supply voltage for logic operating.
4	V0	--	Adjusting the LCM display contrast voltage input.
5	VEE	--	DC/DC converted negative voltage output.
6	/WR	H/L	Data write. Write data into T6963C when WR=L.
7	/RD	H/L	Data read. Read data from T6963C when RD=L.
8	/CE	H/L	Chip Enable for T6963C. CE must be L when CPU communicates with T6963C.
9	C/D	H/L	WR=L.....C/D=H: Command Write C/D=L: Data Write RD=L.....C/D=H: Status Read C/D=L: Data Read
10	/HALT	H/L	H.....Normal L.....Stops the oscillation of the clock.
11	/RST	H/L	H.....Normal (T6963C has internal pull-up resistor) L.....Initialize T6963C. Text and Graphic have addresses and text and graphic area settings are retained.
12~19	D0~D7	H/L	8-bit bi-directional data bus.
20	NC	--	Non-connection.
21	LED+	+5.0V	Power supply for Backlight
22	LED-	0V	The backlight ground.