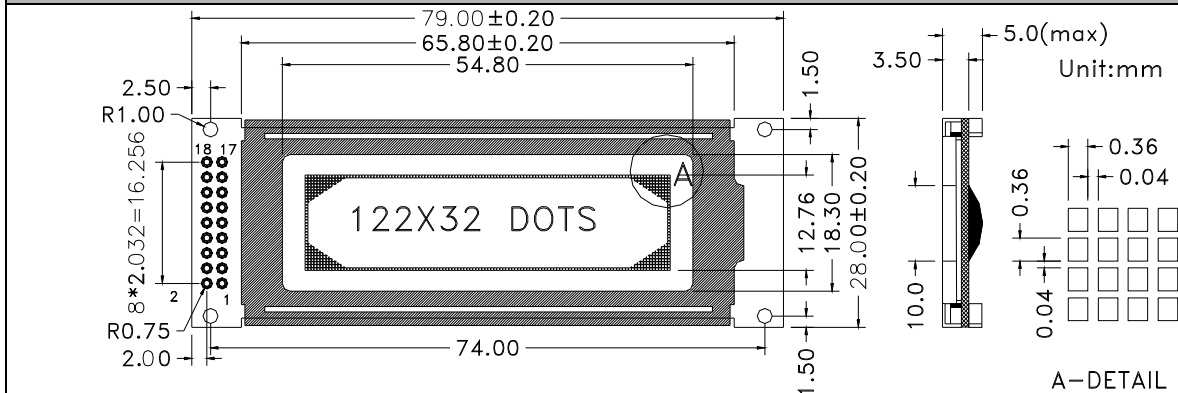


**TG12232E(L)****TINSHARP ELECTRONICS CO.LTD****EXTERNAL DIMENSIONS AND DISPLAY PATTERN****MECHANICAL DATA (Nominal dimensions)**

ITEM	SPECIFICATION	UNIT
Module Size(WxH)	79.0X28.0	mm
Viewing Area(WxH)	54.8X18.3	mm
Internal Area(WxH)	48.76X12.76	mm
Dot pitch(WxH)	0.40X0.40	mm
Dot Size(WxH)	0.36X0.36	mm
DOTS	122X32	dot

PIN CONFIGURATION

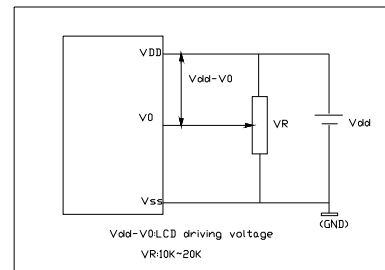
ITEM	SYMBOL	Level	DESCRIPTION
1	VSS	0V	Ground
2	VDD	+5V	Power supply
3	V0	0V	Power supply for LCD
4	RS	H/L	Select display data or Instruction(CS)
5	R/W	H/L	Read/Write select signal
6	E	H/L	Read/Write enable signal(CLK)
7-14	D0-D7	-	Data bus
15	PSB	-	L:Serial mode H:4/8bit bus mode
16	RST	-	Initialized during low level
17	LED+	-	LED(5V)
18	LED-	-	0V OR NC

Absolute Maximum Ratings

Item	Symbol	Condition	Standard Value		unit
			min	max	
Supply Voltage for Logic	$V_{DD}-V_{SS}$	$T_a=25^{\circ}\text{C}$	0	7.0	V
Supply Voltage for LCD	$V_{DD}-V_0$		0	5	V
Input Voltage	V_i		$V_{SS}-0.3$	$V_{DD}+0.3$	V

ELECTRICAL CHARACTERISTICS**Power supply**

Item	Symbol	Condition	Standard value			Unit
			min.	typ.	max.	
Supply Voltage for Logic	$V_{DD}-V_{SS}$	-	4.5	5.0	5.5	V
Supply Voltage for LCD	$V_{DD}-V_0$	-	4.5	5.0	5.5	V
Input high Voltage	V_{IH}	-	$0.8V_{DD}$	-	V_{DD}	V
Input low Voltage	V_{IL}	-	V_{SS}	-	$0.2V_{DD}$	V
Supply Current for Logic	V_{OH}	$-I_{OH}=0.2\text{mA}$	-	3	-	mA
Supply Current for LCD	V_{OL}	$I_{OL}=1.2\text{mA}$	-	2	-	mA
With B/L	I_{LED}	$V_{DD}=5.0\text{V}$	-	40	-	mA
Drive method	1/32Duty 1/6Bias					

**Block diagram**