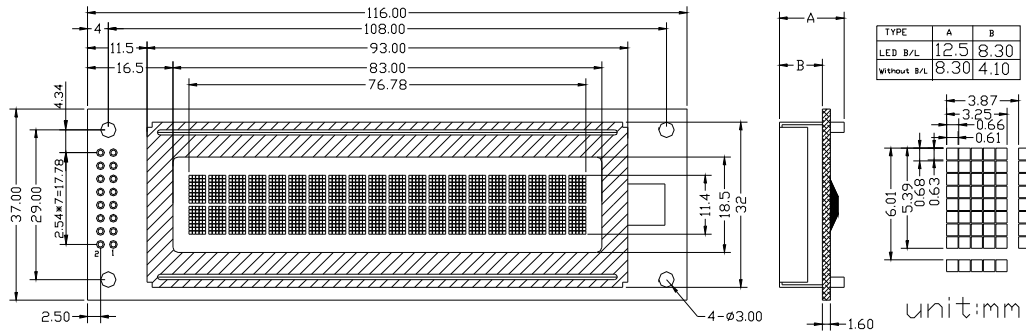




**TC2002A(L)**

**TINSHARP ELECTRONICS CO.LTD**

**EXTERNAL DIMENSIONS AND DISPLAY PATTERN**



**MECHANICAL DATA (Nominal dimensions)**

ITEM	SPECIFICATION	UNIT
Module Size( WxH )	116.0x37.0	mm
Viewing Area( WxH )	83.0x18.5	mm
Internal Area( WxH )	76.78x11.40	mm
Dot pitch( WxH )	0.66x0.68	mm
Dot Size( WxH )	0.61x0.63	mm
Character Pitch( WxH )	3.87x6.01	mm
Character Size( WxH )	3.25x5.39	mm
Number of character	20characterx2line	char

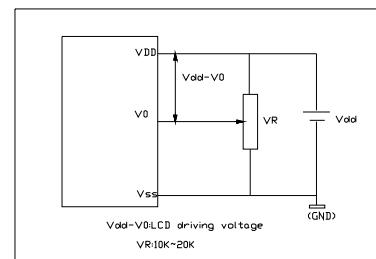
**PIN CONFIGURATION**

ITEM	SYMBOL	DESCRIPTION
1	VSS	Ground
2	VDD	Power supply for logic and LCD
3	V0	Operating voltage for LCD
4	RS	Register select
5	R/W	Read/Write Select
6	E	Read/Write Enable
7-14	DB0-DB7	Data Bus
15	K	Cathode of LED
16	A	Anode of LED

**ELECTRICAL CHARACTERISTICS**

Item	Symbol	Test 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	$V_{DD}-V_0$	-	0	-	5.0	V
Input high Voltage	$V_{IH}$	-	2.2	-	$V_{DD}$	V
Input low Voltage	$V_{IL}$	-	-0.3	-	0.6	V
Output high Voltage	$V_{OH}$	$-I_{OH}=0.2mA$	2.4	-	-	V
Output low Voltage	$V_{OL}$	$I_{OL}=1.2mA$	-	-	0.4	V
Power Supply Current	$I_{DD}$	$V_{DD}=5.0V$	-	1.8	3.0	mA
With B/L	$I_{led}$	$V_{DD}=5.0V$	-	140	-	mA
Drive method	1/16Duty		1/5Bias			

**Power supply**



**Block diagram**

