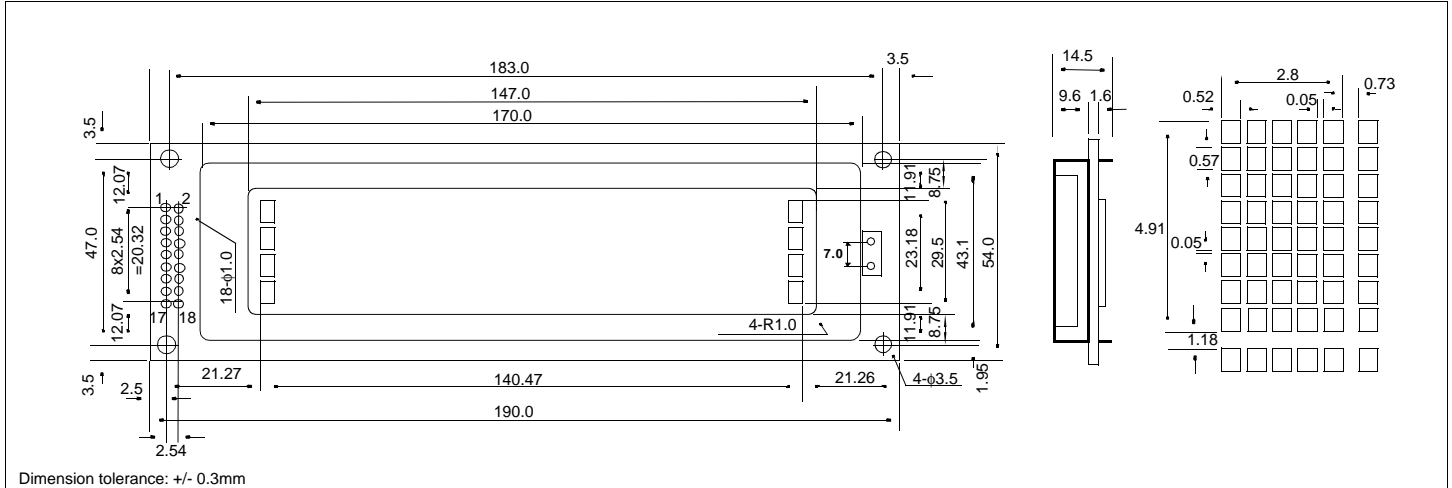


# HDM40416L-4

## Dimensional Drawing

40 Character x 4 Lines, LED Backlight



### Features

Character Format ..... 5x7 Dots with Cursor  
 Backlight.....LED  
 Options.TN/Gray STN/Yellow STN, 12 o'Clock/6 o'Clock View  
 Normal/Extended Temperature  
 Normal/Negative Displays

### Physical Data

Module Size.....190.0W x 54.0H x 14.5T mm  
 Viewing Area Size.....147.0W x 29.5H mm  
 Weight.....150g

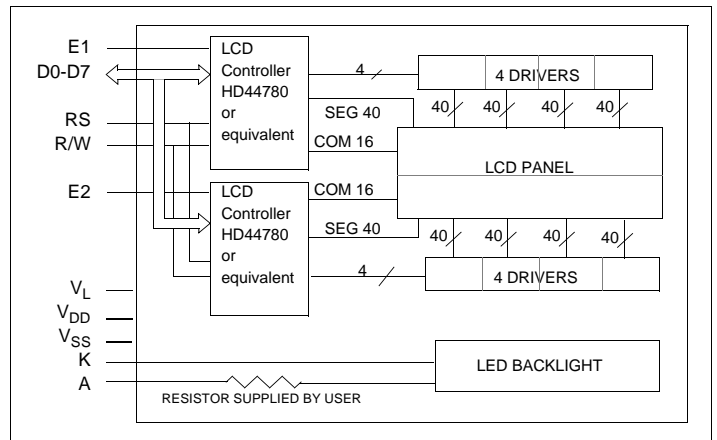
### Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	0	7.0	V
SUPPLY VOLTAGE FOR LCD	$V_{DD}-V_L$	0	13.5	V
INPUT VOLTAGE	$V_{IN}$	$V_{SS}$	$V_{DD}$	V
OPERATING TEMPERATURE	$T_{OP}$	0	50	°C
STORAGE TEMPERATURE	$T_{STG}$	-20	70	°C
LED FORWARD CURRENT	$I_F$	-	600	mA
LED REVERSE VOLTAGE	$V_R$	-	8	V
LED POWER CONSUMPTION	$P_D$	-	2700	mW

### Electrical Characteristics (VDD=5.0±0.25V 25°C)

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
INPUT HIGH VOLTAGE	$V_{IH}$	-	2.2	-	-	V
INPUT LOW VOLTAGE	$V_{IL}$	-	-	-	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	$I_{DD}$	$V_{DD}=5.0V$	-	3.0	5.0	mA
POWER SUPPLY FOR LCD	$V_{DD}-V_L$	$T_A=25°C$	4.3	-	4.7	V
LED FORWARD VOLTAGE	$V_F$	$I_F=150mA$	-	4.1	4.5	V
BRIGHTNESS	L	$I_F=150mA$	60	80	-	NIT
DRIVE METHOD	1/16 Duty					

### Block Diagram



### Pin Connections

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	D7	H/L	Data bus
2	D6	H/L	
3	D5	H/L	
4	D4	H/L	
5	D3	H/L	
6	D2	H/L	
7	D1	H/L	
8	D0	H/L	
9	E1	H,H→L	Enable
10	RW	H/L	H: Data read L: Data write
11	RS	H/L	H: Data input L: Instruction input
12	$V_L$	-	Operating voltage for LC
13	$V_{SS}$	0V	Ground
14	$V_{DD}$	5V	Power supply for logic
15	E2	H,H→L	Enable
16	N/C	-	No-connection
17	A	-	Anode for LED backlight
18	K	-	Cathode for LED backlight