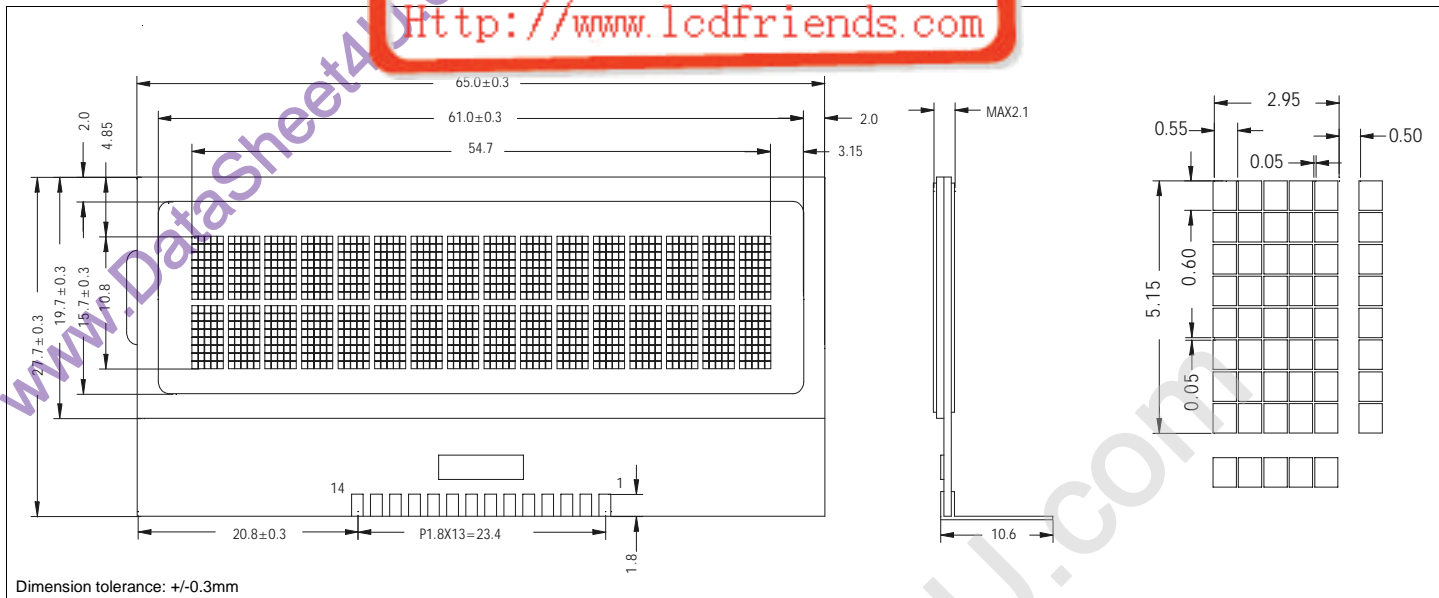


# HDG1602P-1

## Dimensional Drawing

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[Http://www.lcdfriends.com](http://www.lcdfriends.com)

16 Character x 2 Line



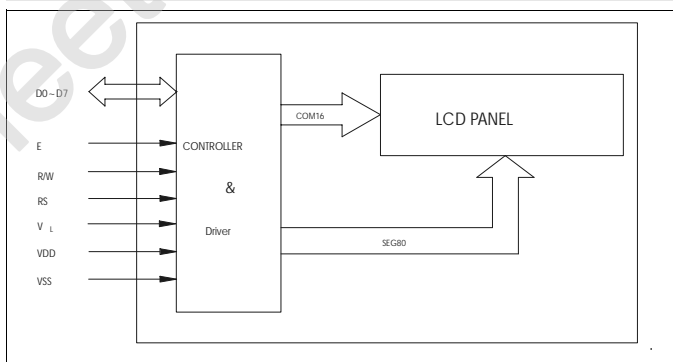
### Features

Character Format .....5x7 Dots with Cursor  
 Connection .....Pin  
 Options.....TN or STN reflective or transreflective polarizer  
 Characters.....240 in ROM, 8 user designed in RAM

### Physical Data

Module Size.....65.0W x 27.7H x 2.1T mm  
 Viewing Area Size.....61.0W x 15.7H mm  
 Character Size.....2.95W x 5.15H mm

### Block Diagram



### Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	-0.3	6.0	V
SUPPLY VOLTAGE FOR LCD	$V_{DD}-V_L$	$V_{SS}$	$V_{DD}+0.3$	V
INPUT VOLTAGE	$V_{IN}$	-0.3	$V_{DD}+0.3$	V
OPERATING TEMPERATURE	$T_{OP}$	0	50	°C
STORAGE TEMPERATURE	$T_{STG}$	-20	70	°C

### Pin Connections

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	$V_{SS}$	0V	Ground
2	$V_L$		Contrast control
3	$V_{DD}$	5V	Logic supply voltage
4	RS	H/L	H: Data input L: Instruction data input
5	R/W	H/L	H: Data read L: Data write
6	E	H,H→L	Enable signal
7	D0	H/L	Data bus
8	D1	H/L	
9	D2	H/L	
10	D3	H/L	
11	D4	H/L	
12	D5	H/L	
13	D6	H/L	
14	D7	H/L	

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

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
INPUT HIGH VOLTAGE	$V_{IH}$	-	0.8 $V_{DD}$	-	$V_{DD}$	V
INPUT LOW VOLTAGE	$V_{IL}$	-	-0.3	-	0.2 $V_{DD}$	V
OUTPUT HIGH VOLTAGE	$V_{OH}$	$I_{OH}=0.2mA$	$V_{DD}-0.6$	-	-	V
OUTPUT LOW VOLTAGE	$V_{OL}$	$I_{OL}=1.2mA$	-	-	$V_{SS}+0.6$	V
POWER SUPPLY CURRENT	$I_{DD}$	$V_{DD}=5.0V$	-	0.92	-	mA
POWER SUPPLY FOR LCD	$V_{DD}-V_L$	$T_A=25°C$	3.9	4.4	4.9	V
DRIVE METHOD			1/16 Duty			