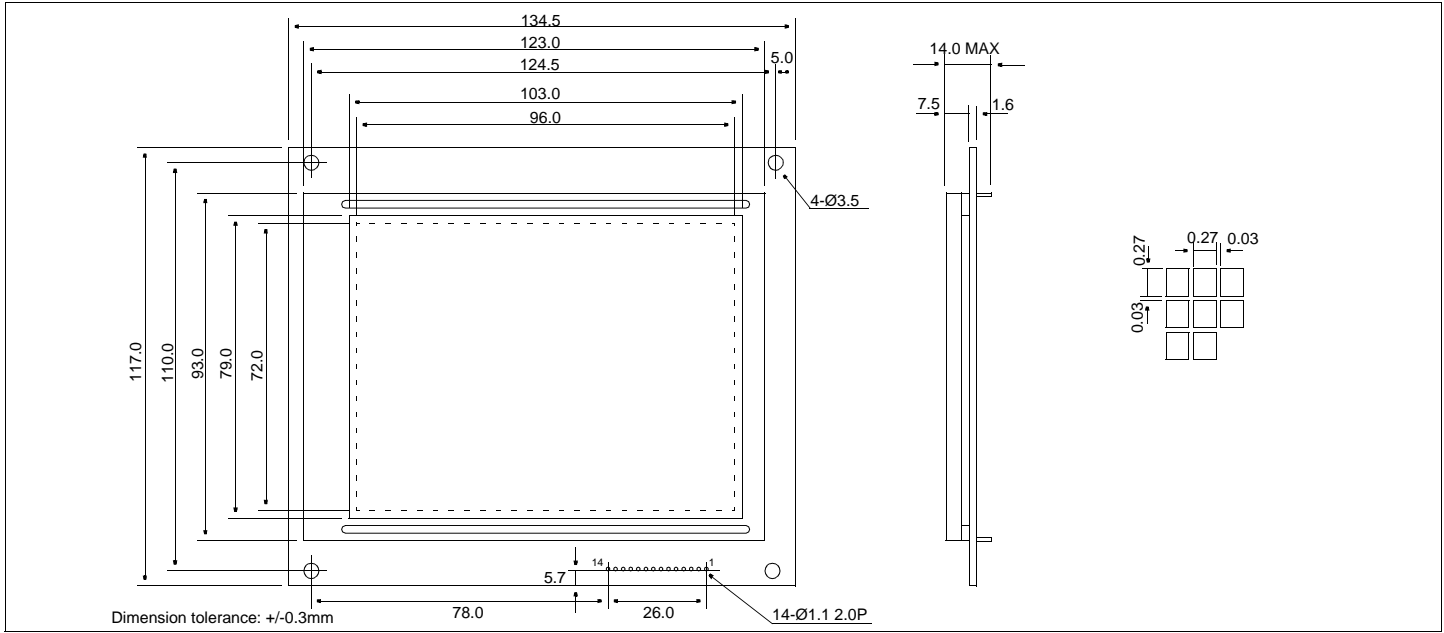


# HDM3224-5

## Dimensional Drawing

320 X 240 Dots Graphics LED Backlight



### Features

Backlight.....LED  
 Options.....Gray STN / Yellow STN / FSTN  
 Normal/Extended Temperature  
 Bottom / Top Viewing  
 Built-in Controller.....None

### Physical Data

Module Size.....134.5W x 117.0H x 14.0T mm  
 Viewing Area Size.....103.0W x 79.0H mm  
 Dot Pitch.....0.30W x 0.30H mm  
 Dot Size.....0.27W x 0.27H mm  
 Weight.....190g

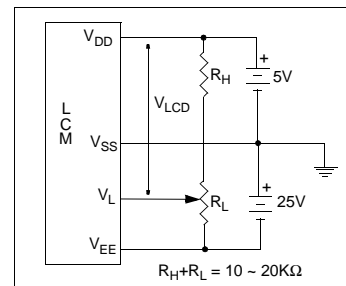
### Electrical Characteristics (V<sub>DD</sub>=5.0±0.25V 25°C)

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
INPUT HIGH VOLTAGE	V <sub>IH</sub>	-	0.7 V <sub>DD</sub>	-	-	V
INPUT LOW VOLTAGE	V <sub>IL</sub>	-	-	-	0.3 V <sub>DD</sub>	V
OUTPUT HIGH VOLTAGE	V <sub>OH</sub>	I <sub>OH</sub> =0.4mA	V <sub>DD</sub> -0.4	-	-	V
OUTPUT LOW VOLTAGE	V <sub>OL</sub>	I <sub>OL</sub> =0.4mA	-	-	0.4	V
SUPPLY VOLTAGE	V <sub>DD</sub>	-	4.5	5.0	5.5	V
	-V <sub>EE</sub>	-	-	22.7	-	V
POWER SUPPLY CURRENT	I <sub>DD</sub>	V <sub>DD</sub> =5.0V	-	9.0	18.0	mA
	-I <sub>EE</sub>	V <sub>EE</sub> = -22.7V	-	10.0	20.0	mA
POWER SUPPLY FOR LCD	V <sub>DD</sub> -V <sub>L</sub>	T <sub>A</sub> =25°C	-	22.7	-	V
LED POWER SUPPLY	V <sub>LED</sub>		21.0	24.0	27.0	V
BRIGHTNESS	L		-	-	-	NIT
LED CURRENT	I <sub>LED</sub>	V <sub>LED</sub> = 24V	-	40	50	mA
WHITE LED POWER SUPPLY	V <sub>LED</sub>		-	9.8	-	V
WHITE LED CURRENT	I <sub>LED</sub>	V <sub>LED</sub> = 9.8V	-	35.0	-	mA
BRIGHTNESS (WHITE LED)	L		-	9.4	-	NIT
FRAME FREQUENCY	f <sub>FP</sub>		65	72	80	Hz
DRIVE METHOD	1/240 DUTY					

### Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	V <sub>DD</sub> -V <sub>SS</sub>	0	7.0	V
SUPPLY VOLTAGE FOR LCD	V <sub>DD</sub> -V <sub>L</sub>	0	26.0	V
INPUT VOLTAGE	V <sub>IN</sub>	-	7.0	V
OPERATING TEMPERATURE	T <sub>OP</sub>	0	50	°C
STORAGE TEMPERATURE	T <sub>STG</sub>	-20	70	°C

### Power Supply



### Pin Connections

PIN NO.	SYMBOL		FUNCTION
1	V <sub>L</sub>	-	Operating voltage for LC
2	V <sub>EE</sub>	-	Power supply voltage for LC
3	DB3	H/L	Data bus
4	DB2	H/L	
5	DB1	H/L	
6	DB0	H/L	
7	V <sub>SS</sub>	-	Ground
8	V <sub>DD</sub>	+5v	Logic Power Supply
9	CL2	H/H→L	Data Shift
10	CL1	H/H→L	Data latch signal
11	FLM	H/L	Frame Pulse
12	K	-	Cathode, LED Back light
13	A	-	Anode, LED Back light
14	NC	-	No Connection