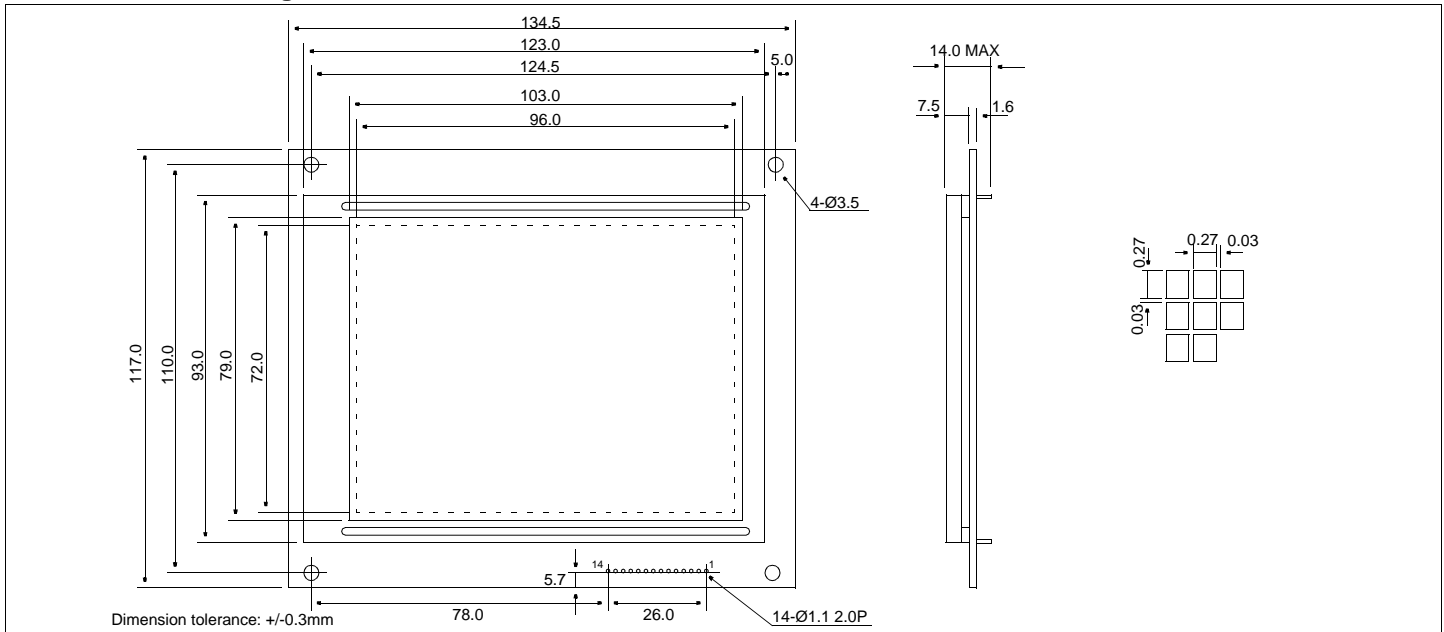


# HDM3224-5

## 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

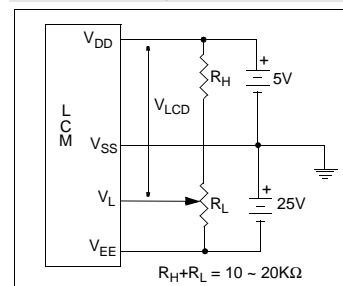
### Physical Data

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

### 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	26.0	V
INPUT VOLTAGE	$V_{IN}$	-	7.0	V
OPERATING TEMPERATURE	$T_{OP}$	0	50	°C
STORAGE TEMPERATURE	$T_{STG}$	-20	70	°C

### Power Supply



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

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

### Pin Connections

PIN NO.	SYMBOL		FUNCTION
1	$V_L$	-	Operating voltage for LC
2	$V_{EE}$	-	Power supply voltage for LC
3	DB3	H/L	Data bus
4	DB2	H/L	
5	DB1	H/L	
6	DB0	H/L	
7	$V_{SS}$	-	Ground
8	$V_{DD}$	+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

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