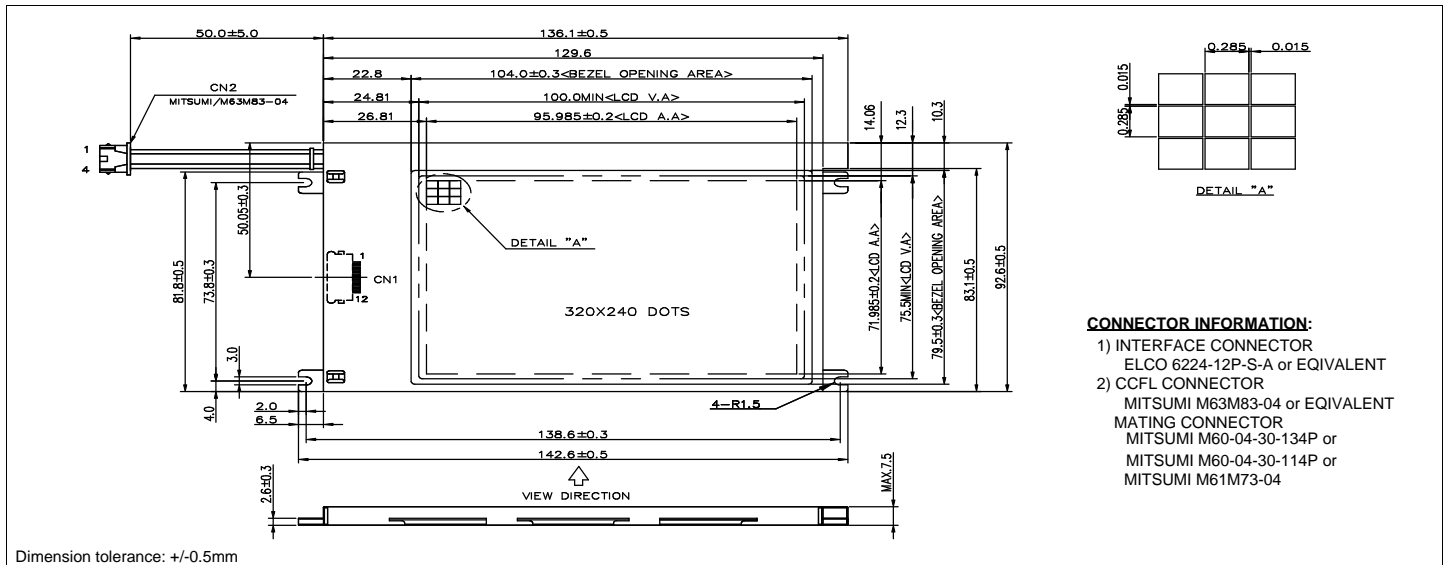


# HDM 3224-Z

## Dimensional Drawing

4.9" 320 X 240 Dots Graphic



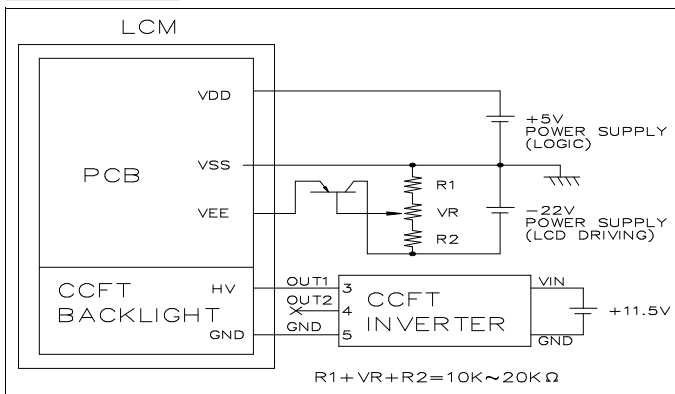
### Features

Backlight.....NONE, CCFL  
 Options.....BLUE STN/ Black and White FSTN  
 Normal/Extended Temperature  
 Bottom / Top Viewing  
 Built-in Controller.....None

### Physical Data

Module Size.....142.6W x 92.6H x Max 7.5T mm  
 Viewing Area Size.....100.0W x 75.5H mm  
 Dot Pitch.....0.30W x 0.30H mm  
 Dot Size.....0.285W x 0.285H mm  
 Weight.....120g

### Power Supply



### Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	0	6.5	V
SUPPLY VOLTAGE FOR LCD	$V_{DD}-V_{EE}$	0	27.0	V
INPUT VOLTAGE	$V_{IN}$	-	7.0	V
OPERATING TEMPERATURE	$T_{OP}$	0	50	°C
STORAGE TEMPERATURE	$T_{STG}$	-20	70	°C

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

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
LOGIC SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	-	4.75	5.0	5.25	V
		-	2.7	3.0	3.3	V
LC DRIVING VOLTAGE	$V_{DD}-V_{EE}$	-	22.2	22.6	23.0	V
POWER SUPPLY CURRENT	$I_{DD}$	-	-	6.4	9	mA
		-	-	6.0	9	mA
CCFL START VOLTAGE	$V_S$	-	-	420	1000	$V_{rms}$
CCFL VOLTAGE	$V_L$	-	-	280	-	$V_{rms}$
CCFL CURRENT	$I_L$	-	4	5	6	$A_{rms}$
CCFL POWER	$P_L$	-	-	1.4	-	W
CCFL FREQUENCY	$F_L$	-	-	35	-	KHz
DRIVE METHOD	1/240 DUTY					

### Pin Connections

PIN NO.	SYMBOL	LEVEL	FUNCTION
<b>DATA CONNECTOR</b>			
1	FRAME	H	First Line Marker
2	LOAD	H/L	Data Latch
3	CP	H/L	Data shift
4	$V_{DD}$	5V	Power supply for logic
5	$V_{SS}$	0V	Ground
6	$V_{EE}$		Power supply for LC
7	D0	H/L	Display Data
8	D1		
9	D2		
10	D3		
11	DISPOFF	H/L	H=On, L=Off
12	NC	-	No Connection
<b>CCFL CONNECTOR</b>			
1	GND	-	CCFL Ground
2	NC	-	No Connection
3	NC	-	No Connection
4	HV	-	Power supply for CCFL