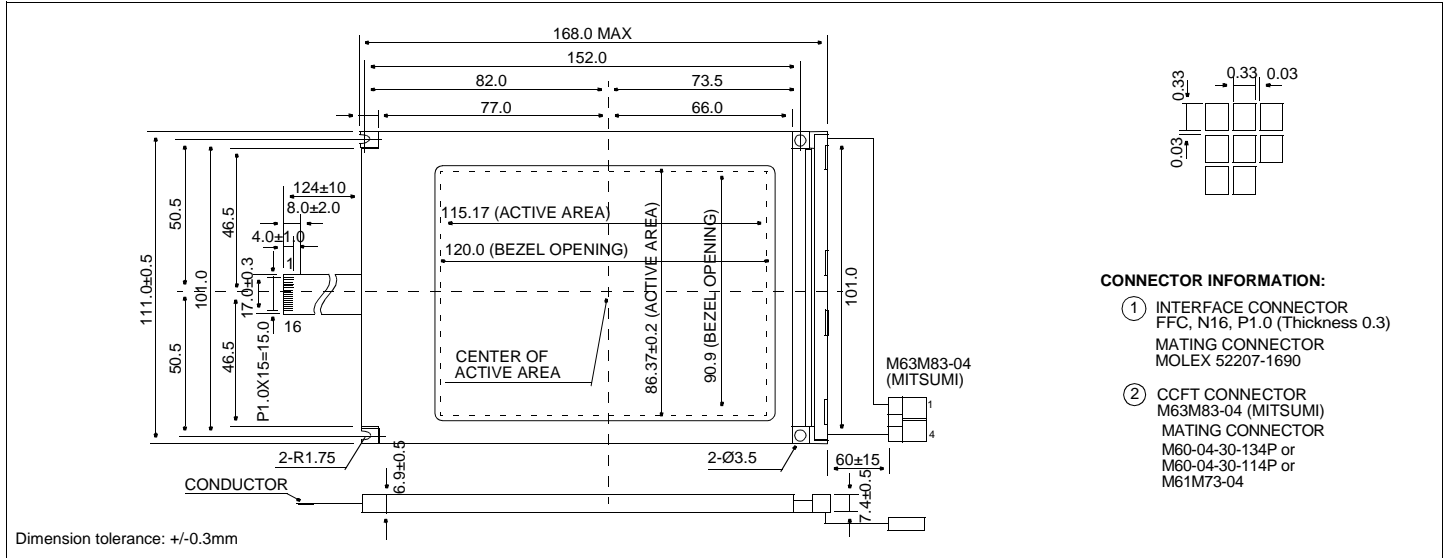


# HDM3224-2

320 X 240 Dots Graphic CCFL Backlight

## Dimensional Drawing



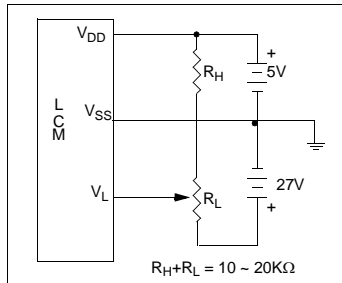
## Features

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

## Physical Data

Module Size.....168.0W x 111.0H x 7.4T mm  
Viewing Area Size.....120.0W x 90.0H mm  
Dot Pitch.....0.36W x 0.36H mm  
Dot Size.....0.33W x 0.33H mm  
Weight.....180g

## Power Supply



## Electrical Characteristics ( $V_{DD}=5.0\pm 0.25V$ , $T_a=25^\circ C$ )

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}$	-	4.5	5.0	5.5	V
	$V_{LCD}$	-	22.8	23.2	23.6	V
SUPPLY CURRENT	$I_{DD}$	FLM=70 Hz		0.5		mA
	$I_{LCD}$	$V_{LCD}=23.2V$		6.0		mA
CCFL OP. VOLTAGE	$V_{FL}$	-	-	260	1000	Vrms
CCFL OP. CURRENT	$I_{FL}$	2	2	5	6	mA
CCFL OP. FREQUENCY	$F_L$		20	35	50	kHz
DRIVE METHOD	1/240 DUTY					

## Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	-0.3	7.0	V
SUPPLY VOLTAGE FOR LCD	$V_{EE}-V_{SS}$	0	30.0	V
INPUT VOLTAGE	$V_{IN}$	-0.3	$V_{DD}$	V
OPERATING TEMPERATURE	$T_{OP}$	0	50	$^\circ C$
STORAGE TEMPERATURE	$T_{STG}$	-20	70	$^\circ C$

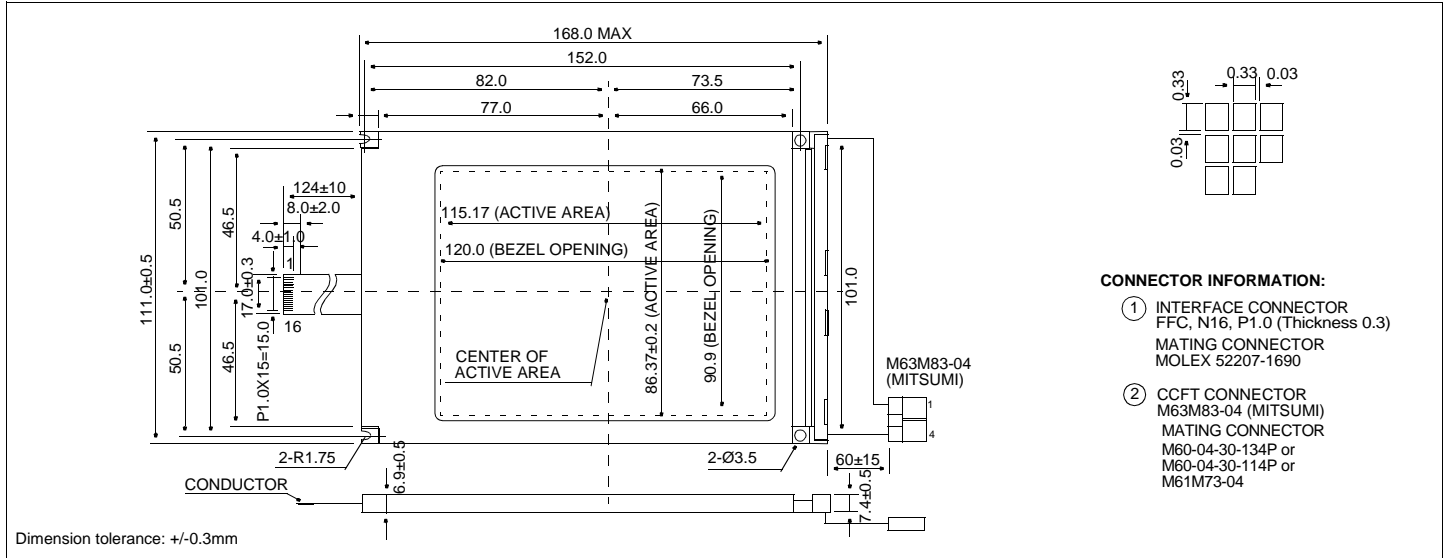
## Pin Connections

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	DISPOFF	H/L	H=On, L= Off
5	$V_{DD}$	5V	Power supply for logic
6	$V_{SS}$	0V	Ground
7	$V_L$	-	Operating voltage for LC
8	D0	H/L	Data Bus
9	D1		
10	D2		
11	D3		
12	D4	-	No Connection
13	D5		
14	D6		
15	D7		
16	$V_{SS}$	0V	Ground
<b>CCFL CONNECTOR</b>			
1	$V_{CFL}$	-	Power supply for CCFL
2	NC	-	No Connection
3	NC	-	No Connection
4	$V_{CFL}$	-	CCFL Ground

# HDM3224-2

320 X 240 Dots Graphic CCFL Backlight

## Dimensional Drawing



### CONNECTOR INFORMATION:

- ① INTERFACE CONNECTOR  
FFC, N16, P1.0 (Thickness 0.3)  
MATING CONNECTOR  
MOLEX 52207-1690
- ② CCFL CONNECTOR  
M63M83-04 (MITSUMI)  
MATING CONNECTOR  
M60-04-30-134P or  
M60-04-30-114P or  
M61M73-04

## Features

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Options.....STN/Black and White FSTN  
Normal/Extended Temperature  
Bottom / Top Viewing  
Built-in Controller.....None

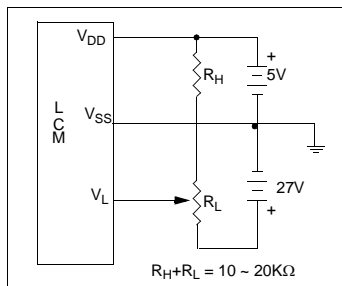
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SUPPLY VOLTAGE FOR LCD	$V_{EE}-V_{SS}$	0	30.0	V
INPUT VOLTAGE	$V_{IN}$	-0.3	$V_{DD}$	V
OPERATING TEMPERATURE	$T_{OP}$	0	50	°C
STORAGE TEMPERATURE	$T_{STG}$	-20	70	°C

## Power Supply



## Electrical Characteristics ( $V_{DD}=5.0\pm 0.25V$ , $T_a=25^\circ C$ )

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7	$V_L$	-	Operating voltage for LC
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10	D2		
11	D3		
12	D4	-	No Connection
13	D5		
14	D6		
15	D7		
16	$V_{SS}$	0V	Ground
<b>CCFL CONNECTOR</b>			
1	$V_{CFL}$	-	Power supply for CCFL
2	NC	-	No Connection
3	NC	-	No Connection
4	$V_{CFL}$	-	CCFL Ground