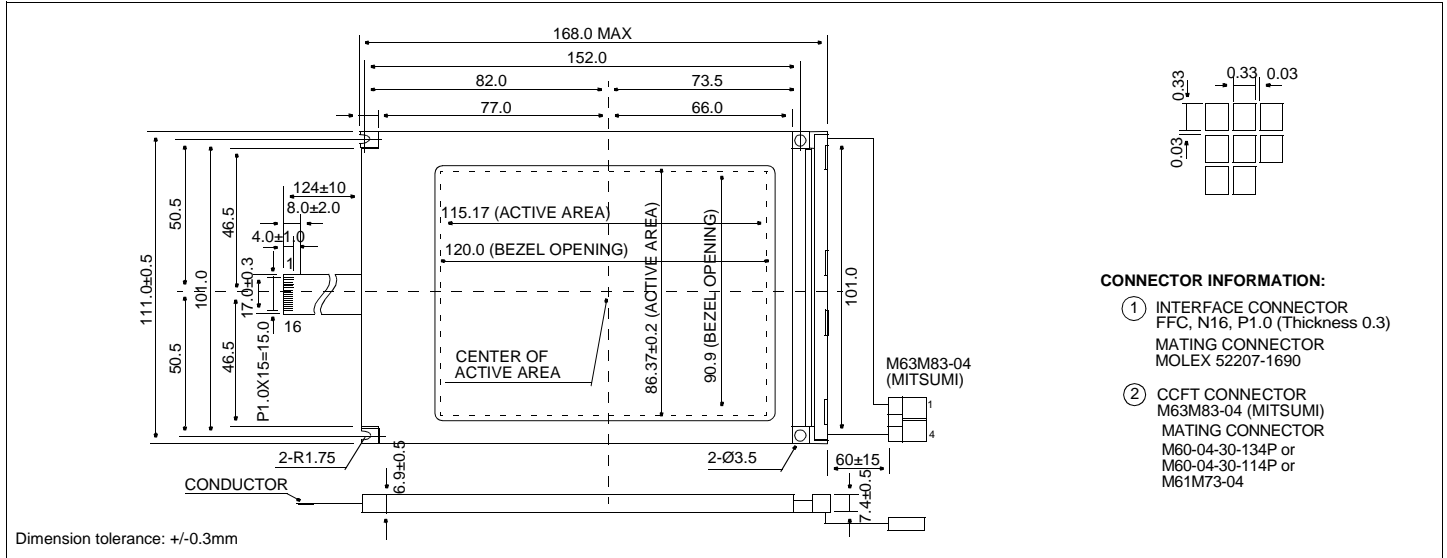


HDM3224-2

320 X 240 Dots Graphic CCFL Backlight

Dimensional Drawing



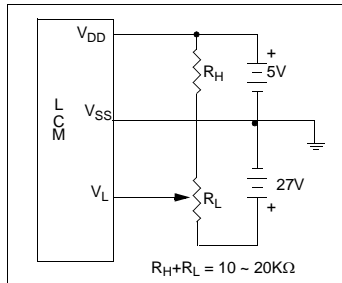
Features

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	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	$^\circ C$

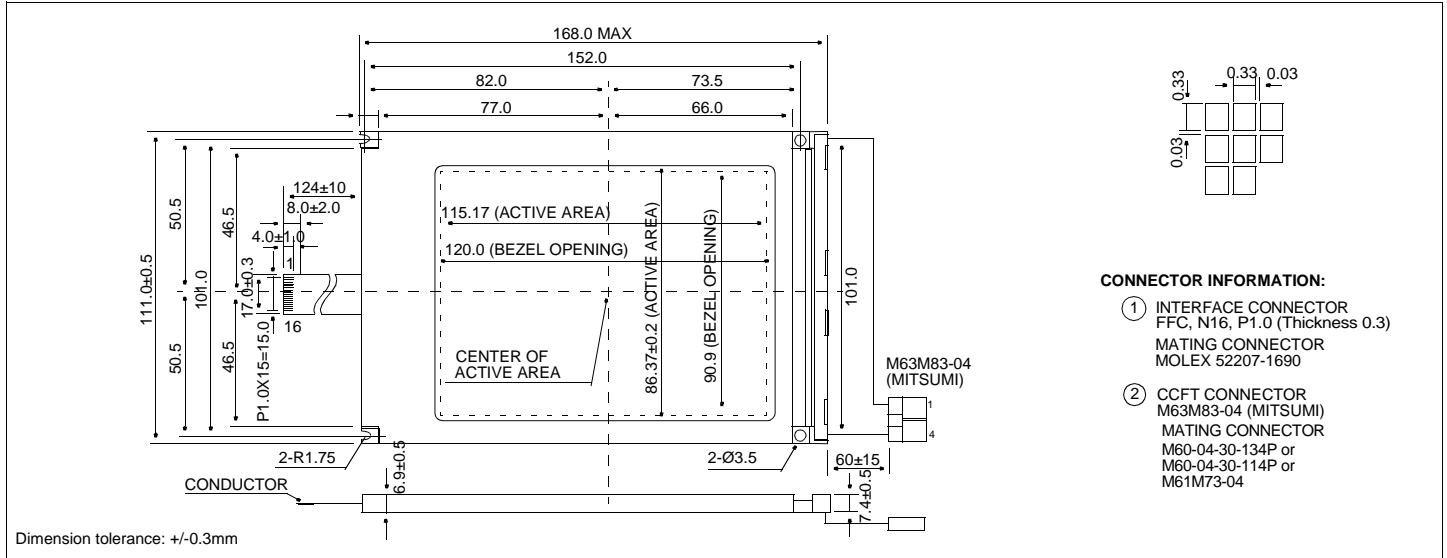
Pin Connections

PIN NO.	SYMBOL	LEVEL	FUNCTION
DATA CONNECTOR			
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
CCFL CONNECTOR			
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

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

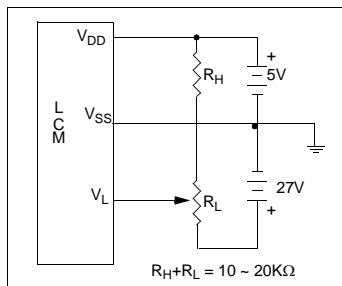
Physical Data

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

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	°C
STORAGE TEMPERATURE	T_{STG}	-20	70	°C

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 $V_{LCD}=23.2V$		0.5		mA
	I_{LCD}			6.0		mA
CCFL OP. VOLTAGE	V_{FL}		-	260	1000	Vrms
CCFL OP. CURRENT	I_{FL}		2	5	6	mA
CCFL OP. FREQUENCY	F_L		20	35	50	kHz
DRIVE METHOD	1/240 DUTY					

Pin Connections

PIN NO.	SYMBOL	LEVEL	FUNCTION
DATA CONNECTOR			
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
CCFL CONNECTOR			
1	V_{CFL}	-	Power supply for CCFL
2	NC	-	No Connection
3	NC	-	No Connection
4	V_{CFL}	-	CCFL Ground