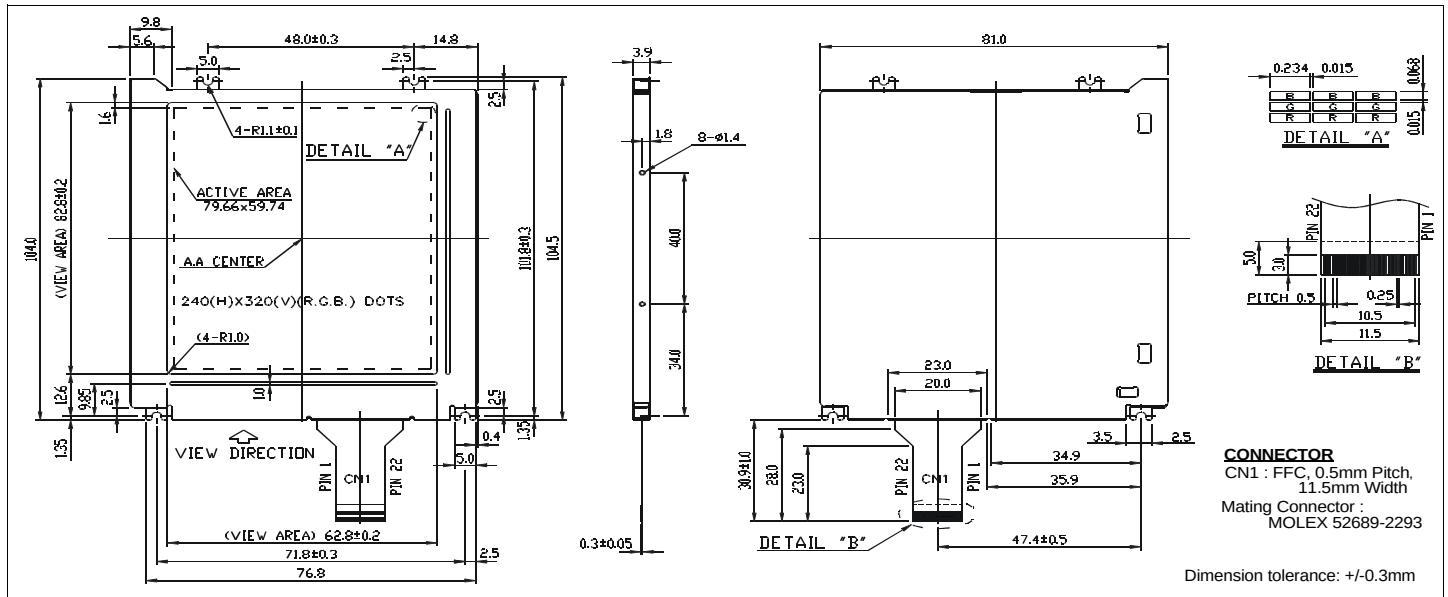


HDM 3224C-F

Dimensional Drawing

3.9" 320 x 240 Dots Color Graphics, Small Size without Backlight



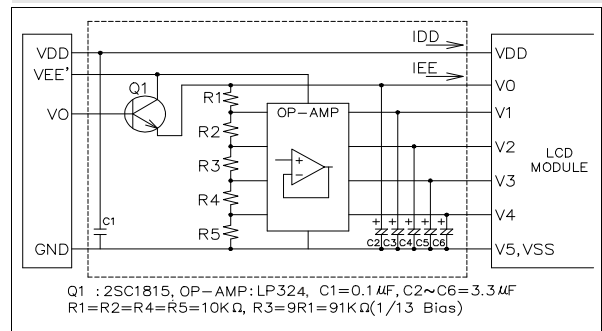
Features

Backlight.....None
Options.....Color RGB
Normal Temperature
Bottom Viewing
Built-in Controller.....None

Physical Data

Module Size.....76.8W x 104.0H x 3.9T mm
Viewing Area Size.....62.8W x 82.8H mm
Dot Pitch.....0.249W x 0.083H mm
Dot Size.....0.234W x 0.068Hmm

Power Supply



Absolute Maximum Ratings

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

Electrical Characteristics

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
LOGIC POWER SUPPLY VOLTAGE	V _{DD}	Ta = 25°C	3.0	3.3	3.6	V
			4.5	5.0	5.5	
INPUT VOLTAGE	V _{1H}	H Level	0.8V _{DD}		V _{DD}	V
	V _{1L}	L Level	0		0.2V _{DD}	V
LCD DRIVING VOLTAGE	V _{EE}	Ta = 25°C	22.6	23.0	23.4	V
POWER SUPPLY CURRENT	I _{DD}	V _{DD} = 3.3V	-	0.5	1.0	mA
	I _{EE}	V _{EE} = 23.0V	-	3.0	5.0	
	I _{DD}	V _{DD} = 3.3V	-	1.0	2.0	mA
	I _{EE}	V _{EE} = 23.0V	-	3.0	5.0	
DRIVE METHOD	1/240 DUTY					

Pin Connections

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	FRAME	H	First Line Marker
2	LOAD	H/L	Data Latch
3	CP	H/L	Data shift
4	DISP	H/L	Display Control Signal
5	V_{DD}	3.3/5 V	Power supply for logic
6	V_{DD}	3.3/5 V	Power supply for logic
7	V_{SS}	0V	Ground
8	DF	-	AC signal for LC
9	V0		Bias Voltage Circuit for Driving LCD
10	V1		Bias Voltage Circuit for Driving LCD
11	V2		Bias Voltage Circuit for Driving LCD
12	V3		Bias Voltage Circuit for Driving LCD
13	V4		Bias Voltage Circuit for Driving LCD
14	V5		Bias Voltage Circuit for Driving LCD
15	D7	H/L	Data Bus
16	D6	H/L	Data Bus
17	D5	H/L	Data Bus
18	D4	H/L	Data Bus
19	D3	H/L	Data Bus
20	D2	H/L	Data Bus
21	D1	H/L	Data Bus
22	D0	H/L	Data Bus