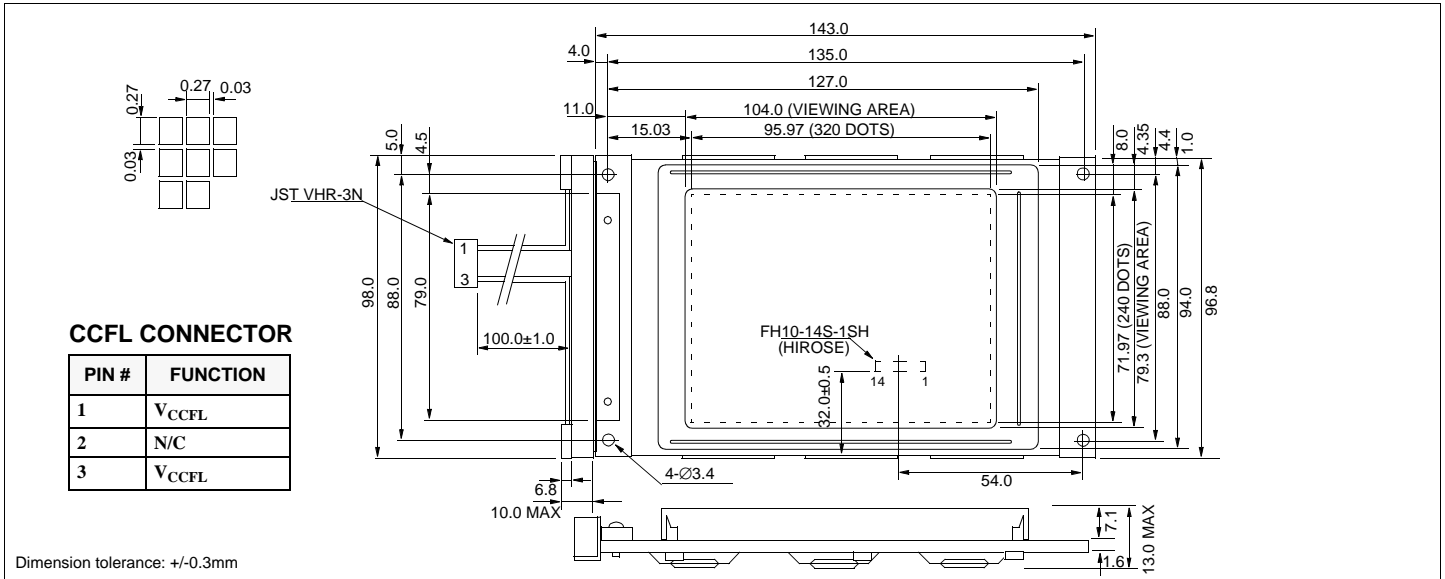


HDM 3224

Dimensional Drawing

320 X 240 Dots Graphic CCFL Backlight



CCFL CONNECTOR

PIN #	FUNCTION
1	V _{CCFL}
2	N/C
3	V _{CCFL}

Dimension tolerance: +/-0.3mm

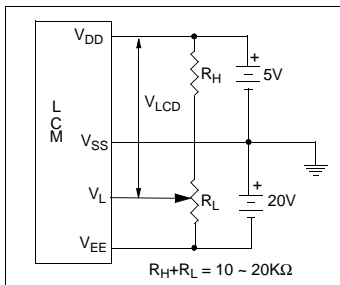
Features

Backlight.....CCFL
Options.....STN/Black and White FSTN
Built-in Controller.....None

Physical Data

Module Size.....143.0W x 96.8H x 13.0T mm
Viewing Area Size.....104.0W x 79.3H mm
Dot Pitch.....0.30W x 0.30H mm
Dot Size.....0.27W x 0.27H mm
Weight.....220g

Power Supply



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 _{EE}	0	28.5	V
INPUT VOLTAGE	V _{IN}	-	7.0	V
OPERATING TEMPERATURE	T _{OP}	0	50	°C
STORAGE TEMPERATURE	T _{STG}	-20	70	°C
CCFL OPERATING VOLTAGE	V _{FL}	-	1500	Vrms
CCFL OPERATING CURRENT	I _{FL}	-	10	mA
CCFL OPERATING FREQUENCY	f _{FL}	20	80	kHz

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}	-	19.5	18.5	17.5	V
POWER SUPPLY CURRENT	I _{DD}	V _{DD} =5.0V	-	8.0	16	mA
	-I _{EE}	V _{EE} = -18.5V	-	7.0	14.0	mA
POWER SUPPLY FOR LCD	V _{DD} -V _L	T _A =25°C	-	23.5	-	V
CCFL OPERATING VOLTAGE	V _{FL}	I _{FL} =5mA _{rms}	-	300	-	Vrms
CCFL OPERATING CURRENT	I _{FL}	V _{FL} =300V _{rms}	-	5.0	-	mA _{rms}
CCFL OPERATING FREQ.	f _{FL}	-	25	45	-	kHz
FRAME FREQUENCY	f _{FP}	-	65	72	80	Hz
BRIGHTNESS	L	I _{FL} =5mA _{rms}	40	55	-	cd/m ²
DRIVE METHOD	1/240 DUTY					

Pin Connections

PIN NO.	SYMBOL	FUNCTION	
1	FLM	H/L	Frame signal
2	N/C	-	No connection
3	LP	H/H→L	Data latch signal
4	XSCL	H/H→L	Serial shift clock
5	DISPOFF	L	Display off
6	DB0	H/L	Data bus
7	DB1	H/L	
8	DB2	H/L	
9	DB3	H/L	
10	V _{DD}	5V	Power supply for logic
11	V _{SS}	0V	Ground
12	V _{EE}	-	Power supply voltage for LC
13	V _L	-	Operating voltage for LC
14	FG	-	Frame ground