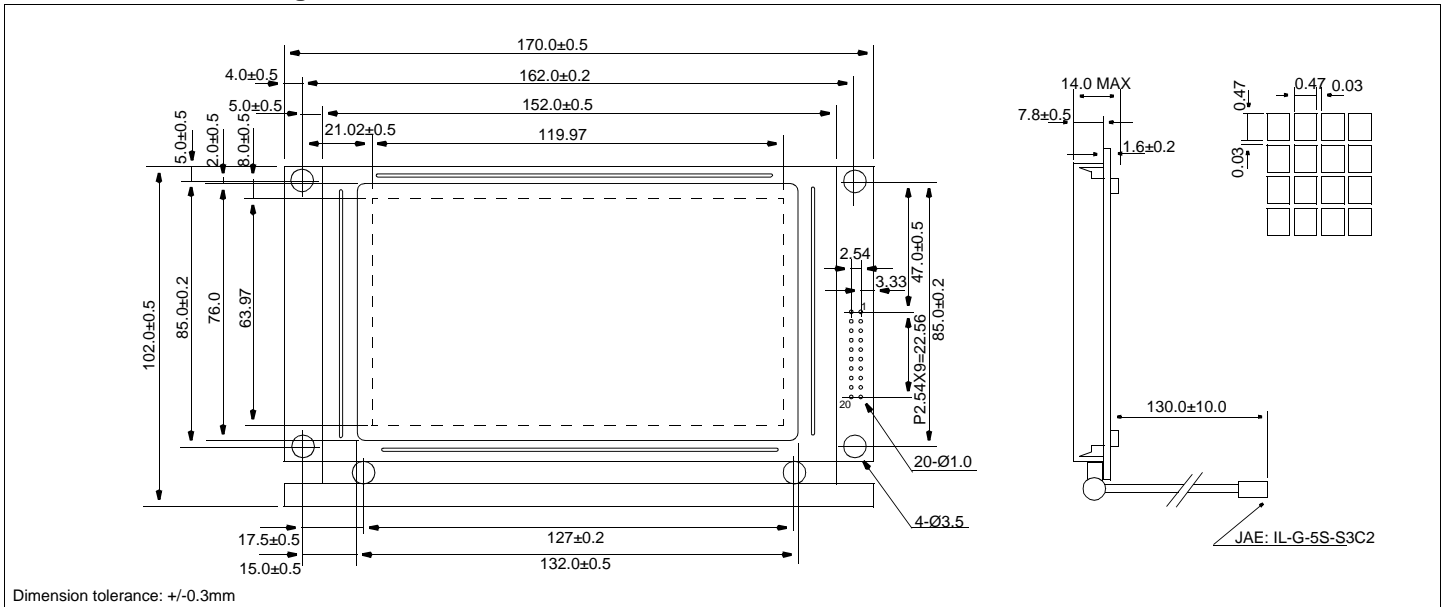


# HDM128GS24Y-1

## Dimensional Drawing

240 X 128 Dots Graphic, CCFL Backlight



### Features

- Backlight.....CCFL
- Options.....Black and White FSTN
- Normal/Extended Temperature
- Bottom / Top Viewing
- Built-in Controller.....Toshiba T6963C

### Physical Data

- Module Size.....170.0W x 102.0H x 14.0T mm
- Viewing Area Size.....128.0W x 74.0H mm
- Dot Pitch.....0.50W x 0.50H mm
- Dot Size.....0.47W x 0.47H mm
- Weight.....227g

### Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	0	7.0	V
POWER SUPPLY FOR LCD	$V_L$	-29.0	7.0	V
INPUT VOLTAGE	$V_{IN}$	0	7.0	V
CCFL VOLTAGE	$V_{FL}$	0	1500	Vrms
CCFL INPUT CURRENT	$I_{FL}$	-	10.0	mArms
OPERATING TEMPERATURE	$T_{OP}$	0	50	°C
STORAGE TEMPERATURE	$T_{STG}$	-20	60	°C

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

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
OPERATING VOLTAGE	$V_{DD}$	-	4.5	5.0	5.5	V
POWER SUPPLY FOR LCD	$V_{DD}-V_L$	-	17.1	17.8	18.6	V
INPUT HIGH VOLTAGE	$V_{IH}$	-	$V_{DD}$	-	$V_{DD}$	V
INPUT LOW VOLTAGE	$V_{IL}$	-	0	-	0.8	V
OUTPUT HIGH VOLTAGE	$V_{OH}$	$I_{OH}=0.2mA$	$V_{DD}$	-	$V_{DD}$	V
OUTPUT LOW VOLTAGE	$V_{OL}$	$I_{OL}=1.2mA$	0	-	0.4	V
CCFL STARTING VOLT.	$V_{FLS}$	0°C	900	-	-	Vrms
CCFL FREQUENCY	$f_{FL}$	-	15	30	50	kHz
POWER SUPPLY CURRENT	$I_{DD}$	$V_{DD}=5.0V$	-	-	18.0	mA
DRIVE METHOD	1/128 Duty					

### Pin Connections

PIN NO.	SYMBOL	FUNCTION	
<b>DATA CONNECTOR</b>			
1	FG	Frame ground	
2	$V_{SS}$	0V	Ground
3	$V_{DD}$	5V	Power supply for logic
4	$V_L$	-12.8V	Operating voltage for LC
5	WR	L	Data write
6	RD	L	Data read
7	CE	L	Chip enable
8	CD	H/L	H=Command, L=Data
9	N/C	No connection	
10	RESET	L	Reset
11	DB0	H/L	Data bus
12	DB1	H/L	
13	DB2	H/L	
14	DB3	H/L	
15	DB4	H/L	
16	DB5	H/L	
17	DB6	H/L	
18	DB7	H/L	
19	FS	H/L	Column select
20	RV	Display reverse	
<b>CCFL CONNECTOR (IF USED)</b>			
1	CCFL HOT	-	Power supply for the CCFL
2	N/C	No connection	
3	N/C	No connection	
4	N/C	No connection	
5	CCFL GND	-	Power supply for the CCFL