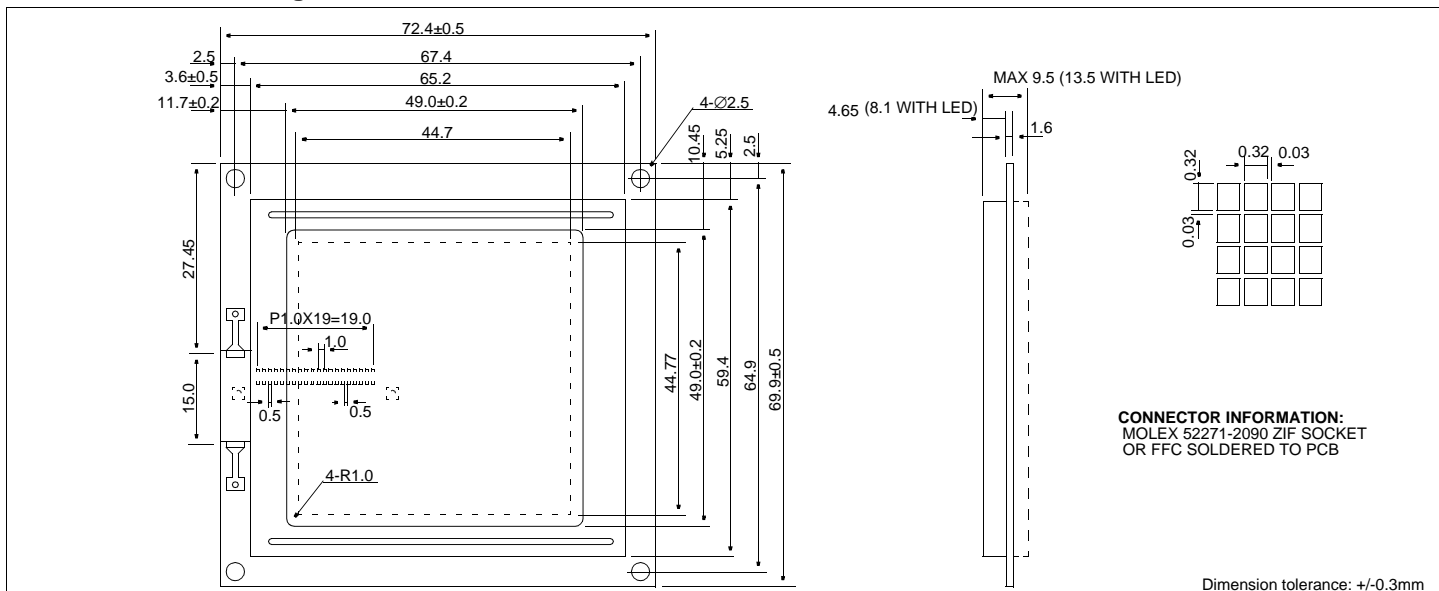


# HDM128GS12\_-1

## Dimensional Drawing

128 X 128 Dots Graphic, Small Size



### Features

- Backlight.....EL or LED Optional
- Options.....Gray STN / Yellow STN
- Normal/Extended Temperature
- Bottom / Top Viewing
- Built-in Controller.....Toshiba T6963C

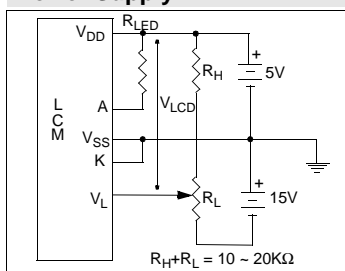
### Physical Data

- Module Size.....(None or EL) 72.4W x 69.9H x 9.5T mm
- (LED) 72.4W x 69.9H x 13.5T mm
- Viewing Area Size.....49.0W x 49.0H mm
- Dot Pitch.....0.35W x 0.35H mm
- Dot Size.....0.32W x 0.32H mm
- Weight......55g

### Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	0	7.0	V
POWER SUPPLY FOR LCD	$V_L$		-21.0	V
INPUT VOLTAGE	$V_{IN}$	0	7.0	V
OPERATING TEMPERATURE	$T_{OP}$	0	50	°C
STORAGE TEMPERATURE	$T_{STG}$	-20	70	°C

### Power Supply



### 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	$V_{DD}-V_L$	-	16.7	17.7	18.6	V
INPUT HIGH VOLTAGE	$V_{IH}$	-	$V_{DD}-2.2$	-	$V_{DD}$	V
INPUT LOW VOLTAGE	$V_{IL}$	-	0	-	0.8	V
OUTPUT HIGH VOLTAGE	$V_{OH}$	$I_{OH}=0.2mA$	$V_{DD}-0.4$	-	$V_{DD}$	V
OUTPUT LOW VOLTAGE	$V_{OL}$	$I_{OL}=1.2mA$	0	-	0.4	V
POWER SUPPLY CURRENT	$I_{DD}$	$V_{DD}=5.0V$	-	-	4.0	mA
LED CURRENT	$I_{LED}$	$V_{LED}=4.2V$	160	250	320	mA
DRIVE METHOD	1/128 Duty					

### Pin Connections

PIN NO.	SYMBOL	FUNCTION	
1	$V_{SS}$	0V	Ground
2	$V_{DD}$	5V	Power supply for logic
3	$V_L$	-	Operating voltage for LC
4	WR	L	Data write
5	RD	L	Data read
6	CE	L	Chip enable
7	CD	H/L	H=Command, L=Data
8	RESET	L	Reset
9	DB0	H/L	Data bus
10	DB1	H/L	
11	DB2	H/L	
12	DB3	H/L	
13	DB4	H/L	
14	DB5	H/L	
15	DB6	H/L	
16	DB7	H/L	
17	FS	H/L	Font select
18	N/C	-	No connection
19	K	-	LED Backlight
20	A	-	LED Backlight