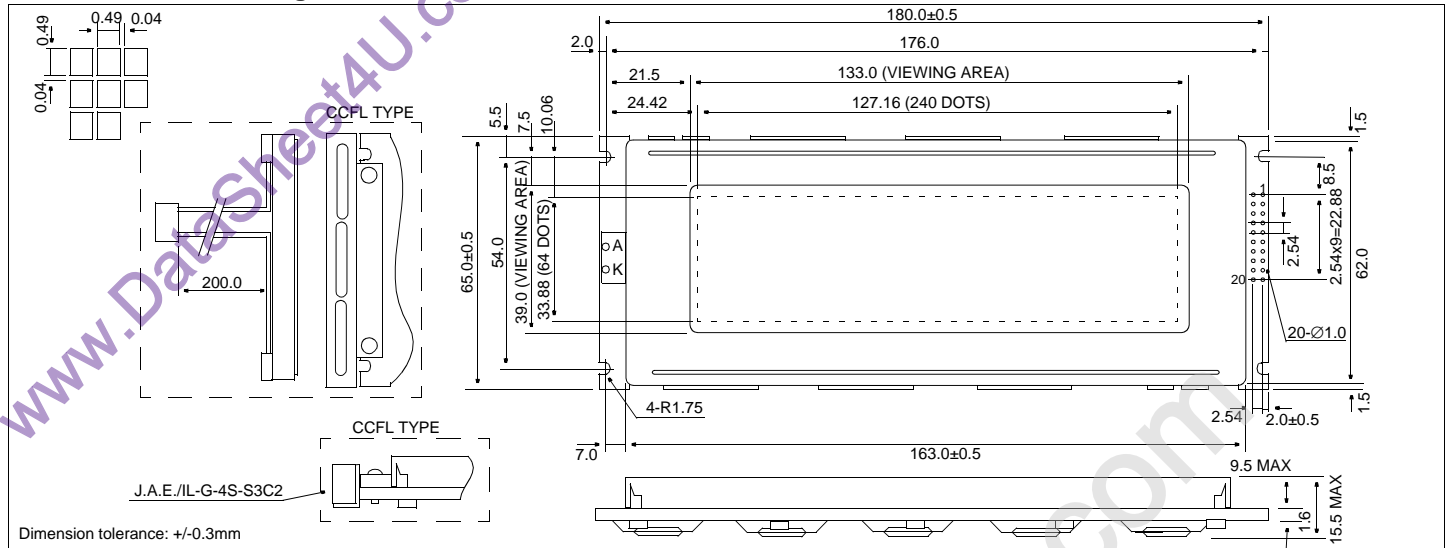


# HDM64GS24\_-4

## Dimensional Drawing

240 X 64 Dots Graphic



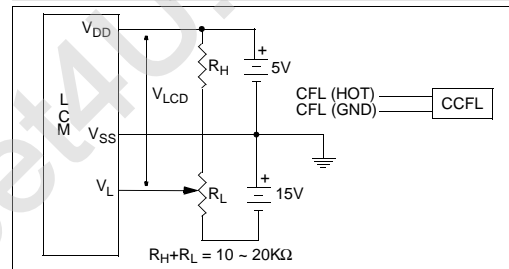
### Features

Backlight.....EL, (White) LED or CCFL Optional  
 Options.....FSTN (w/CCFL) / Gray STN / Yellow STN  
 Normal/Extended Temperature  
 Bottom / Top Viewing  
 Built-in Controller.....Toshiba T6963C

### Physical Data

Module Size.....(LED) 180.0W x 65.0H x 15.5T mm  
 (CCFL Backlight) 180.0W x 65.0H x 13.8T mm  
 (EL or Reflective) 180.0W x 65.0H x 9.5T mm  
 Viewing Area Size.....133.0W x 39.0H mm  
 Dot Pitch.....0.53W x 0.53H mm  
 Dot Size.....0.49W x 0.49H mm

### Power Supply



### Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	0	7.0	V
POWER SUPPLY FOR LCD	$V_O$	-	-30.0	V
INPUT VOLTAGE	$V_{IN}$	0	7.0	V
OPERATING TEMPERATURE	$T_{OP}$	0	50	°C
STORAGE TEMPERATURE	$T_{STG}$	-20	70	°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	$V_{DD}-V_L$	-	12.6	13.0	13.4	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	$I_{DD}$	$V_{DD}=5.0V$	-	13.0	-	mA
CCFL OPERATING VOLT.	$V_{FL}$	$I_{FL}=5mA$ rms	180	330	580	V rms
CCFL OPERATING CURR.	$I_{FL}$	$V_{FL}=330V$ rms	3.0	5.0	7.0	mArms
CCFL FREQUENCY	$f_{FL}$	-	20	35	-	kHz
LED OPERATING CURRENT (WHITE LED)	$I_{LED}$	-	-	220	-	mA
DRIVE METHOD	1/64 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	$V_L$	-8.6V	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	Font select
20	N/C	No connection	
<b>CCFL CONNECTOR (IF USED)</b>			
1	CFL HOT	-	Power supply for the CCFL
2	N/C	No connection	
3	N/C	No connection	
4	CFL GND	-	Power supply for the CCFL