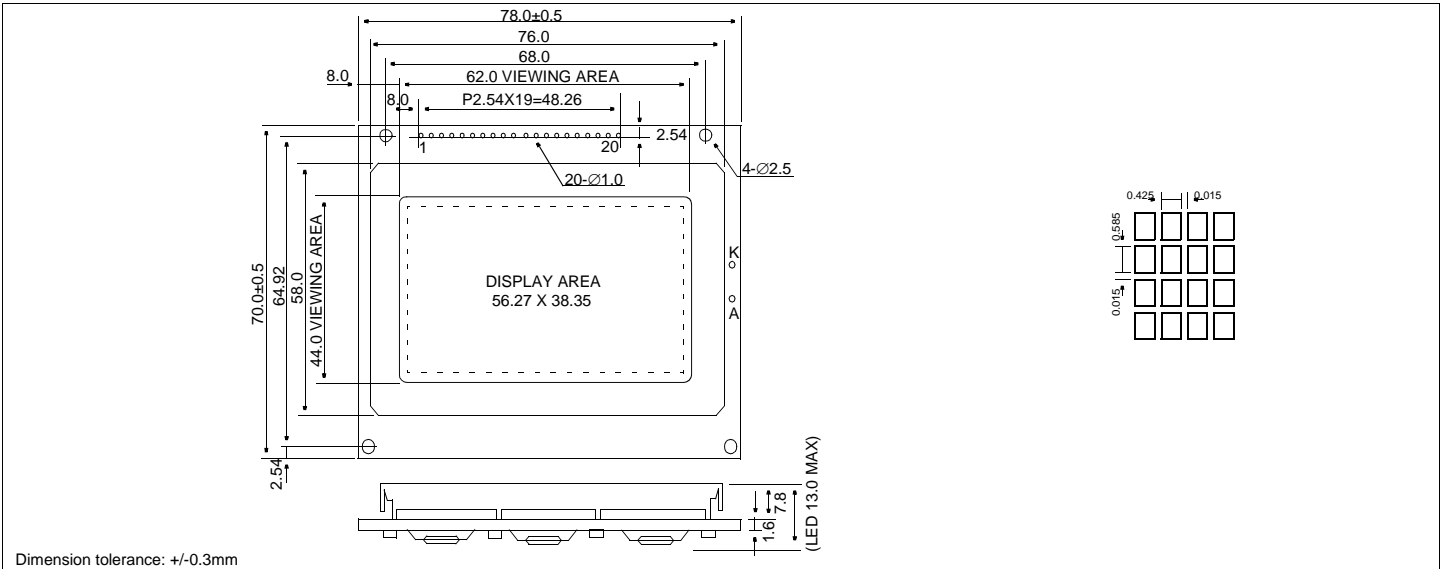


HDM64GS12_-1

Dimensional Drawing

128 X 64 Dots Graphic, Small Size



Features

- Backlight.....LED, EL or None Optional
- Options.....FSTN, Yellow STN or Gray STN
- Normal/ Extended Temperature
- Bottom/ Top Viewing
- Built-in Controller.....Toshiba T6963C
- Built-in DC to DC converter, Temperature Compensation

Physical Data

- Module Size (LED Backlight).....78.0W x 70.0H x 13.0T mm
- (None or EL Backlight).....78.0W x 70.0H x 9.5T mm
- Viewing Area Size.....62.0W x 44.0H mm
- Dot Pitch.....0.44W x 0.60H mm
- Dot Size.....0.425W x 0.585H mm
- Weight.....67g (LED), 58g (EL), 55g (None)

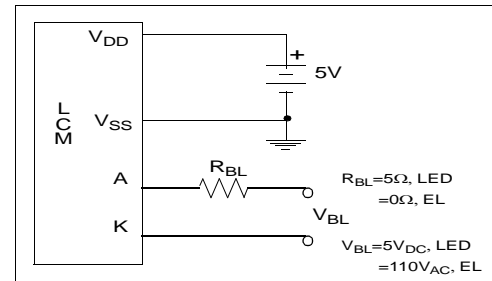
Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	$V_{DD}-V_{SS}$	0	7.0	V
INPUT VOLTAGE	V_{IN}	-	V_{DD}	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
POWER SUPPLY FOR LCD	$V_{DD}-V_L$	$T_A=25^{\circ}C$	8.5	8.8	9.1	V
POWER SUPPLY CURRENT	I_{DD}	$V_{DD}-V_L=8.8V$	-	16.6	25.0	mA
LED FORWARD VOLTAGE	V_F	$I_F=220\text{ mA}$	-	4.2	4.6	V
LED FORWARD CURRENT	I_F	$V_F=4.2\text{ V}$	-	220	330	mA
LED Power Consumption	P_F		-	0.9	-	W
EL APPLIED VOLTAGE	V_{EL}		-	110	170	Vrms
EL APPLIED FREQUENCY	F_{EL}		-	400	1000	Hz
EL CURRENT	I_{EL}		-	5.4	6.2	mArms
DRIVE METHOD			1/64 Duty			

Power Supply



Pin Connections

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	FG	0V	FRAME GROUND
2	V_{SS}	0V	Ground
3	V_{DD}	5V	Power supply for logic
4	NC	-	No Connection
5	WR	L	DATA WRITE
6	RD	L	DATA READ
7	CE	L	CHIP ENABLE
8	C/D	H/L	WR=0, C/D=1: COMMAND WRITE WR=0, C/D=0: DATA WRITE RD=0, C/D=1: STATUS READ RD=0, C/D=0: DATA READ
9	RST	L	RESET
10	DB0	H/L	Data bus
11	DB1	H/L	
12	DB2	H/L	
13	DB3	H/L	
14	DB4	H/L	
15	DB5	H/L	
16	DB6	H/L	
17	DB7	H/L	
18	FS	H/L	FS=1: 6X8 PIXELS/CHARACTER FS=0: 8X8 PIXELS/CHARACTER
19	A		Power Supply for Backlight
20	K		