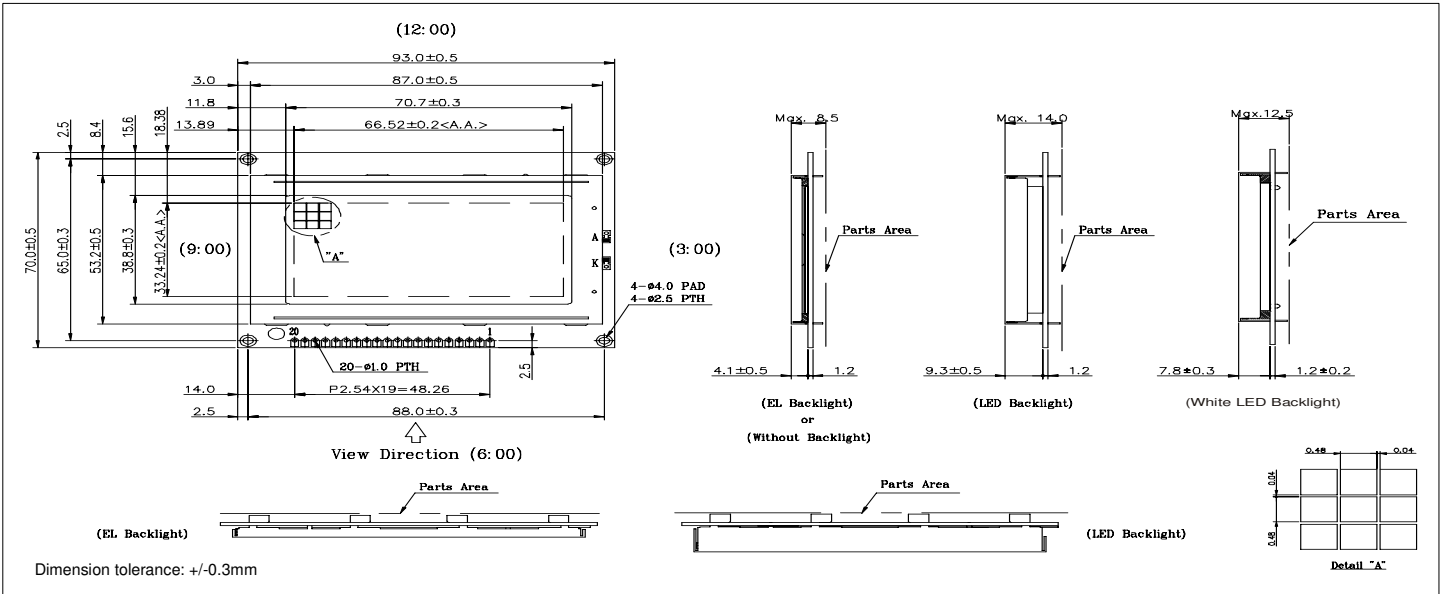


# HDM64GS12

## Dimensional Drawing

128 X 64 Dots Graphic



### Features

Backlight.....(White) LED, EL or NONE optional  
Options.....Gray or Yellow STN, Black & White FSTN  
Normal/Extended Temperature  
Bottom / Top Viewing  
Built-in Controller.....Samsung KS108B

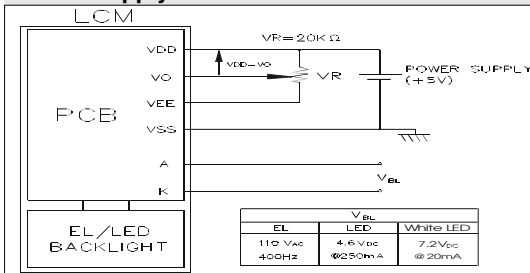
### Physical Data

Module Size (LED Backlight).....93.0W x 70.0H x 14.0T mm  
(White LED Backlight).....93.0W x 70.0H x 12.5T mm  
(None or EL Backlight).....93.0W x 70.0H x 8.5T mm  
Viewing Area Size.....70.7W x 38.8H mm  
Dot Pitch.....0.52W x 0.52H mm  
Dot Size.....0.48W x 0.48H mm  
Weight.....54.4g (None), 56.5g (EL), 76.5g (LED)

### Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply Voltage	$V_{DD}-V_{SS}$	0	7.0	V
Input Voltage	$V_{IN}$	-	7.0	V
Operating Temperature	$T_{OP}$	0	50	°C
Storage Temperature	$T_{STG}$	-20	70	°C
LED Peak Forward Current (White LED)	$I_p$		540	mA
			60	mA
EL Applied Voltage	$V_L$		150	$V_{rms}$
EL Applied Frequency	$F_L$		1000	Hz

### Power Supply



### Pin Connections

PIN NO.	SYMBOL	FUNCTION	
1	V <sub>SS</sub>	0V	Ground
2	V <sub>DD</sub>	5V	Power supply for logic
3	V <sub>L</sub>	-	Operating voltage for LC
4	D/I	H/L	1 = Data, 0 = Instruction
5	R/W	H/L	1 = Data read, 0 = Data write
6	E	H/H>L	Enable
7	DB0	H/L	Data bus
8	DB1	H/L	
9	DB2	H/L	
10	DB3	H/L	
11	DB4	H/L	
12	DB5	H/L	
13	DB6	H/L	
14	DB7	H/L	
15	CS1	H	Left Half Chip Select
16	CS2	H	Right Half Chip Select
17	RS	L	Reset
18	V <sub>EE</sub>	Output	#
19	K	(-F TYPE)	LED Cathode
	A	(-S TYPE)	LED Anode (White LED, -F TYPE)
20	A	(-F TYPE)	LED Anode
	K	(-S TYPE)	LED Cathode (White LED, -F TYPE)

# Has built-in inverter for negative power supply

### Electrical Characteristics (V<sub>DD</sub>=5.0±0.25V 25°C)

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
Input High Voltage	V <sub>IH</sub>	-	.7 V <sub>DD</sub>	-	V <sub>DD</sub>	V
Input Low Voltage	V <sub>IL</sub>	-	-	-	.3 V <sub>DD</sub>	V
Power Supply Voltage	V <sub>DD</sub> -V <sub>L</sub>	V <sub>DD</sub> =5.0V	13.0 8.9	13.5 9.2	14.0 9.5	V
Power Supply Current	I <sub>DD</sub>	V <sub>DD</sub> =5.0V	-	1.9	2.9	mA
LED Forward Current (White LED)	I <sub>F</sub>	V <sub>F</sub> =4.6V	-	250	540	mA
		V <sub>F</sub> =7.2V	-	20	30	mA
EL Current	I <sub>L</sub>	-	-	5.0	8.0	mA <sub>rms</sub>
EL Power Consumption	P <sub>L</sub>	-	-	0.55	-	W
DRIVE METHOD			1/64 Duty			