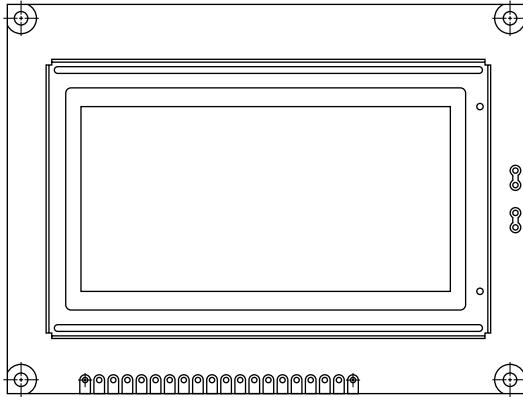


## 128 x 64 Graphic LCD



### FEATURES

- Type: Graphic
- Display format: 128 x 64 dots
- Built-in controller: Samsung KS 0107/KS 0108 (or equivalent)
- Duty cycle: 1/64
- + 5 V power supply
- N.V. built-in
- Compliant to RoHS directive 2002/95/EC


**RoHS**  
COMPLIANT

MECHANICAL DATA		
ITEM	STANDARD VALUE	UNIT
Module Dimension	93.0 x 70.0	mm
Viewing Area	72.0 x 40.0	
Dot Size	0.48 x 0.48	
Dot Pitch	0.52 x 0.52	
Mounting Hole	88.0 x 65.0	
Character Size	N/a	

ABSOLUTE MAXIMUM RATINGS					
ITEM	SYMBOL	STANDARD VALUE			UNIT
		MIN.	TYP.	MAX.	
Power Supply	$V_{DD}$ to $V_{SS}$	4.75	5.0	5.25	V
Input Voltage	$V_I$	- 0.3	-	$V_{DD}$	

**Note**

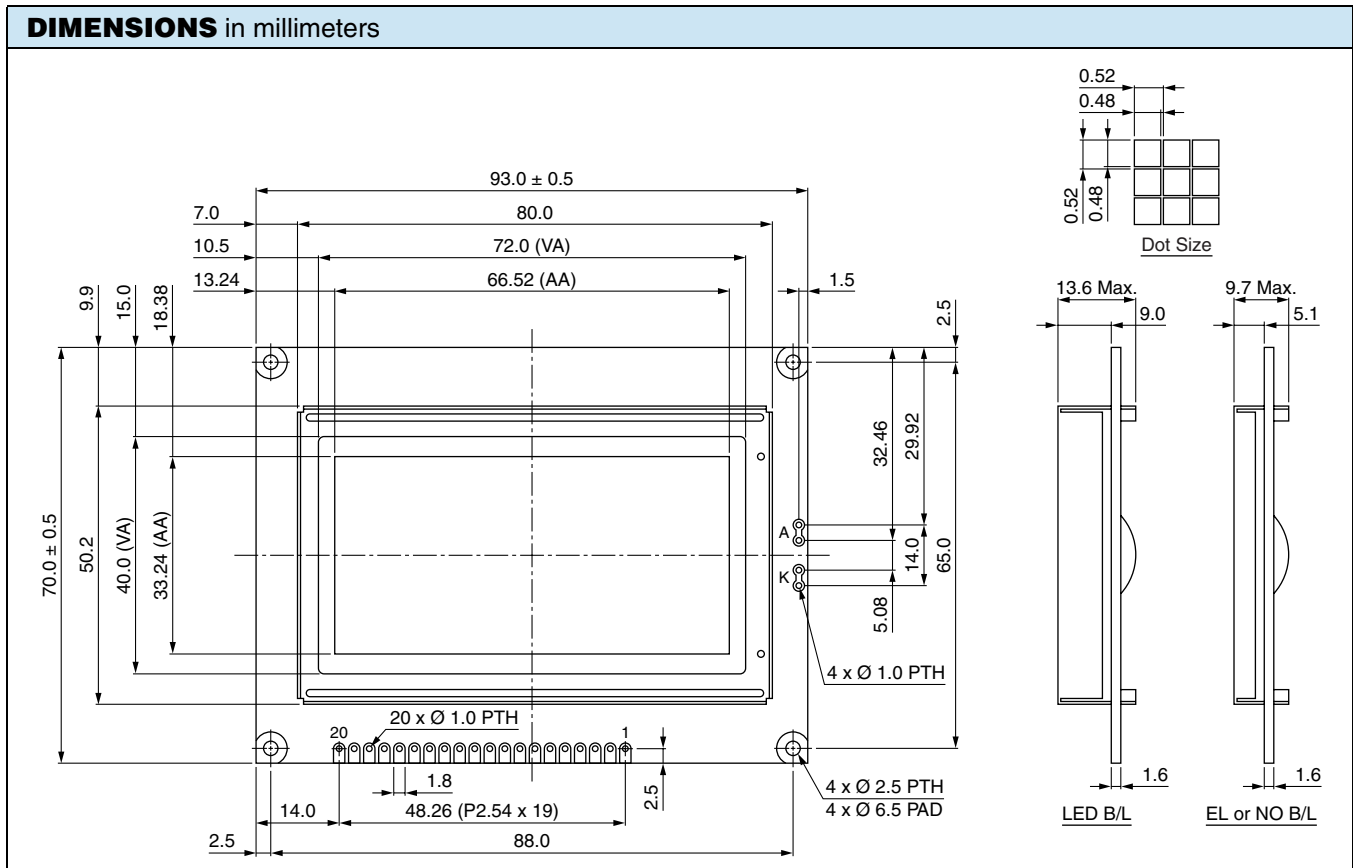
- $V_{SS} = 0$  V,  $V_{DD} = 5.0$  V

ELECTRICAL CHARACTERISTICS						
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
Input Voltage	$V_{DD}$	L level	$0.7 V_{DD}$	-	$V_{DD}$	V
	$V_{IO}$	H level	0	-	$0.3 V_{DD}$	
Supply Current	$I_{DD}$	$V_{DD} = +5$ V	-	2.5	7.5	mA
Recommended LC Driving Voltage for Normal Temperature Version Module	$V_{DD}$ to $V_0$	- 20 °C	9.9	10.4	10.9	V
		0 °C	9.7	10.2	10.7	
		25 °C	8.9	9.4	9.9	
		50 °C	8.6	9.1	9.6	
		70 °C	8.4	8.9	9.4	
LED Forward Voltage	$V_F$	25 °C	-	4.2	4.6	V
LED Forward Current - Array	$I_F$	25 °C	-	330	660	mA
LED Forward Current - Edge			-	120	240	
EL Power Supply Current	$I_{EL}$	$V_{EL} = 110$ V <sub>AC</sub> , 400 Hz	-	-	5.0	mA

OPTIONS									
PROCESS COLOR						BACKLIGHT			
TN	STN Gray	STN Yellow	STN Blue	FSTN B&W	STN Color	None	LED	EL	CCFL
	x	x	x	x		x	x	x	

For detailed information, please see the "Product Numbering System" document.

INTERFACE PIN FUNCTION		
PIN NO.	SYMBOL	FUNCTION
1	$V_{SS}$	Ground
2	$V_{DD}$	Power supply (+ 5 V)
3	$V_0$	Contrast adjustment
4	D/I	Data/instruction
5	R/W	Data read/write
6	E	H → L enable signal
7	DB0	Data bus line
8	DB1	Data bus line
9	DB2	Data bus line
10	DB3	Data bus line
11	DB4	Data bus line
12	DB5	Data bus line
13	DB6	Data bus line
14	DB7	Data bus line
15	CS1	Chip select for IC1
16	CS2	Chip select for IC1
17	$\overline{RST}$	Reset
18	$V_{EE}$	Negative voltage output
19	A	Power supply for LED (+ 4.2 V), $R_A = 0 \Omega$
20	K	Power supply for LED (0 V)





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