



### Feature

1. Built-in controller Samsung (KS0107, KS0108 or Equivalent)
2. +5V power supply
3. 1/64 duty cycle
4. Negative Voltage option

### Pin Assignment

Pin#	Symbol	Function
1	Vss	GND
2	Vdd	Power supply (+5V)
3	Vo	Contrast Adjustment
4	D/I	Data/Instruction
5	R/W	Data read/write
6	E	H → L Enable signal
7-14	DB0-DB7	Data bus line
15	CS1	Chip select for IC1
16	CS2	Chip select for IC2
17	RST	Reset
18	Vee	Negative voltage output
19	A	Power supply for LED (+4.2V) RA=0Ω
20	K	Power supply for LED (0V)

### Mechanical Data

Item	Standard Value	Unit
Module Dimension	80.0 x 70.0	mm
Viewing Area	72.0 x 40.0	mm
Dot Size	0.48 x 0.48	mm
Dot Pitch	0.52 x 0.52	mm

### Absolute Maximum Rating

Item	Symbol	Standard Value			Unit
		min.	typ.	max.	
Power Supply	VDD-VSS	4.75	5.0	5.25	V
Input Voltage	VI	-0.3	--	VDD	V

Note: VSS=0 Volt, VDD=5.0 Volt.

### Electronical Characteristics

Item	Symbol	Condition	Standard Value			Unit
			min.	typ.	max.	
Input Voltage	VDD	L level	0.7V <sub>DD</sub>	--	VDD	V
	VIO	H level	0	--	0.3V <sub>DD</sub>	V
Supply Current	IDD	VDD=+5V	--	3.6	3.9	mA
Recommended LC Driving Voltage for Normal Temp. Version module	VDD-VO	0°C	9.7	10.2	10.7	V
		25°C	8.9	9.4	9.9	
		50°C	8.6	9.1	9.6	
LED Forward Voltage	VF	25°C	--	4.2	4.6	V
LED Forward Current	IF	25°C	--	330	660	mA
EL Power Supply Current	IEL	Vel=110VAC;400Hz	--	--	5.0	mA