



Feature

1. Built-in controller (T6963C or equiv.)
2. +5V power supply.
3. 1/64 duty cycle.
4. Built-in N/V

Pin Assignment

Pin	Symbol	Function
1	FG	Frame Ground
2	Vss	Power supply (GND)
3	Vdd	Power supply (+5V)
4	Vo	Contrast Adjustment
5	\overline{WR}	Data write
6	\overline{RD}	Data read
7	\overline{CE}	Chip enable
8	C/ \overline{D}	Command/data read/write
9	Vee	Negative Voltage output
10	\overline{Reset}	Reset signal
11-18	DB0-DB7	Data bus line
19	FS	Font selection
20	NC	No connection

Mechanical Data

Item	Standard Value	Unit
Module Dimension	180.0 x 65.0	mm
Viewing Area	133.0 x 39.0	mm
Dot Size	0.49 x 0.49	mm
Dot Pitch	0.53 x 0.53	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.

Electrical Characteristics

Item	Symbol	Condition	Standard Value			Unit
			min.	typ.	max.	
Input Voltage	VDD	L level	0.7V _{DD}	--	VDD	V
	VIO	H level	0	--	0.3V _{DD}	V
Supply Current	IDD	VDD=+5V	--	18.5	21.0	mA
Recommended LC Driving Voltage for Normal Temp. Version module	VDD-V0	-20°C	13.0	13.5	14.1	V
		0°C	12.5	13.1	13.7	
		25°C	12.1	12.7	13.3	
		50°C	11.1	12.2	13.0	
		70°C	9.1	11.6	12.8	
LED Forward Voltage	VF	25°C	--	4.2	4.6	V
LED Forward Current	IF	25°C	--	450	900	mA
CCFL	VF	25°C	--	215	650	mA
	IF	25°C	--	--	5.0	
EL Power Supply Current	IEL	Vel=110VAC;400Hz	--	--	5.0	mA