



Feature

1. Built-in controller – 'Toshiba (T6963C)'
2. 1/128 duty cycle.
3. Built-in N/V
4. Temperature compensation optional

Mechanical Data

Item	Standard Value	Unit
Module Dimension	144.0 x 104.0	mm
Viewing Area	114.0 x 64.0	mm
Dot Size	0.43 x 0.43	mm
Dot Pitch	0.45 x 0.45	mm

Pin Assignment

Pin	Symbol	Function
1	Vss	Power supply (GND)
2	Vdd	Power supply (+5V)
3	Vo	Power supply for LCD driving
4	C/D	Command/data read/write
5	\overline{RD}	Data read
6	\overline{WR}	Data write
7-14	DB0-DB7	Data bus line
15	\overline{CE}	Chip enable
16	RESET	Reset signal
17	VEE	Negative voltage
18	MD2	Control Voltage
19	FS1	Font selection
20	NC	No connection

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 _{DD}	--	VDD	V
	VIO	H level	--	--	0.3V _{DD}	V
Supply Current	IDD	VDD=+5V	0	55	60	mA
Recommended LC Driving Voltage for Normal Temp. Version module	VDD-VO	0°C	20.3	21.4	22.5	V
		25°C	18.0	19.1	20.2	
		50°C	17.8	18.9	20.0	
LED Forward Voltage	VF	25°C	--	4.2	--	V
LED Forward Current	IF	25°C	--	900	1800	mA
		25°C	--	250	590	
CCFL	IF	25°C	--	--	5.5	mA
		25°C	--	--	5.0	
EL Power Supply Current	IEL	Vel=110VAC;400Hz	--	--	5.0	mA