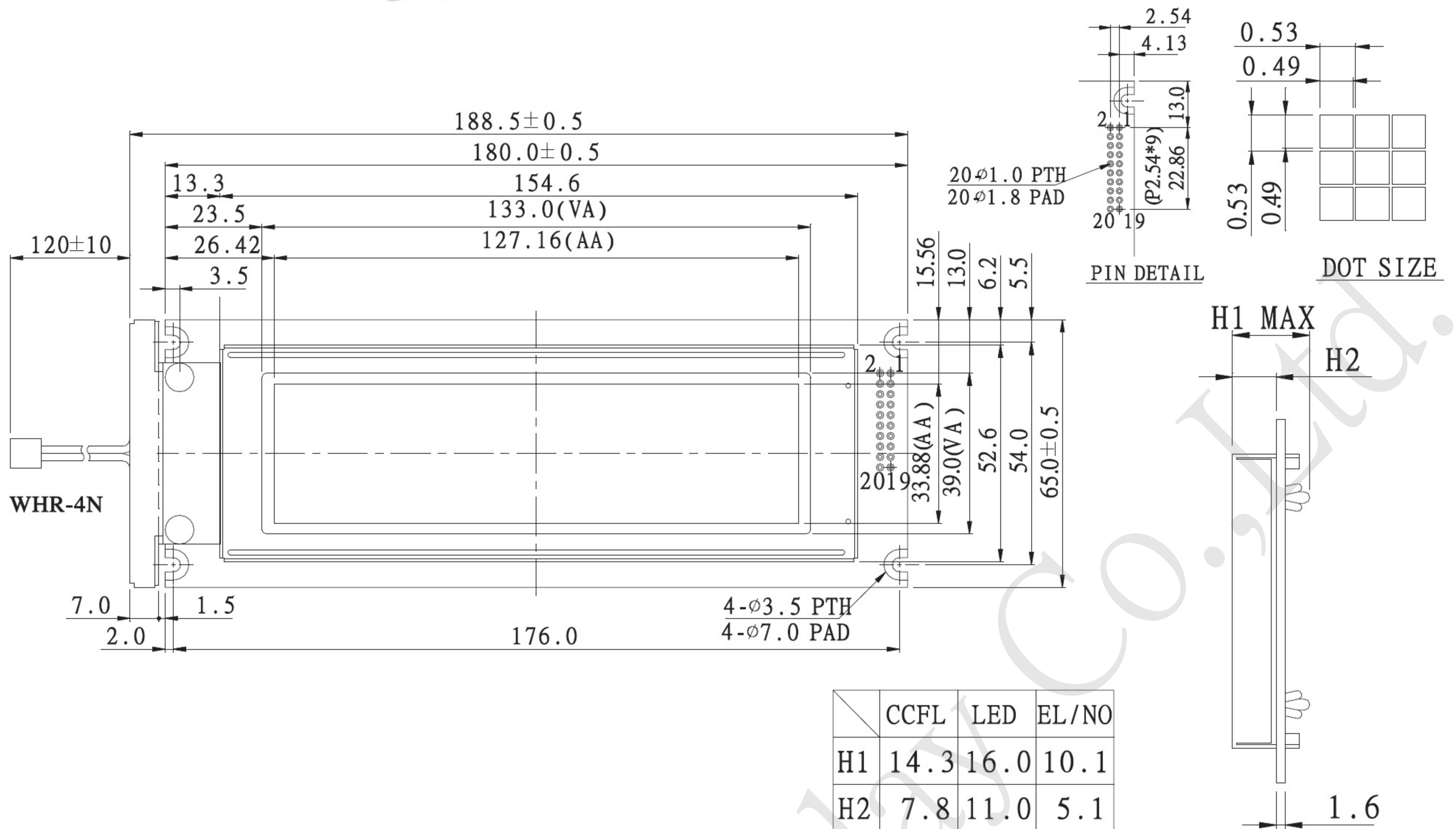


**Dimension drawing**



**Feature**

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

Pin NO.	Symbol	Function
1	FG	Frame ground
2	Vss	Power supply(GND)
3	Vdd	Power supply (+5V)
4	Vo	Contrast Adjustment
5	WR	Data write
6	RD	Data read
7	CE	Chip enable
8	C/D	Command /data read/write
9	Vee	Negative Voltage output
10	Reset	Reset signal
11	DB0	Data bus line
12	DB1	Data bus line
13	DB2	Data bus line
14	DB3	Data bus line
15	DB4	Data bus line
16	DB5	Data bus line
17	DB6	Data bus line
18	DB7	Data bus line
19	FS	Font selection FS="H", 6x8 character font FS="H", 8x8 character font
20	NC	No connection

**Mechanical Data**

Item	Standard Value	Unit
Module Dimension	180.0x65.0	mm
Viewing Area	133.0x39.0	mm
Dot Size	0.49x0.49	mm
Dot pitch	0.53x0.53	mm
Mounting hole	176.0 x 54.0	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>	---	V <sub>DD</sub>	V
	VIO	H level	0	---	0.3V <sub>DD</sub>	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	V <sub>rms</sub>
	IF	25°C	---	---	5.0	mA
EL	IEL	Vel=110VAC;400Hz	---	---	5.0	mA