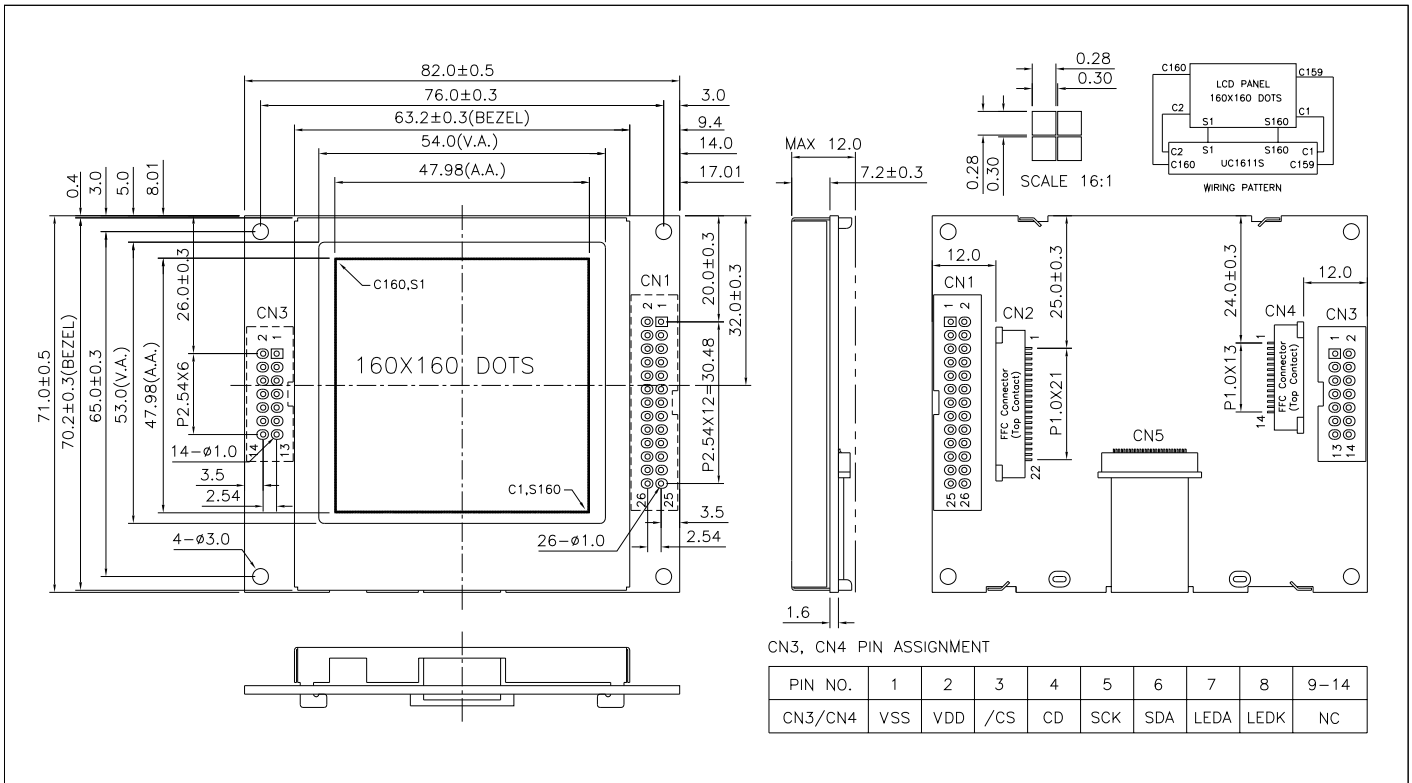


# VS1601602-DW-V33 160 x 160 dots + white led backlight, 4/8-bit parallel, SPI or I<sup>2</sup>C, 3.3V



## ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Min.	Max.	Unit
Supply Voltage(Logic)	V <sub>DD</sub> - V <sub>SS</sub>	-0.3	4.0	V
Supply Voltage(LCD)	V <sub>LCD</sub> - V <sub>SS</sub>	-0.3	19.8	V
Input Voltage	V <sub>I</sub>	-0.3	V <sub>DD</sub> + 0.5	V
Operating Temp.	T <sub>opr</sub>	-20	70	°C
Storage Temp.	T <sub>stg</sub>	-30	80	°C

## MECHANICAL DATA

Item	Nominal Dimensions	Unit
Module Size (W x H x T)	82.0 x 71.0 x 12.0	mm
Viewing Area (W x H)	54.0 x 53.0	mm
Dot Pitch (W x H)	0.30 x 0.30	mm
Dot Size (W x H)	0.28 x 0.28	mm
Weight	Approx. 62	g

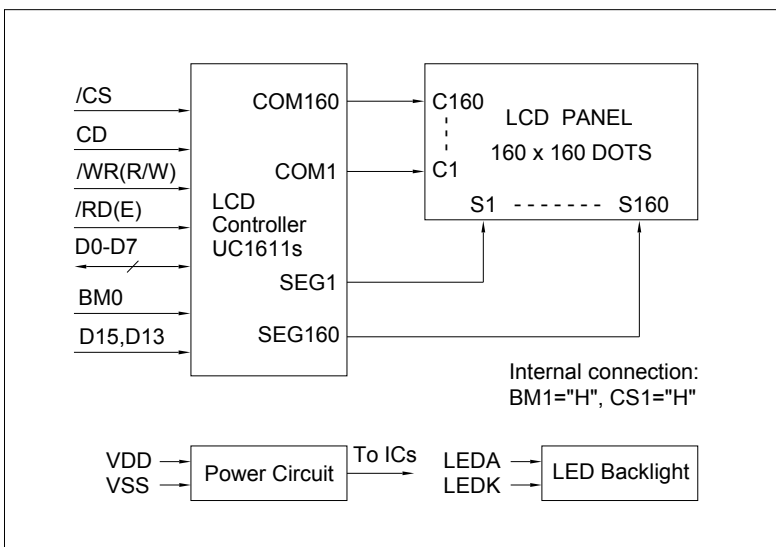
## ELECTRICAL CHARACTERISTICS (V<sub>DD</sub>=3V to 3.6V)

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input High Voltage	V <sub>IH</sub>	--	0.8V <sub>DD</sub>	--	V <sub>DD</sub>	V
Input Low Voltage	V <sub>IL</sub>	--	0	--	0.2V <sub>DD</sub>	V
Output High Voltage	V <sub>OH</sub>	--	0.8V <sub>DD</sub>	--	V <sub>DD</sub>	V
Output Low Voltage	V <sub>OL</sub>	--	0	--	0.2V <sub>DD</sub>	V
Supply Current	I <sub>DD</sub>	V <sub>DD</sub> = 3.3V	--	1.0	1.5	mA
LCD Driving Voltage	V <sub>LCD</sub> -V <sub>SS</sub>	T <sub>a</sub> =25°C	--	16.8	--	V

## PIN CONNECTIONS(CN1/CN2)

Pin	Symbol	Level	Function
1	V <sub>SS</sub>	0V	GND
2	V <sub>DD</sub>	3 to 3.6V	Power supply for logic
3	/CS	L	Chip selection signal. Active "L".
4	CD	H/L	H: Display data L: Instruction code
5	/WR(R/W)	H/L	/WR for 80 MPU, R/W for 68 MPU
6	/RD(E)	H/L	/RD for 80 MPU, E for 68 MPU
7	D0	H/L	Data bus
8	D1	H/L	
9	D2	H/L	
10	D3	H/L	
11	D4	H/L	
12	D5	H/L	
13	D6	H/L	
14	D7	H/L	
15	LEDA	3.3V	Power supply for LED backlight
16	LEDK	0V	
17-22	NC	--	No connection
23-26	NC	--	No connection

## BLOCK DIAGRAM



## LED BACKLIGHT SPECIFICATIONS (T<sub>a</sub>=25°C)

Item	Symbol	Typ.	Max.	Unit
Forward Voltage	V <sub>f</sub>	3.0	3.2	V
Forward Current	I <sub>f</sub>	40	--	mA
LED Color		White		