

MC21609A6W1R-BNMLW	2 x 16	9mm Character Height	LCD Module
Specification			
Version: 4		Date: 20/02/2018	
Revision			
1	23/01/2013	First Issue.	
2	25/07/2014	Remove IC Information.	
3	16/07/2015	Modify AA, Dot Pitch.	
4	25/02/2016	Modify Static Electricity Test.	

Display Features			
Character Count	2 x 16		
Appearance	White on Blue		
Logic Voltage	5V		
Interface	Parallel		
Font Set	English / Japanese		
Display Mode	Transmissive		
Character Height	9.66mm		
LC Type	BSTN		
Module Size	122.00 x 44.00 x 13.60 mm		
Operating Temperature	-20°C ~ +70°C		
Construction	COB		
LED Backlight	White	Box Quantity 30 pcs	Weight / Display 60 grams

* - For full design functionality, please use this specification in conjunction with the ST7066U specification. (Provided Separately)

Display Accessories	
Part Number	Description
MCCMDB-16SIL	LCD Interconnect board, can be driven from either a PC or a single Board computer with a USB output.
MCCBL1A16SLIP-16DILS-150	16 Way, Single in-line to Dual In-line connector Cable.
MCCBL1A16SLIP-16SILS-150	16 Way, Single in-line to Single In-line connector Cable.

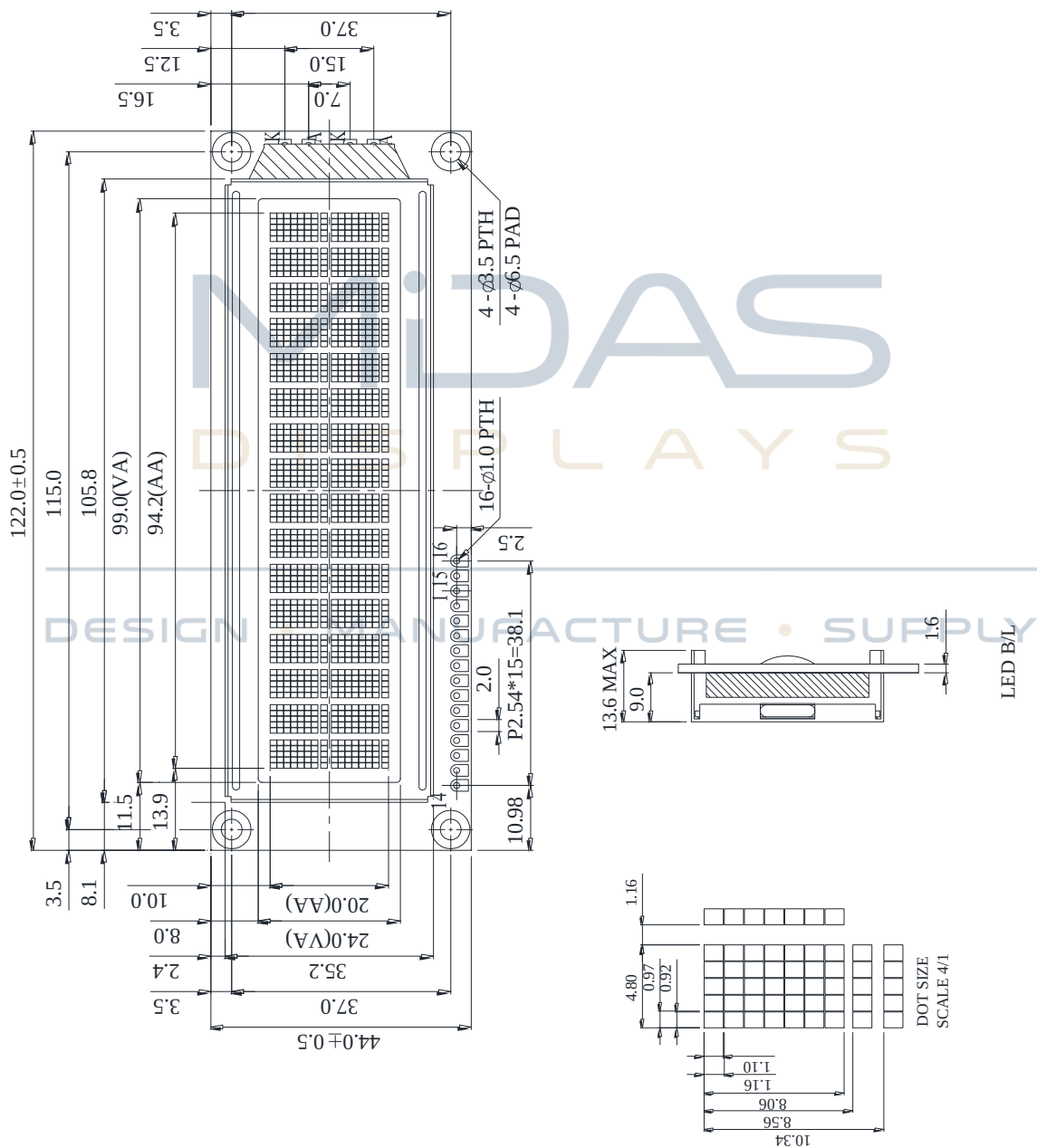
Optional Variants		
Fonts	Appearances	Voltage
	Black on Yellow Green Black on White	



Mechanical Specifications

Module Size	122.00 x 44.00 x 13.60 (With Backlight)				W x H x D mm
Viewing Area	99.00 x 24.00	W x H mm	Hole-to-Hole	115.00 x 37.00	W x H mm
Character Size	4.80 x 8.06	W x H mm	Character Pitch	5.96 x 9.66	W mm
Dot Size	0.92 x 1.10	W x H mm	Dot Pitch	0.97 x 1.16	W x H mm

PIN NO.	SYMBOL
1	Vss
2	Vdd
3	Vo
4	RS
5	R/W
6	E
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	A
16	K



The non-specified tolerance of dimension is $\pm 0.3\text{mm}$.

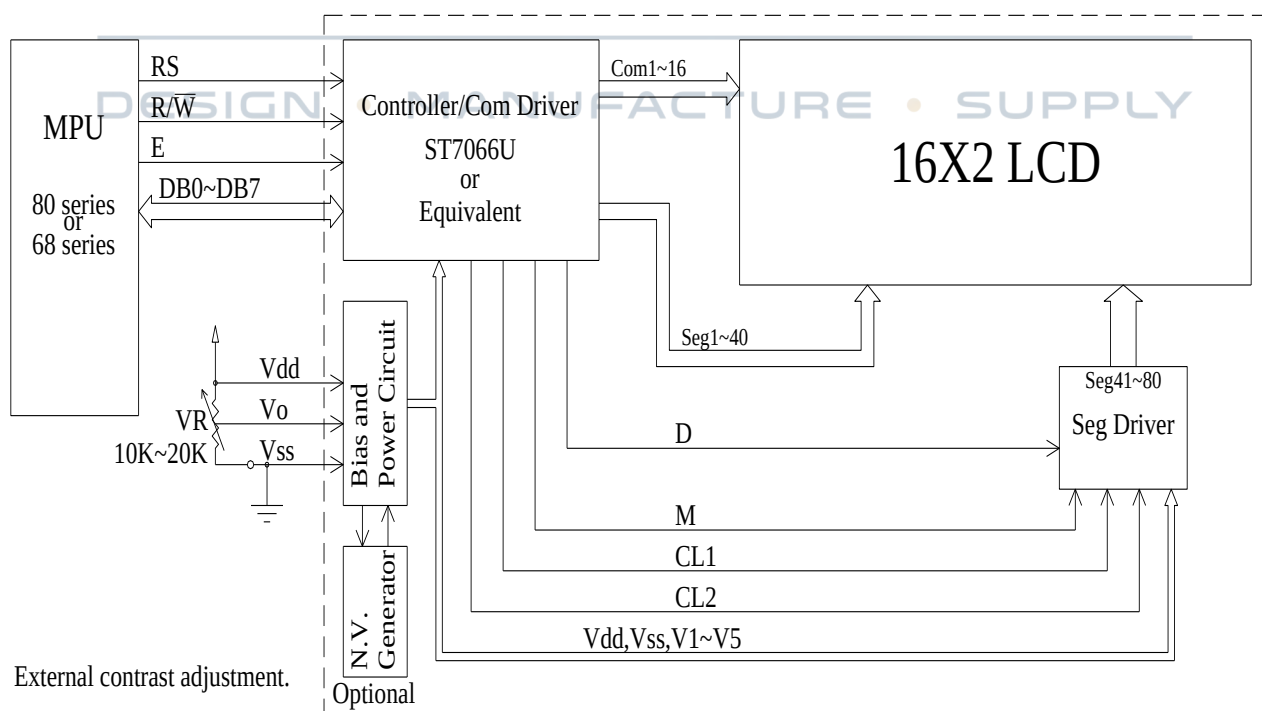
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Pin Layout

PI	SYMBOL	DESCRIPTION	REMARKS
1	Vss	GND	
2	Vdd	Power supply for LCM	5.0V
3	V0	Contrast Adjust	
4	RS	Register Select Signal	
5	R/W	Data Read /Write	
6	E	Enable Signal	
7	DB0	Data bus line	
8	DB1	Data bus line	
9	DB2	Data bus line	
10	DB3	Data bus line	
11	DB4	Data bus line	
12	DB5	Data bus line	
13	DB6	Data bus line	
14	DB7	Data bus line	
15	LED+	Power supply for BKL	
16	LED-	Power supply for BKL	

DISPLAYS

Block Diagram



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Font Map

Upper 4bit Lower 4bit	LLLL	LLH	LLHL	LLHH	LHLL	LHLH	LHHL	LHHH	HLLL	HLLH	HLHL	HLHH	HHLL	HHLH	HHHL	HHHH
LLLL	CG RAM (1)															
LLH	(2)															
LLHL	(3)															
LLHH	(4)															
LHLL	(5)															
LHLH	(6)															
LHHL	(7)															
LHHH	(8)															
HLLL	(1)															
HLLH	(2)															
HLHL	(3)															
HLHH	(4)															
HHLL	(5)															
HHLH	(6)															
HHHL	(7)															
HHHH	(8)															

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Absolute Maximum Ratings						
Item	Symbol	Condition	Min	Typ	Max	Unit
Power Supply (LOGIC)	VDD-VSS	25 °C	-0.3	---	7.0	V
Power Supply (LCD)	VDD-VO	25 °C	-0.3	---	13.00	V
Input Voltage	VI	25 °C	VSS	---	VDD	V
Operating Temperature	TOP	---	-20	---	70	°C
Storage Temperature	TST	---	-30	---	80	°C

Electronic Characteristics						
Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Input Voltage High	V _{IH}	---	0.70VDD	---	VDD	V
Input Voltage Low	V _{IL}	---	VDD	---	0.60	V
Output Voltage High	V _{OH}	---	3.90	---	VDD	V
Output Voltage Low	V _{OL}	---	0.00	---	0.40	V
Supply Voltage Logic	V _{DD} ~ V _{SS}	---	4.50	5.00	5.50	V
Supply Voltage LCD	V _{DD} ~ V ₀	Ta=25°C	4.10	4.20	4.30	V
Supply Current	I _{DD}	V _{DD} =5.0V	1.20	1.50	1.80	mA

LCD Characteristics						
For STN/FSTN LCD Panel Types						
Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Viewing Angle	Φ2 – Φ1	CR ≥ 2	0.00	---	20	ψ=180°
	Θ	CR ≥ 2	0.00	---	30	ψ=270°
Contrast Ratio	CR	---	---	3	---	---
Response Time (Rise)	TR	---	---	150	200	ms
Response Time (Fall)	TF	---	---	150	200	ms

LED Characteristics						
Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Supply Current	I _{LED}	V=3.5V	---	45	60	mA
Supply Voltage	V	---	3.40	3.50	3.60	V
Reverse Voltage	VR	---	---	---	5	V
Luminance (Without LCD)	IV	I _{LED} =48mA	416	520	---	Cd/m ²
LED Life Time	---	I _{LED} =48mA	---	50K	---	Hour

Attention: It is constant current, not constant voltage, which should be applied when driving the LED backlight, please ensure you adhere to this rule.

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