


MC44005A6W-FPTLW3.3-V2	4 x 40	5mm Character Height	LCD Module
<b>Specification</b>			
Version: 1		Date: 16/11/2017	
<b>Revision</b>			

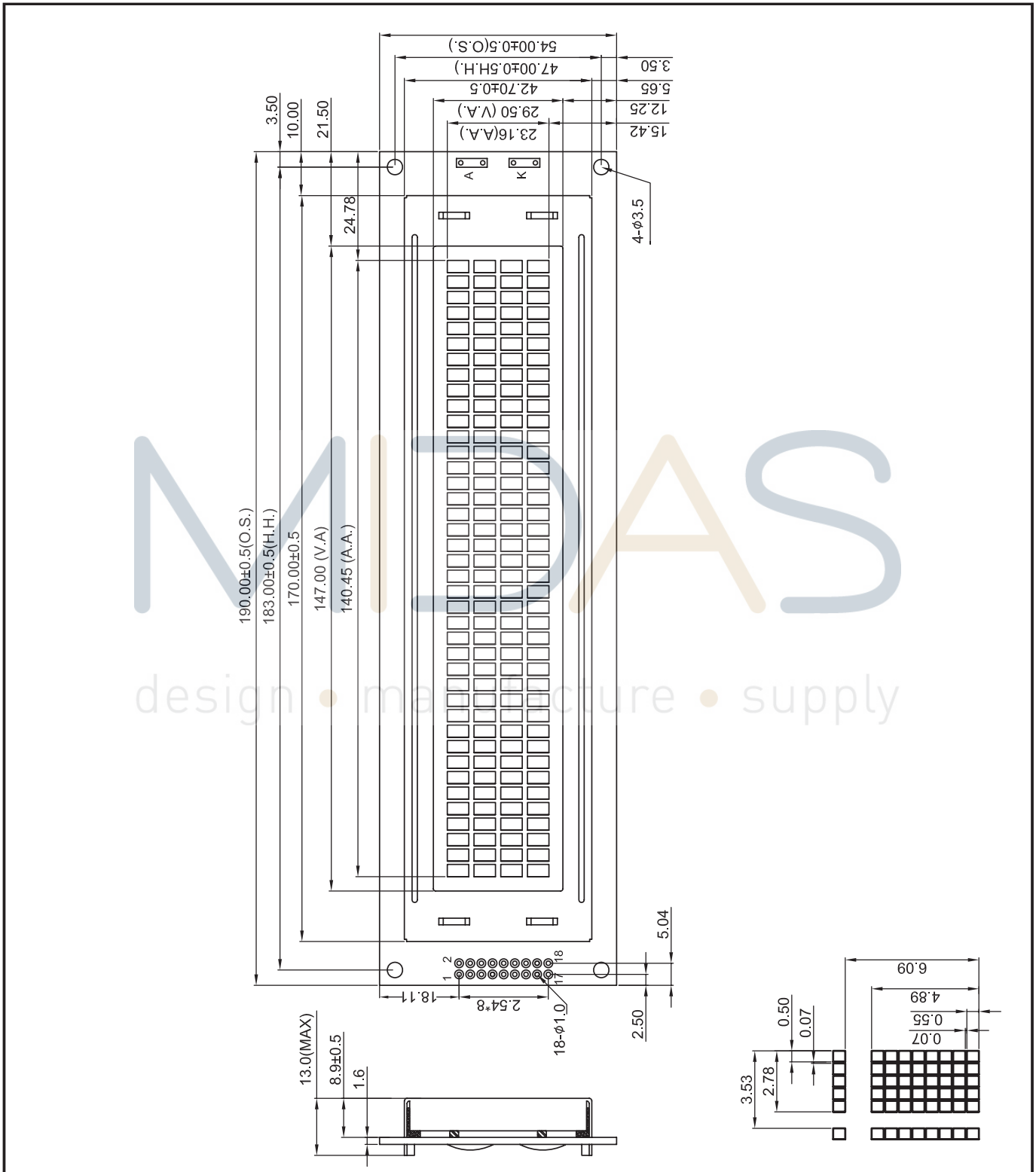
Display Features		RoHS compliant			
Character Count	4 x 40				
Appearance	Black on White				
Logic Voltage	3.3V				
Interface	Parallel				
Font Set	English / Japanese				
Display Mode	Transflective				
Character Height	4.89mm				
LC Type	FSTN				
Module Size	190.00 x 54.00 x 13.00 mm				
Operating Temperature	-20°C ~ +70°C				
Construction	COB			Box Quantity	Weight / Display
LED Backlight	White			15 pcs	140 grams

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



## Mechanical Specifications

Module Size	190.00 x 54.00 x 13.00 ( With Backlight)				W x H x D mm
Viewing Area	147.00 x 29.50	W x H mm	Hole-to-Hole	183.00 x 47.00	W x H mm
Character Size	2.78 x 4.89	W x H mm	Character Pitch	0.75 x 1.20	W x H mm
Dot Size	0.50 x 0.55	W x H mm	Dot Pitch	0.07 x 0.07	W x H mm



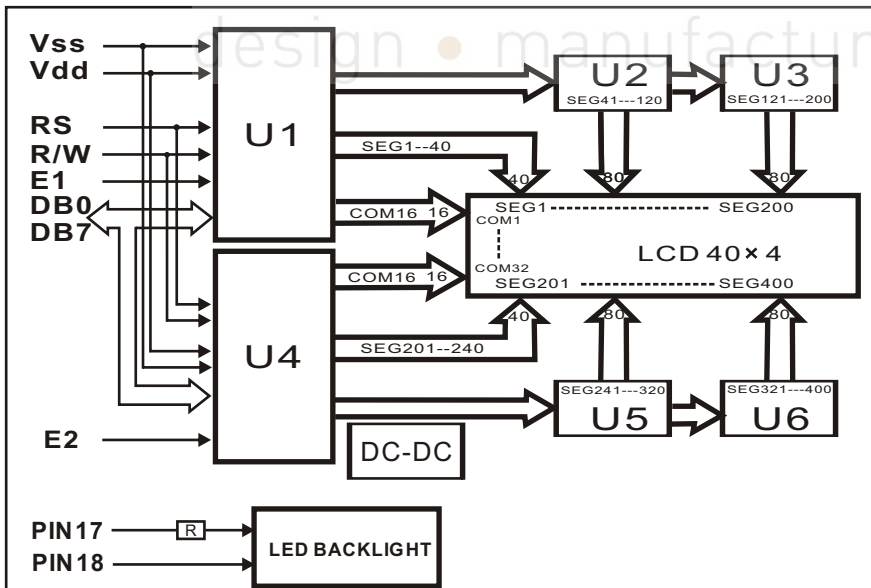
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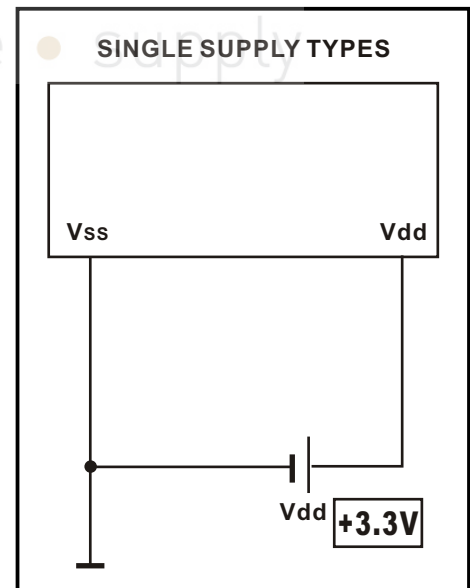
# Pin Layout

PI	SYMBOL	DESCRIPTION	REMARKS
1	DB7	Data bus line	
2	DB6	Data bus line	
3	DB5	Data bus line	
4	DB4	Data bus line	
5	DB3	Data bus line	
6	DB2	Data bus line	
7	DB1	Data bus line	
8	DB0	Data bus line	
9	E1	Enable Signal	
10	R/W	Data Read / Write	
11	RS	Register Select Signal	
12	NC	No Connection	
13	Vss	GND	0V
14	Vdd	Power supply for LCM	3.3V
15	E2	Enable Signal	
16	NC	No Connection	
17	LED+	Power supply for BKL	3.3V
18	LED-	Power supply for BKL	

## Block Diagram



## Power Supply Diagram



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# Font Map

Upper 4bit Lower 4bit	LLLL	LLLH	LLHL	LLHH	LHLL	LHLH	LHHL	LHHH	HLLL	HLLH	HLHL	HLHH	HHLL	HHLH	HHHL	HHHH
LLLL	CG RAM (1)															
LLLH	(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	25°C	-0.3	---	7.0	V
Power Supply (LCD)	V0	25°C	Vdd -13.5	---	Vdd +0.3	V
Input Voltage	Vin	25°C	-0.3	---	Vdd +0.3	V
Operating Temperature	Vopr	---	-20	---	70	°C
Storage Temperature	Vstg	---	-30	---	80	°C

Electronic Characteristics						
Item	Symbol	Condition	Min	Typ	Max	Unit
Input Voltage	Vlcm = Vdd	---	---	3.3	---	V
Supply Current	Idd	Vdd=3.3V	---	1.5	---	mA
Driving Voltage for LCD Panel	Vlcd = (Vdd - V0)	-20°C	---	---	---	V
		0°C	---	---	---	
		25°C	---	---	---	
		50°C	---	---	---	
		70°C	---	---	---	

LCD Characteristics						
For STN/FSTN LCD Panel Types						
Item	Symbol	Condition	Min	Typ	Max	Unit
Viewing Angle	$\Phi 2 - \Phi 1$	K = 4	40°	---	---	Deg
	$\Theta$		60°			
Contrast Ratio	K	---	6	10	---	---
Response Time (Rise)	TR	---	---	150	250	ms
Response Time (Fall)	TF	---	---	150	250	ms

LED Characteristics						
Item	Symbol	Condition	Min	Typ	Max	Unit
LED Forward Voltage	Vf	25°C	2.6	---	3.0	V
LED Forward Current*	If	25°C	---	50	---	mA
LED Reverse Current	Ir	25°C Vr=5.0V	---	---	100	μA
LED Colour Range	X Coordinate	25°C If=50mA	0.26	---	0.30	---
	Y Coordinate		0.27	---	0.31	---
LED Brightness (Without LCD)	Lv	25°C If=50mA	---	420	---	cd/m <sup>2</sup>
LED Brightness Uniformity	Lvmin/Lvmax	25°C If=50mA	70	---	---	Ratio
LED Life Time	---	25°C If=50mA	20K	50K	---	Hours

**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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