


MC42004A6WK-BNMLW-V2	4 x 20	4mm Character Height	LCD Module
<b>Specification</b>			
Version: 1		Date: 31/10/2016	
<b>Revision</b>			

Display Features					
Character Count	4 x 20				
Appearance	White on Blue				
Logic Voltage	5V				
Interface	Parallel				
Font Set	English / European				
Display Mode	Transmissive				
Character Height	4.03mm				
LC Type	BSTN				
Module Size	77.00 x 47.00 x 14.50 mm				
Operating Temperature	-20°C ~ +70°C				
Construction	COB				
LED Backlight	White	45 pcs	28.88 grams		

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

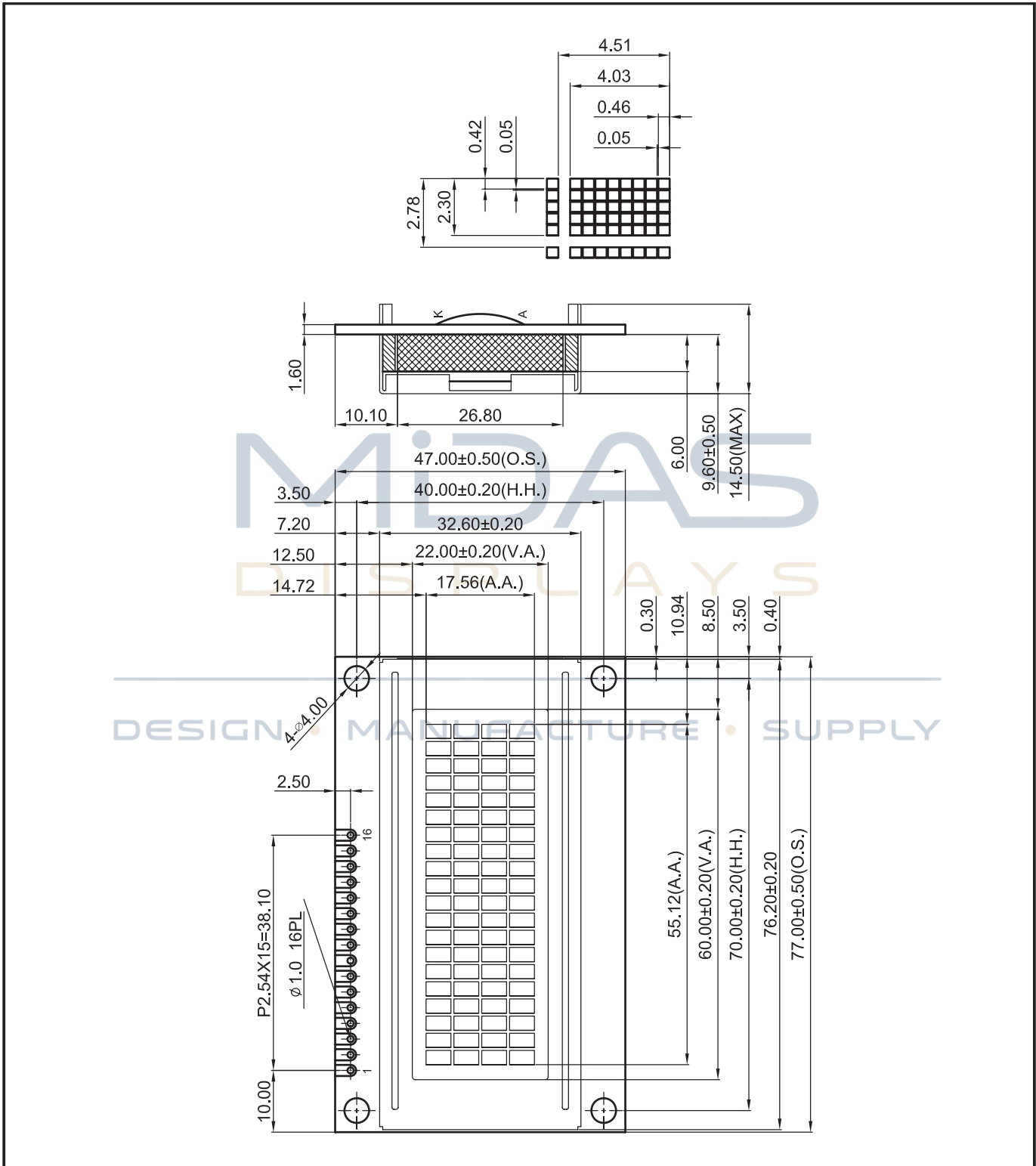
Display Accessories	
Part Number	Description
MCCMDB-16SIL	LCD Interconnect board, can be driven from either a PC or a single Board computer with a USB output.
MCCBL1A16SLIP-16DILS-150	16 Way, Single in-line to Dual In-line connector Cable.
MCCBL1A16SLIP-16SILS-150	16 Way, Single in-line to Single In-line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

Optional Variants		
Fonts	Appearances	Voltage
English / Russian	Black on Yellow/Green Black on White Black on Red Black on Amber	3V



## Mechanical Specifications

Module Size	77.00 x 47.00 x 14.50 ( With Backlight)				W x H x D mm
Viewing Area	60.00 x 22.00	W x H mm	Hole-to-Hole	70.00 x 40.00	W x H mm
Character Size	2.30 x 4.03	W x H mm	Character Pitch	0.48 x 0.48	W x H mm
Dot Size	0.42 x 0.46	W x H mm	Dot Pitch	0.05 x 0.05	W x H mm



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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	---	---	5.0	---	V
Supply Current	Idd	Vdd=5V	---	1.5	---	mA
Driving Voltage for LCD Panel	Vlcd = (Vdd - V0)	-20°C	4.25	---	4.70	V
		0°C	4.25	---	4.75	
		25°C	4.25	4.50	4.80	
		50°C	4.20	---	4.70	
		70°C	4.20	---	4.65	

### 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	---	---	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 If=15mA	---	5.0	---	V
LED Forward Current*	If	25°C	---	15	---	mA
LED Reverse Current	Ir	25°C Vr=5.0V	---	---	10	μA
LED Colour Range	X Coordinate	25°C If=15mA	0.26	---	0.30	---
	Y Coordinate		0.27	---	0.31	---
LED Brightness (Without LCD)	Lv	25°C If=15mA	---	295	---	cd/m <sup>2</sup>
LED Brightness Uniformity	Lvmin/Lvmax	25°C If=15mA	70	---	---	Ratio
LED Life Time	---	25°C If=15mA	9K	---	---	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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