


MCOB22010A1V-EWP	2 x 20	Euro/Jap/Cyrillic	OLED Module
<b>Specification</b>			
Version: 4		Date: 16/05/2017	
<b>Revision</b>			
0	25/06/2014	First release	
A	26/11/2015	Add Low Temperature storage.	
B	26/11/2015	Modify Block Diagram	
C	01/06/2016	Modify Static electricity test	

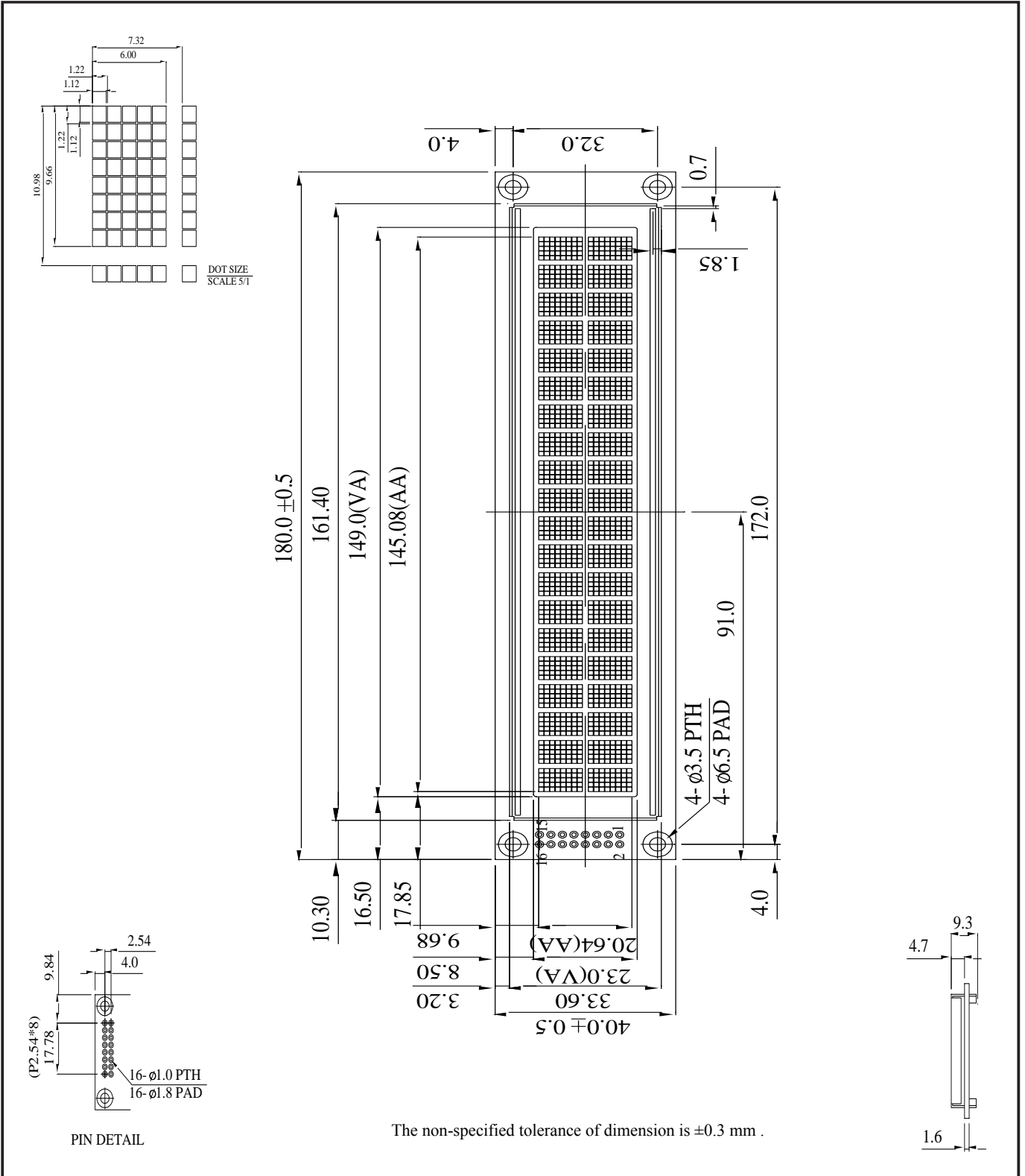
Display Features			Box Quantity	Weight / Display			
Character Count	2 x 20						
Appearance	White on Black						
Logic Voltage	5V						
Interface	Parallel						
Font Set	English / European / Cyrillic						
Character Height	9.66 mm						
Module Size	180.00 x 40.00 x 9.30 mm						
Operating Temperature	-40°C ~ +80°C						
Construction	COB						

Display Accessories	
Part Number	Description
MCCMDB-16DIL	LCD Interconnect board, can be driven from either a PC or a single Board computer with a USB output.
MCCBL1A16DILP -DILS-150	16 Way, Dual in-line to Dual in-line connector cable.

Optional Variants	
Appearance	Voltage
Blue on Black Yellow on Black Green on Black	

# Mechanical Specifications

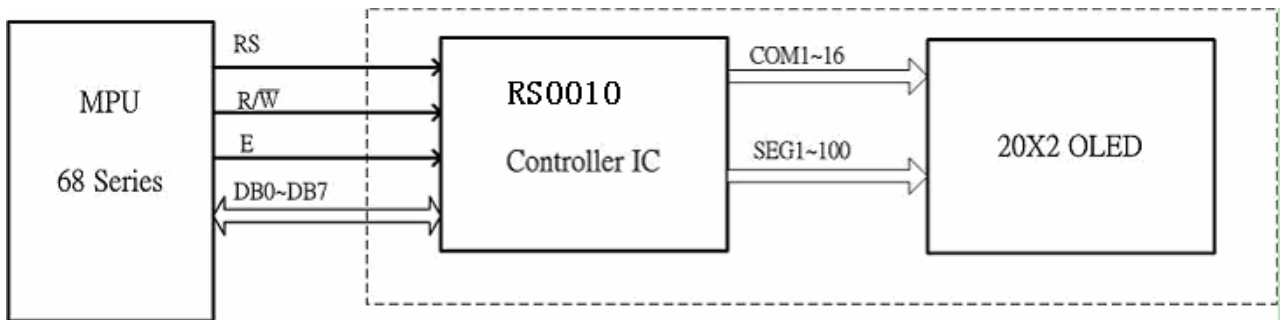
Module Size	180.00 x 40.00 x 9.30 ( With Backlight)				W x H x D mm
Viewing Area	149.00 x 23.00	W x H mm	Hole-to-Hole	75.00 x 31.00	W x H mm
Character Size	6.00 x 9.66	W x H mm	Character Pitch	7.32 x 10.98	W x H mm
Dot Size	1.12 x 1.12	W x H mm	Dot Pitch	1.22 x 1.22	W x H mm



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## Pin layout

Pin	Symbol	Description	Remarks
1	VSS	Ground	
2	VDD	Supply Voltage for Logic	5V
3	NC	No Connection	
4	RS	H: Data L: Instruction Code	H/L
5	R/W	H: Read (Module-->MPU) L: Write(MPU-->Module)	H/L
6	E	Chip Enable Signal	H, H-->L
7	DB0	Data Bus Line	H/L
8	DB1	Data Bus Line	H/L
9	DB2	Data Bus Line	H/L
10	DB3	Data Bus Line	H/L
11	DB4	Data Bus Line	H/L
12	DB5	Data Bus Line	H/L
13	DB6	Data Bus Line	H/L
14	DB7	Data Bus Line	H/L
15	NC	No Connection	
16	NC	No Connection	



Address Format	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0
CA (Character Address)	1	ADD6	ADD5	ADD4	ADD3	ADD2	ADD1	ADD0

1	2	3	4	.....	.....	17	18	19	20
CA10000000	CA10000001	CA10000010	CA10000011	.....	.....	CA10010000	CA10010001	CA10010010	CA10010011
CA11000000	CA11000001	CA11000010	CA11000011	.....	.....	CA11010000	CA11010001	CA11010010	CA11010011

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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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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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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)															
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### Absolute Maximums Ratings

Item	Symbol	Minimum	Typical	Maximum	Unit
Supply Voltage for Logic	V0	-0.30	---	5.30	V
Operating Temperature	Vopr	-40	---	80	°C
Storage Temperature	Vstg	-40	---	80	°C

### Electronic Characteristics

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Input High Voltage	VIH	---	0.80	---	VDD	V
Input Low Voltage	VIL	---	GND	---	0.20	V
Output High Voltage	VOH	IOH=-0.5mA	0.80	---	VDD	V
Output Low Voltage	VOL	IOL=0.5mA	GND	---	0.20	V
Supply Voltage for Logic	VDD~VSS	---	4.80	5.00	5.30	V
50% Checkboard Operating Current.	IDD	VDD=5V	78	80	85	mA

### OLED Characteristics

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Viewing Angle	(V)θ	---	160	---	---	Deg
	(H)φ	---	160	---	---	Deg
Contrast Ratio	CR	Dark	2000:1	---	---	---
Response Time	T Rise	---	---	10	---	μs
	T Fall	---	---	10	---	μs
Display with 50% Checkboard Brightness			60	80	---	cd/m <sup>2</sup>
CIE <sub>x</sub> (White)		(CIE1931)	0.26	0.28	0.30	---
CIE <sub>y</sub> (White)		(CIE1931)	0.30	0.32	0.34	---

### OLED Life Time

Item	Conditions	Typical	Remark
Operating Life Time	Ta=25°C. Initial checkboard brightness, 50%.	50,000 Hours	---

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