

MCOB21205AV-ERP	2 x 12	Euro/Jap/Cyrillic	OLED Module
Specification			
Version: 6		Date: 16/05/2017	
Revision			
0	08/11/2013	First release Modify CIE Add CIE chromaticity diagram Correct life time Update Rev. Add Low Temperature storage. Modify Block Diagram. Modify Static electricity test	
A	20/12/2012		
B	29/04/2014		
C	16/06/2014		
D	08/04/2016		
E	01/06/2016		

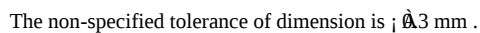
Display Features			
Character Count	2 x 12		
Appearance	Red on Black		
Logic Voltage	5V		
Interface	Parallel		
Font Set	English / European / Cyrillic		
Character Height	5.50 mm		
Module Size	55.70 x 32.00 x 11.00 mm		
Operating Temperature	-40°C ~ +80°C		
Construction	COB	Box Quantity	Weight / Display
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* - For full design functionality, please use this specification in conjunction with the MS0010 specification. (Provided Separately)

Display Accessories	
Part Number	Description

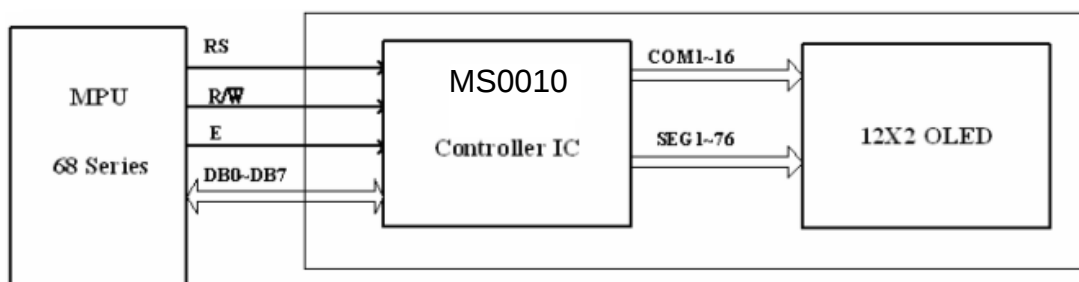
Optional Variants	
Appearance	Voltage
Yellow on Black	
Blue on Black	
Green on Black	
White on Black	

Mechanical Specifications					
Module Size	55.70 x 32.00 x 11.00 (With Backlight)				W x H x D mm
Viewing Area	46.00 x 14.50	W x H mm	Hole-to-Hole	31.20 x 30.00	W x H mm
Character Size	2.65 x 5.50	W x H mm	Character Pitch	3.60 x 6.30	W x H mm
Dot Size	0.45 x 0.60	W x H mm	Dot Pitch	0.55 x 0.70	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(MPU-->Module) 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	



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			9	10	11	12
CA=10000000b	CA=10000001b	CA=10000010b	CA=10000011b			CA=10001000b	CA=10001001b	CA=10001010b	CA=10001011b
CA=11000000b	CA=11000001b	CA=11000010b	CA=11000011b			CA=11001000b	CA=11001001b	CA=11001010b	CA=11001011b

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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	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)																
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Upper 4bit Lower 4bit	LLLL	LLHH	LLHL	LLHH	LHLL	LHLH	LHHL	LHHH	HLLL	HLLH	HLHL	HLHH	HHLL	HHLH	HHHL	HHHH
LLLL	CG RAM (1)															
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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	28	30	38	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	70	---	cd/m ²
CIEx(Red)		(CIE1931)	0.63	0.67	0.71	---
CIEx(Red)		(CIE1931)	0.29	0.33	0.37	---

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

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