


MCCOG22005A6W-BNMLWI	2 x 20	5mm Character Height	LCD Module
Specification			
Version: 6		Date: 19/10/2016	
Revision			
1	02/09/2011	First Release.	
2	28/11/2012	Modify Backlight Information.	
3	24/11/2014	Remove IC Information. Modify Response Time & B/L Information.	
4	26/06/2015	Modify Backlight Information.	
5	25/02/2016	Modify Precautions in Use of LCD Modules & Static Electricity Test.	
6	22/08/2018	Updated Mechanical Drawing.	

Display Features			
Character Count	2 x 16		
Appearance	White on Blue		
Logic Voltage	5V		
Interface	I2C		
Font Set	English / Japanese		
Display Mode	Transmissive		
Character Height	4.67mm		
LC Type	BSTN		
Module Size	74.20 x 25.20 x 6.30 mm		
Operating Temperature	-20°C ~ +70°C		
Construction	COG		
LED Backlight	White	Box Quantity	Weight / Display
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* - For full design functionality, please use this specification in conjunction with the ST7036I specification. (Provided Separately)

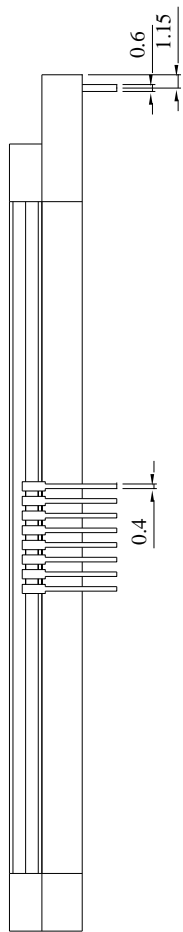
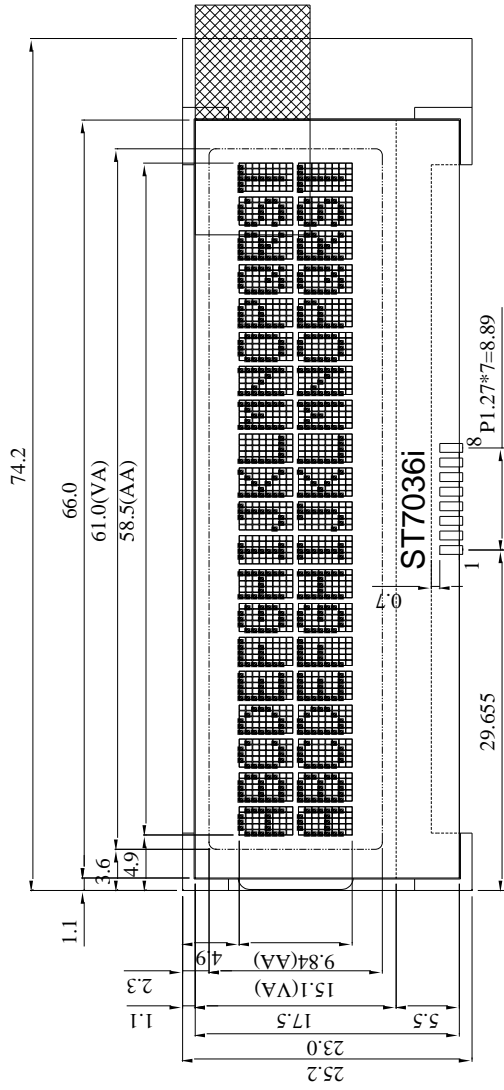
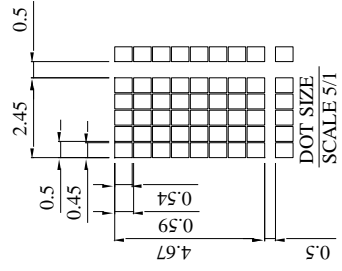
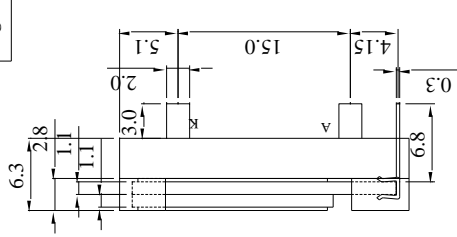
Display Accessories	
Part Number	Description
MCCOG-I2C-I-8	Fine pitch(1.27mm) COG I2C interface board. Compatible with both Arduino and UC32 controller boards.

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

Mechanical Specifications

Module Size	74.20 x 25.20 x 6.30 (With Backlight)				W x H x D mm
Viewing Area	61.00 x 15.10	W x H mm	Hole-to-Hole	---	W x H mm
Character Size	2.45 x 4.67	W x H mm	Character Pitch	2.95 x 5.17	W x H mm
Dot Size	0.45 x 0.54	W x H mm	Dot Pitch	0.50 x 0.59	W x H mm

PIN NO.	SYMBOL
1	VOUT
2	CAPIN
3	CAPIP
4	VDD
5	VSS
6	SDA
7	SCL
8	RST



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

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Pin Layout			
PI	SYMBOL	DESCRIPTION	REMARKS
1	VOUT	DC/DC Voltage Converter	
2	CAP1N	Voltage booster Circuit (VDD-VSS)	
3	CAP1P		
4	VDD	Power Supply	5.0V
5	VSS	Ground	
6	SDA	Input Data	
7	SCL	Clock Input Data	
8	RST	Reset	

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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 Maximums Ratings						
Item	Symbol	Minimum	Typical	Maximum	Unit	
Power Supply (Logic)	V _{DD}	-0.3	---	6.0	V	
Power Supply (LCD)	V ₀	7.0 -V _{SS}	---	-0.3 +V _{SS}	V	
---	---	---	---	---	---	
Operating Temperature	T _{OP}	-20°C	---	70°C	°C	
Storage temperature	T _{ST}	-30°C	---	80°C	°C	

Electronic Characteristics						
Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Input Voltage High	V _{IH}	---	0.70	---	V _{DD}	V
Input Voltage Low	V _{IL}	---	---	---	0.20	V
Output Voltage High	V _{OH}	---	0.80	---	V _{DD}	V
Output Voltage Low	V _{OL}	---	---	---	0.20	V
Supply Voltage Logic	V _{DD} - V _{SS}	---	3.00	3.30	5.00	V
Supply Voltage LCD	V _{DD} - V ₀	T _a =25°C	---	4.50	---	V
Supply Current	I _{DD}	---	---	0.20	---	mA

LCD Characteristics						
For STN/FSTN LCD Panel Types						
Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Viewing Angle	Φ ₂ - Φ ₁	CR ≥ 2	20		40	ψ=180°
	Θ	CR ≥ 2	-30		30	
Contrast Ratio	CR	---	---	3	---	---
Response Time (Rise)	T _R	---	---	250	400	ms
Response Time (Fall)	T _F	---	---	100	250	ms

LED Characteristics						
Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Supply Current	I _{LED}	V=3.5V	28.80	32	50	mA
Supply Voltage	V	---	3.40	3.50	3.60	V
Reverse Voltage	V _R	---	---	---	5	V
Luminance (Without LCD)	I _V	I _{LED} =32mA	409.60	512	---	Cd/m ²
---	---	---	---	---	---	---
LED Life Time	---	I _{LED} =32mA	---	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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