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MC21605A6WM-FPTLW-V2	2 x 16	5mm Character Height	LCD Module
Specification			
Version: 1		Date: 05/08/2021	
Revision			
1	03/08/2021	First Issue	

Display Features	
Character Count	2 x 16
Appearance	Black on White
Logic Voltage	5V
Interface	Parallel
Font Set	English / Scandinavian
Display Mode	Transflective
Character Height	5.23mm
LC Type	FSTN
Module Size	84.00 x 44.00 x 13.50 mm
Operating Temperature	-20°C ~ +70°C
Construction	COB
LED Backlight	White

RoHS compliant

Box Quantity	Weight / Display
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* - For full design functionality, please use this specification in conjunction with the ST7066U + ST7065C 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/Japanese English/Euro English/Cyrillic	Black on Yellow/ Green White on Blue Black on RGB	3V 3.3V 5V

FEATURES

AVAILABLE OPTIONS	CHARACTERISTICS
DISPLAY FORMAT	16Characters by 2 Lines
POLARIZER OPTIONS	Positive Transflective
BACKLIGHT TYPE OPTIONS	Edge Type LED Backlight (Standard version)
BACKLIGHT COLOR OPTIONS	White color
LCD PANEL OPTIONS	FSTN
VIEWING ANGLE OPTIONS	6:00 (Bottom)
TEMPERATURE RANGE OPTIONS	-20°C ~ 70°C,Single Supply Voltage
SUGGESTED DRIVING VOLTAGE	Vlcm = 5.0V Vled = 5.0V
SUGGESTED LED DRIVING MODE	PIN15: LED+, PIN16:LED-
CONTROLLER	ST7066U+ST7065C
FONT MAP CODE	M Version
DRIVING DUTY	1/16
DRIVING BIAS	1/5

MECHANICAL SPECIFICATIONS

OVERALL SIZE	84.0W x 44.0H	mm	THICKNESS	max 13.5	mm
VIEWING AREA	64.5W x 16.4H	mm	HOLE-HOLE	79.0/76.0W x 36.0H	mm
CHARACTER SIZE	3.00W x 5.23H	mm	CHARACTER PITCH	0.51W x 0.52H	mm
DOT SIZE	0.56W x 0.61H	mm	DOT PITCH	0.05W x 0.05H	mm

ABSOLUTE MAXIMUM RATINGS

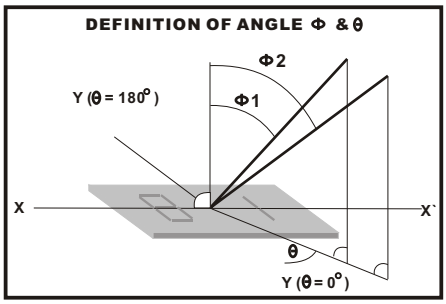
ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
POWER SUPPLY (LOGIC)	Vdd	25°C	-0.3	—	7.0	V
POWER SUPPLY (LCD)	V0	25°C	Vdd -13.5	—	Vdd +0.3	V
INPUT VOLTAGE	Vin	25°C	-0.3	—	Vdd +0.3	V
OPERATING TEMPERATURE	Vopr	—	-20	—	70	°C
STORAGE TEMPERATURE	Vstg	—	-30	—	80	°C

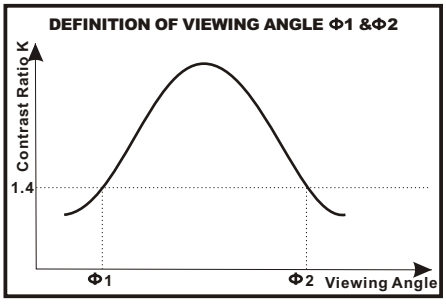
ELECTRONIC CHARACTERISTICS*

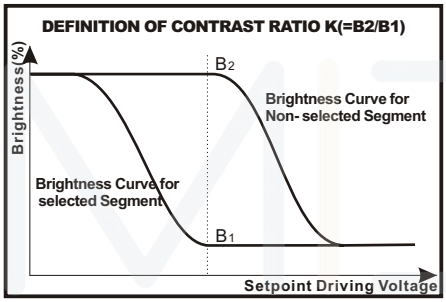
	ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
	INPUT VOLTAGE	Vdd	—	—	5.0	—	V
	SUPPLY CURRENT	Idd	Vdd=5V	—	1.5	—	mA
	DRIVING VOLTAGE FOR LCD PANEL	Vlcd = (Vdd - V0)	-20°C	4.45	—	4.90	V
			0°C	4.35	—	4.85	
			25°C	4.25	4.50	4.80	
			50°C	4.15	—	4.70	
			70°C	4.05	—	4.60	

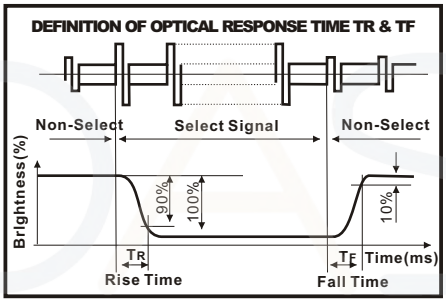
LCD CHARACTERISTICS

FOR STN/FSTN TYPE LCD Panel (TA=25°C, Vlcd=5.0V ± 0.5V)							
	ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
	VIEWING ANGLE	Φ2 − Φ1	K=4	40	—	—	deg
		θ		60			
	CONTRAST RATIO	K	—	6	—	—	—
	RESPONSE TIME(RISE)	TR	—	—	150	250	ms
	RESPONSE TIME(FALL)	TF	—	—	150	250	ms









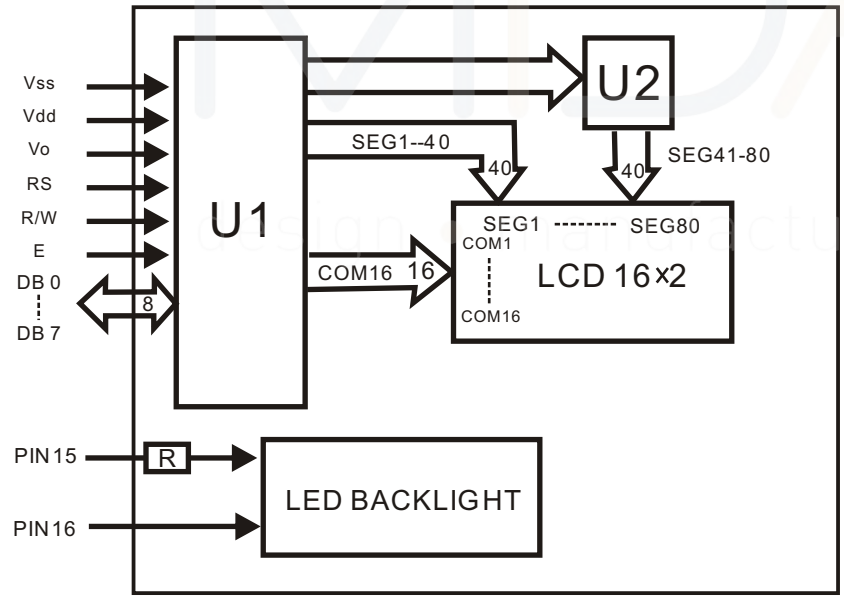
LED CHARACTERISTICS

	ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
	LED FORWARD VOLTAGE	Vf	25°C	2.8	—	3.1	V
	LED FORWARD CURRENT	If	25°C	—	15	—	mA
	LED REVERSE CURRENT	Ir	25°C Vr=5.0V	—	—	10	μA
	LED COLOR 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	—	240	—	cd/m^2
	LED BRIGHTNESS UNIFORMITY	Lvmin/Lvmax	25°C If = 15mA	70	—	—	Ratio
	LED LIFE TIME	—	25°C If = 15mA	9K	—	—	Hours

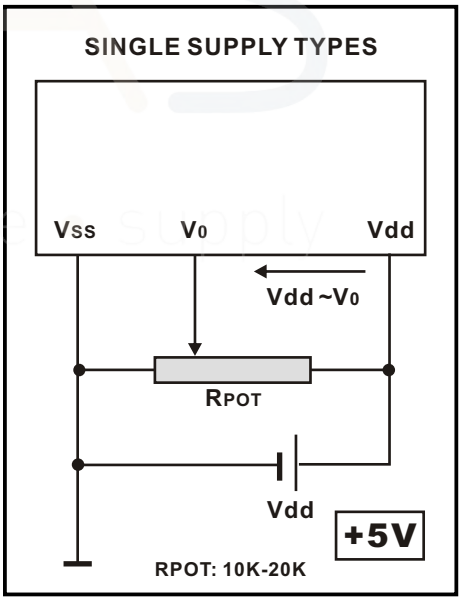
PIN ASSIGNMENT

PIN	SYMBOL	DESCRIPTION	REMARKS
1	Vss	GND	
2	Vdd	Power supply for LCM	5.0V
3	V0	Contrast Adjust	
4	RS	Register Select Signal	
5	R/W	Data Read / Write	
6	E	Enable Signal	
7	DB0	Data bus line	
8	DB1	Data bus line	
9	DB2	Data bus line	
10	DB3	Data bus line	
11	DB4	Data bus line	
12	DB5	Data bus line	
13	DB6	Data bus line	
14	DB7	Data bus line	
15	LED+	Power supply for BKL	5.0V
16	LED-	Power supply for BKL	

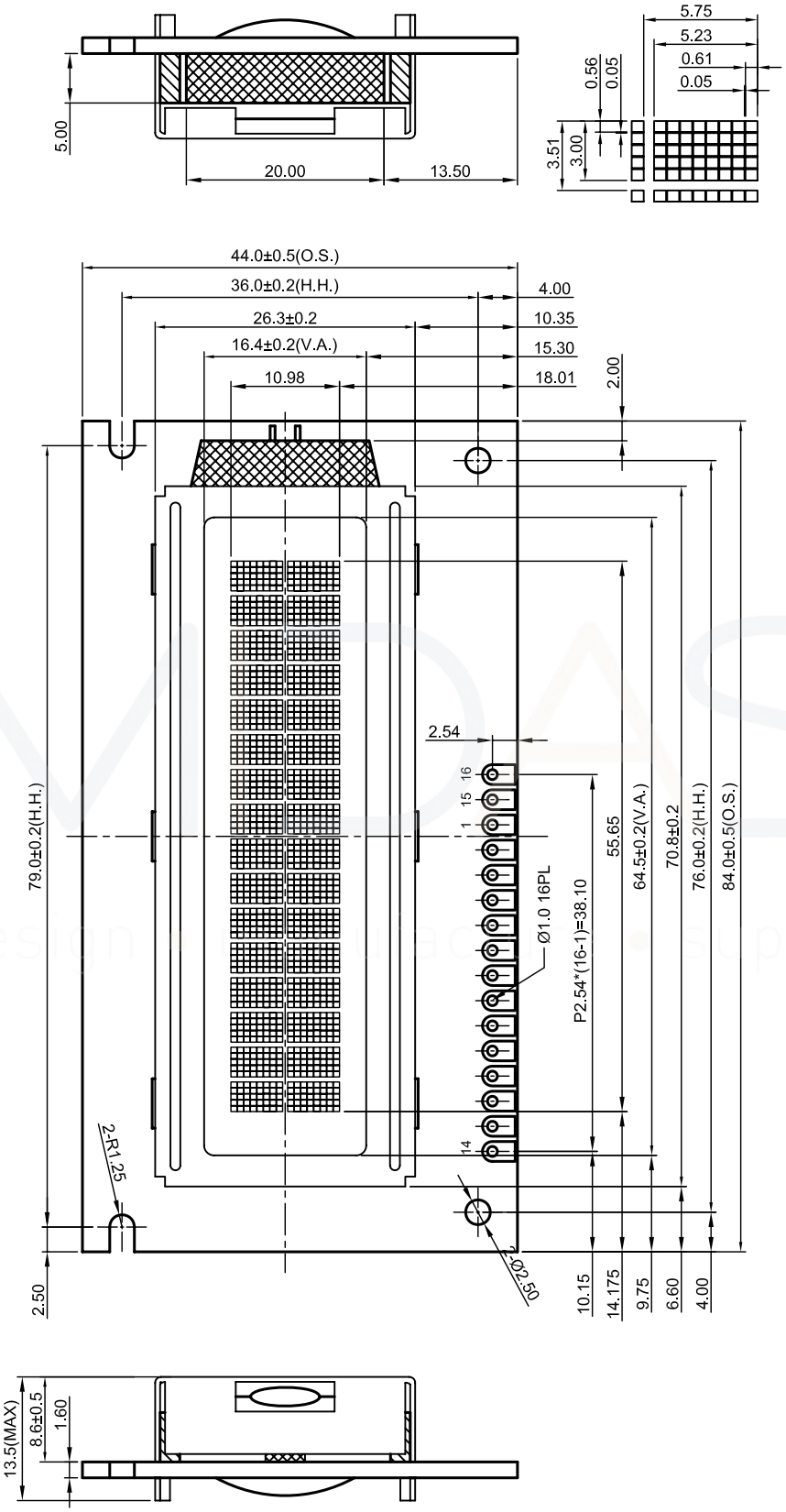
BLOCK DIAGRAM



POWER SUPPLY DIAGRAM



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)															


5.75
5.23
0.61
0.05
0.56
0.05
3.51
3.00
5.00
20.00
13.50
44.0±0.5(O.S.)
36.0±0.2(H.H.)
26.3±0.2
16.4±0.2(V.A.)
10.98
4.00
10.35
15.30
18.01
2.00
2.54
16
15
1
14
Ø1.0 16PL
P2.54*(16-1)=38.10
55.65
64.5±0.2(V.A.)
70.8±0.2
76.0±0.2(H.H.)
84.0±0.5(O.S.)
79.0±0.2(H.H.)
2-R1.25
2-Ø2.50
2.50
10.15
14.175
9.75
6.60
4.00
13.5(MAX)
8.6±0.5
1.60