


MC44005A6W-BNMLWI-V2	4 x 40	5mm Character Height	LCD Module
Specification			
Version: 1		Date: 03/08/2022	
Revision			
1	02/08/2022	First Issue	

Display Features		
Character Count	4 x 40	
Appearance	White on Blue	
Logic Voltage	5V	
Interface	I ² C	
Font Set	English / Japanese	
Display Mode	Transmissive	
Character Height	4.89mm	
LC Type	Blue STN	
Module Size	190.00 x 54.00 x 13.00mm	
Operating Temperature	-20°C ~ +70°C	
Construction	COB	Box Quantity
LED Backlight	White	Weight / Display



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	Black on Yellow/ Green	3V
English/Euro	White on Blue	3.3V
English/Cyrillic	Black on White	5V
	Black on RGB	



FEATURES

AVAILABLE OPTIONS	CHARACTERISTICS
DISPLAY FORMAT	40 Characters by 4 Lines
POLARIZER OPTIONS	Negative Transmissive
BACKLIGHT TYPE OPTIONS	Edge Type LED Backlight (Long life span version)
BACKLIGHT COLOR OPTIONS	White color
LCD PANEL OPTIONS	Blue STN
VIEWING ANGLE OPTIONS	6:00 (Bottom)
TEMPERATURE RANGE OPTIONS	-20°C ~ 70°C, Single Supply Voltage
SUGGESTED DRIVING VOLTAGE	V _{lcm} = 5.0V V _{led} = 5.0V
SUGGESTED LED DRIVING MODE	PIN17: LED+, PIN18:LED-
CONTROLLER	I2C controller
FONT MAP CODE	E Version
DRIVING DUTY	1/16
DRIVING BIAS	1/5

MECHANICAL SPECIFICATIONS

OVERALL SIZE	190.0W x 54.0H	mm	THICKNESS	max 13.0	mm
VIEWING AREA	147.0W x 29.5H	mm	HOLE-HOLE	183.0W x 47.0H	mm
CHARACTER SIZE	2.78W x 4.89H	mm	CHARACTER PITCH	0.75W x 1.20H	mm
DOT SIZE	0.50W x 0.55H	mm	DOT PITCH	0.07W x 0.07H	mm

ABSOLUTE MAXIMUM RATINGS

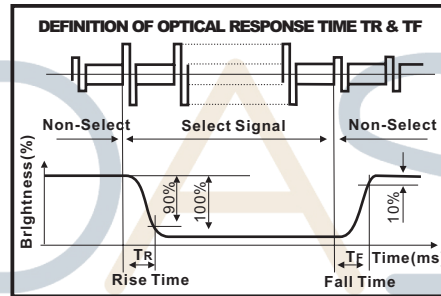
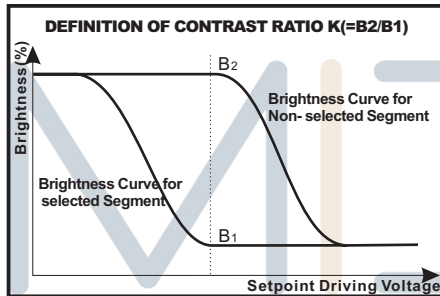
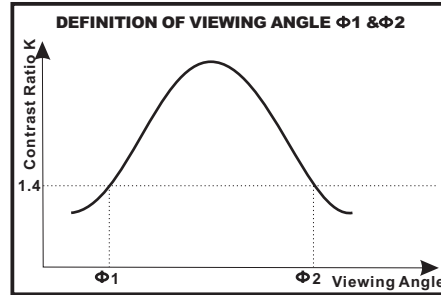
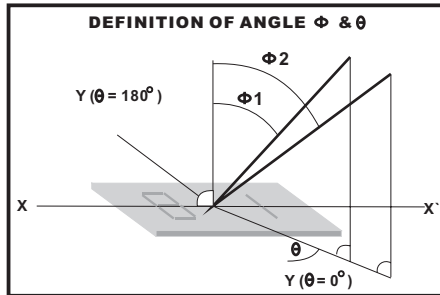
ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
POWER SUPPLY (LOGIC)	V _{dd}	25°C	-0.3	—	7.0	V
POWER SUPPLY (LCD)	V ₀	25°C	V _{dd} -13.5	—	V _{dd} +0.3	V
INPUT VOLTAGE	V _{in}	25°C	-0.3	—	V _{dd} +0.3	V
OPERATING TEMPERATURE	V _{opr}	—	-20	—	70	°C
STORAGE TEMPERATURE	V _{stg}	—	-30	—	80	°C

ELECTRONIC CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
INPUT VOLTAGE	V _{lcm} = V _{dd}	—	—	5.0	—	V
SUPPLY CURRENT	I _{dd}	V _{dd} =5V	—	1.5	—	mA
DRIVING VOLTAGE FOR LCD PANEL	V _{lcd} = (V _{dd} - V ₀)	-20°C	4.15	—	4.45	V
		0°C	4.20	—	4.50	
		25°C	4.20	4.50	4.60	
		50°C	4.15	—	4.50	
		70°C	4.10	—	4.50	

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	$\Phi 2 - \Phi 1$	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

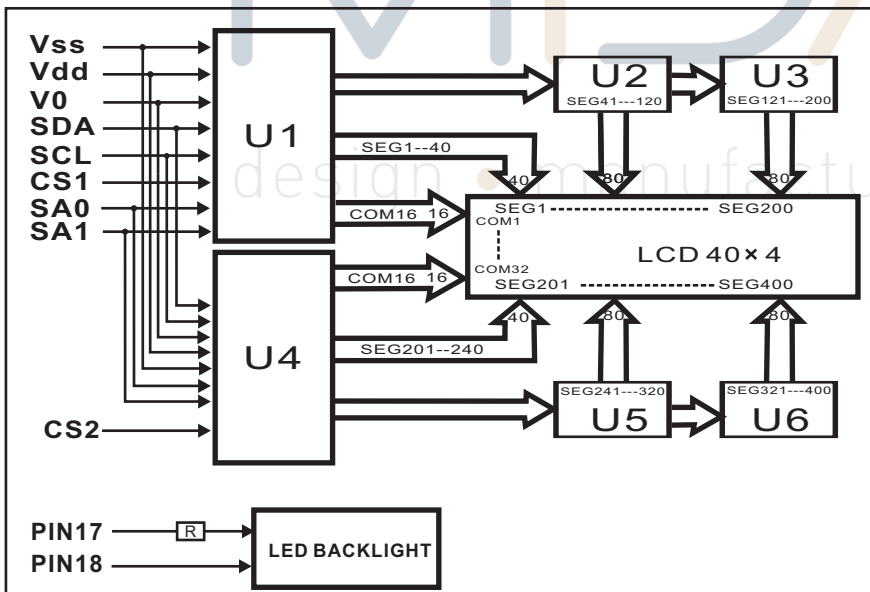
ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
LED FORWARD VOLTAGE	V_f	25°C	2.6	—	3.0	V
LED FORWARD CURRENT	I_f	25°C	—	50	—	mA
LED REVERSE CURRENT	I_r	25°C $V_r=5.0\text{V}$	—	—	100	μA
LED COLOR RANGE	X coordinate	25°C $I_f = 50\text{mA}$	0.26	—	0.30	—
	Y coordinate		0.27	—	0.31	—
LED BRIGHTNESS (WITHOUT LCD)	L_v	25°C $I_f = 50\text{mA}$	—	420	—	cd/m^2
LED BRIGHTNESS UNIFORMITY	$L_{v\text{min}}/L_{v\text{max}}$	25°C $I_f = 50\text{mA}$	70	—	—	Ratio
LED LIFE TIME	—	25°C $I_f = 50\text{mA}$	20K	—	—	Hours



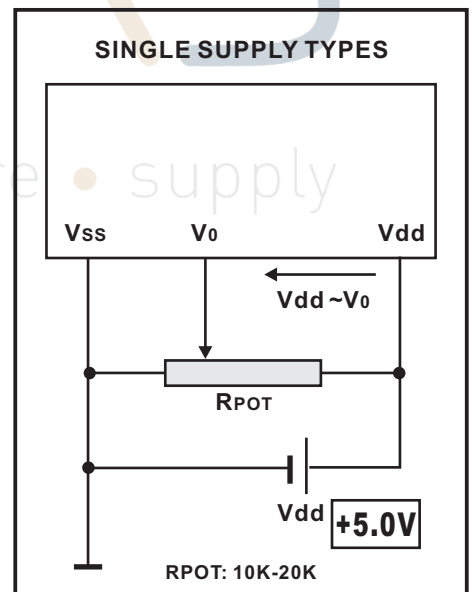
PIN ASSIGNMENT

PIN	SYMBOL	DESCRIPTION	REMARKS
1	SCL	Serial clock input	
2	SDA	Serial input data	
3	CS1	Chip select	
4	NC	No connection	
5	NC	No connection	
6	NC	No connection	
7	SA1	Slave address	
8	SA0	Slave address	
9	NC	No connection	
10	NC	No connection	
11	NC	No connection	
12	V0	Contrast Adjust	
13	Vss	GND	
14	Vdd	Power supply for LCM	5.0V
15	CS2	Chip select	
16	NC	No connection	
17	LED+	Power supply for BKL	5.0V
18	LED-	Power supply for BKL	

BLOCK DIAGRAM

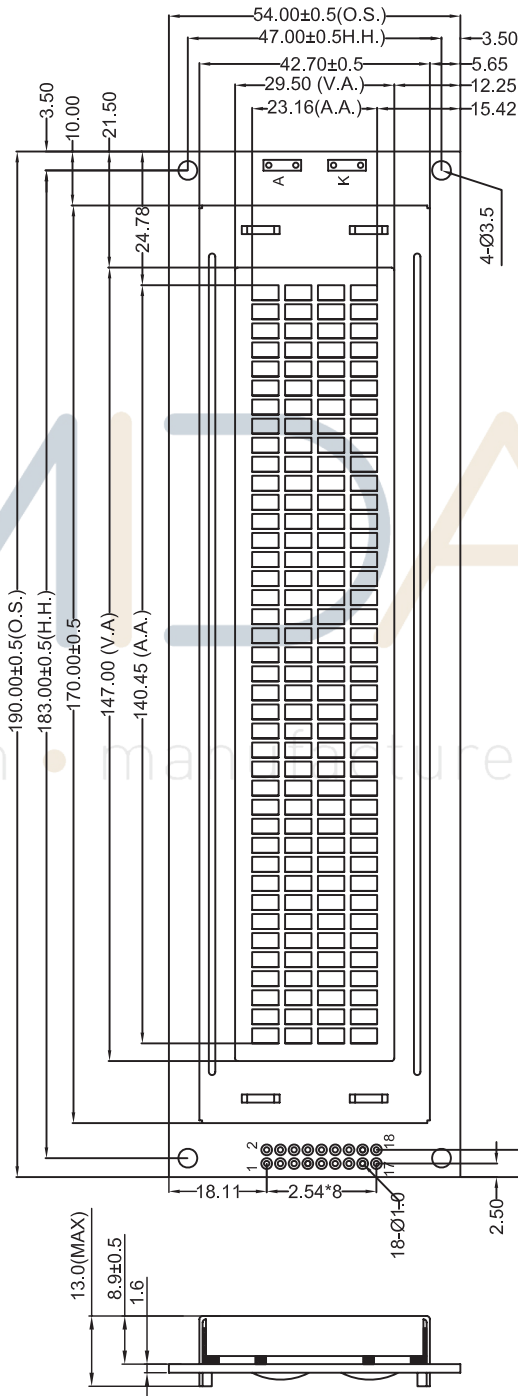
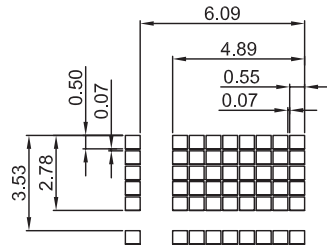


POWER SUPPLY DIAGRAM



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)															





design • manufacture • supply

