

MD44005A6W-F2PTLW	4 x 40	5mm Character Height	LCD Module
Specification			
Version: 1		Date: 11/01/2023	
Revision			
1	10/01/2023	First Issue	

Display Features			
Character Count	4 x 40		
Appearance	Black on White		
Logic Voltage	5V		
Interface	Parallel		
Font Set	English / Japanese		
Display Mode	Transflective		
Character Height	4.75mm		
LC Type	FSTN		
Module Size	190.00 x 54.00 x 13.00mm		
Operating Temperature	-20°C ~ +70°C		
Construction	COB		
LED Backlight	White	Box Quantity	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.
MDIB-CC1	The MDIB-CC1 is a interconnect board for standard pitch pinouts to fine pitch wires. Ideal for prototyping of TFT and COG LCDs.

Optional Variants		
Fonts	Appearances	Voltage
English/Japanese English/Euro English/Cyrillic	Black on Yellow/ Green White on Blue Black on RGB	3V 3.3V



FEATURES

AVAILABLE OPTIONS	CHARACTERISTICS
DISPLAY FORMAT	40 Characters by 4 Lines
POLARIZER OPTIONS	Super Black technology
BACKLIGHT TYPE OPTIONS	Edge Type LED Backlight (Long life span 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	PIN17: LED+, PIN18:LED-
CONTROLLER	I2C controller
FONT MAP CODE	K 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)	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

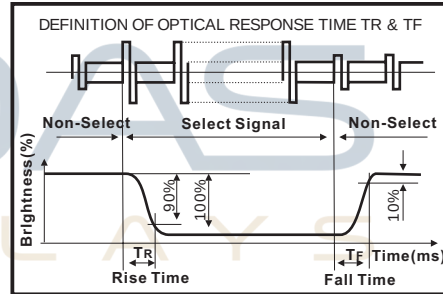
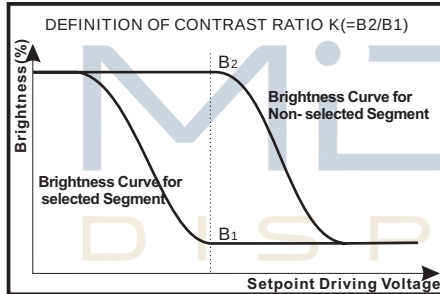
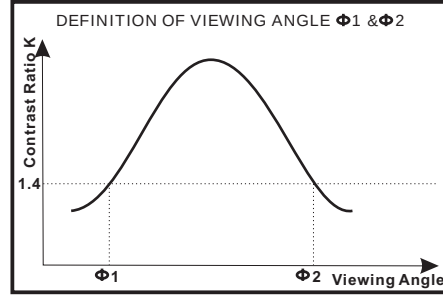
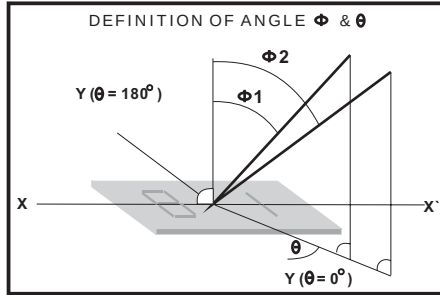
ELECTRONIC CHARACTERISTICS

	ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
	INPUT VOLTAGE	Vlcm = Vdd	—	—	5.0	—	V
	SUPPLY CURRENT	Idd	Vdd=5V	—	1.5	—	mA
	DRIVING VOLTAGE FOR LCD PANEL	Vlcd = (Vdd - V0)	-20°C	3.90	—	4.30	V
			0°C	4.10	—	4.60	
			25°C	4.20	—	4.70	
			50°C	4.20	—	4.70	
			70°C	4.20	—	4.80	

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



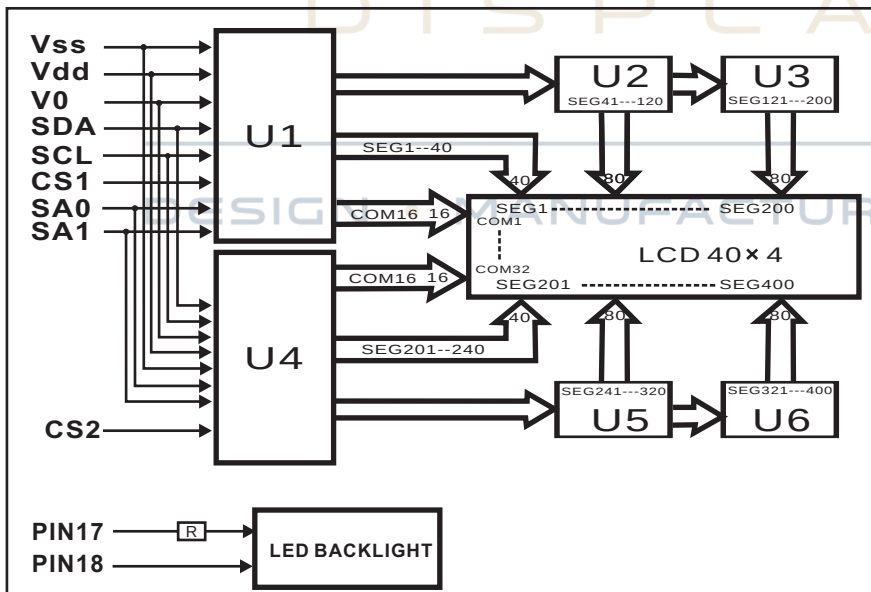
LED CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
LED FORWARD VOLTAGE	Vf	25°C	2.6	—	3.0	V
LED FORWARD CURRENT	If	25°C	—	50	—	mA
LED REVERSE CURRENT	Ir	25°C Vr=5.0V	—	—	100	μA
LED COLOR RANGE	X coordinate	25°C If = 50mA	0.26	—	0.30	—
	Y coordinate		0.27	—	0.31	—
LED BRIGHTNESS (WITHOUT LCD)	Lv	25°C If = 50mA	—	420	—	cd/m²
LED BRIGHTNESS UNIFORMITY	Lvmin/Lvmax	25°C If = 50mA	70	—	—	Ratio
LED LIFE TIME	—	25°C If = 50mA	20K	—	—	Hours

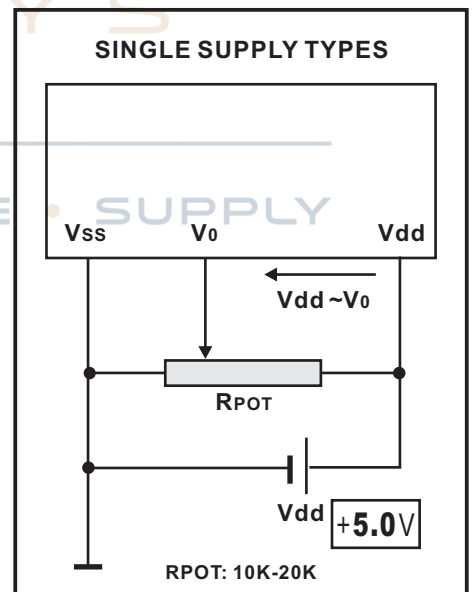
PIN ASSIGNMENT

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)															

