


MC44005A6W-FPTLWS-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		Black on White	
Logic Voltage		5V	
Interface		SPI	
Font Set		English / Japanese	
Display Mode		Transflective	
Character Height		4.89mm	
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
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RoHS
compliant

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



FEATURES

AVAILABLE OPTIONS	CHARACTERISTICS
DISPLAY FORMAT	40 Characters by 4 Lines
POLARIZER OPTIONS	Positive Transflective
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	V_{lcm} = 5.0V V_{led} = 5.0V
SUGGESTED LED DRIVING MODE	PIN17: LED+, PIN18:LED-
CONTROLLER	SPI 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

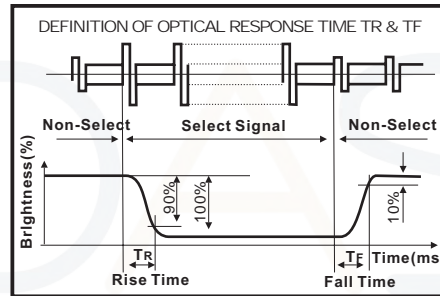
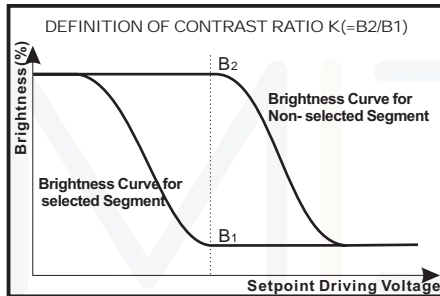
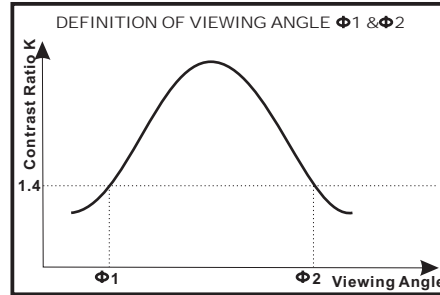
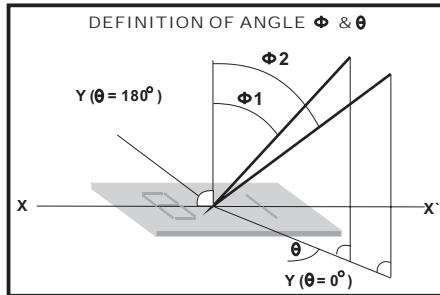
ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
POWER SUPPLY (LOGIC)	V _{dd}	25°C	-0.3	—	7.0	V
POWER SUPPLY (LCD)	V ₀	25°C	V_{dd} -13.5	—	V_{dd} +0.3	V
INPUT VOLTAGE	V _{in}	25°C	-0.3	—	V_{dd} +0.3	V
OPERATING TEMPERATURE	V _{opr}	—	-20	—	70	°C
STORAGE TEMPERATURE	V _{stg}	—	-30	—	80	°C

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	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, V _{lcd} =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	



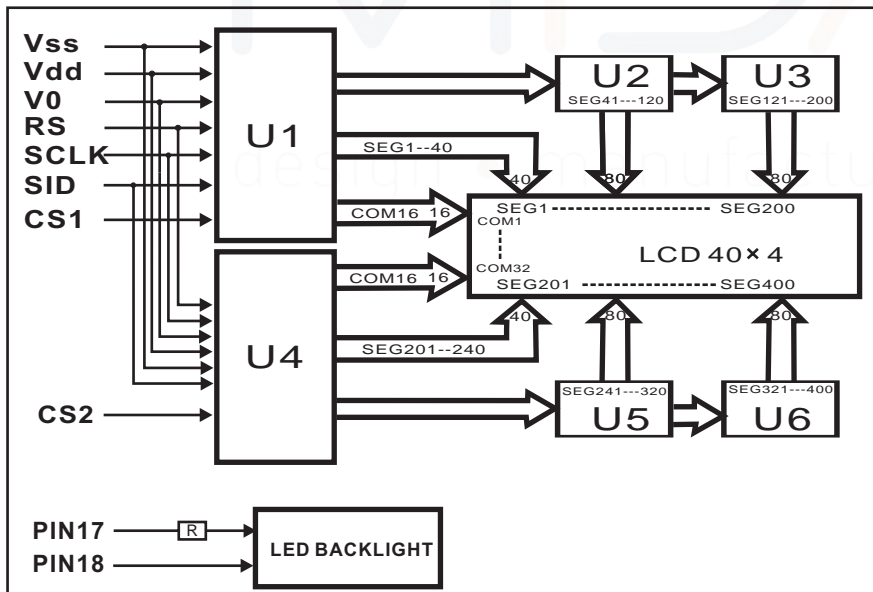
LED CHARACTERISTICS

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 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)	L _v	25°C If = 50mA	—	420	—	cd/m²
LED BRIGHTNESS UNIFORMITY	L _{vmin} /L _{vmax}	25°C If = 50mA	70	—	—	Ratio
LED LIFE TIME	—	25°C If = 50mA	20K	—	—	Hours

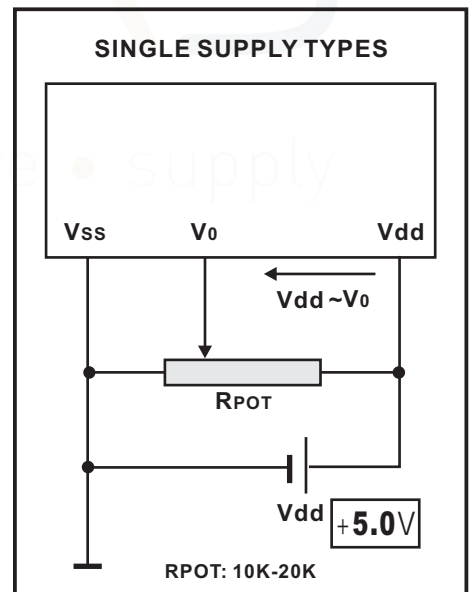
PIN ASSIGNMENT

PIN	SYMBOL	DESCRIPTION	REMARKS
1	SID	Serial data input	
2	SCLK	Serial clock input	
3	CS1	Chip select	
4	NC	No connection	
5	NC	No connection	
6	NC	No connection	
7	NC	No connection	
8	NC	No connection	
9	NC	No connection	
10	NC	No connection	
11	RS	Register Select Signal	
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)															



