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MCCOG128064B12W-FPTLW	128 x 64	N/A	LCD Module
Specification			
Version: 1	Date: 31/10/2016		
Revision			

Display Features			
Resolution	128 x 64		
Appearance	Black on White		
Logic Voltage	3.3V		
Interface	Parallel / SPI		
Font Set	N/A		
Display Mode	Transflective		
LC Type	FSTN		
Module Size	54.60 x 42.20 x 4.48		
Operating Temperature	-20°C ~ +70°C		
Construction	COG	Box Quantity	Weight / Display
LED Backlight	White	---	---

RoHS compliant

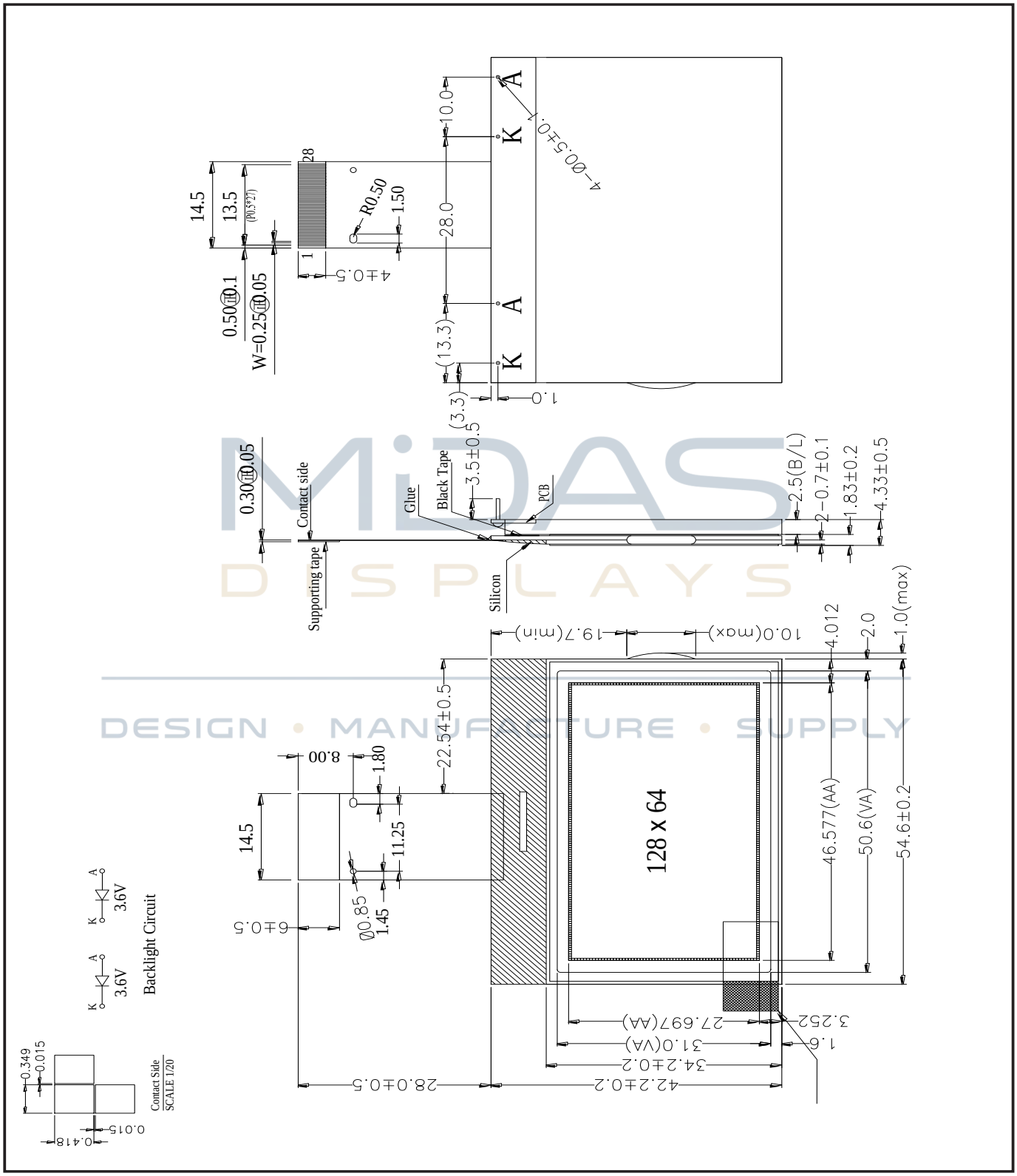
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* - For full design functionality, please use this specification in conjunction with the ST7565P specification. (Provided Separately)

Display Accessories	
Part Number	**Description**
MCIB-12	UNO 32 Breakout Board with SD Card and LED BKL driver.
MPBV-7	30-Way FFC to Cable and Wires 0.5mm Pitch.
MCCOG128064B-BEZEL	Bezel made for the MCCOG12064B series
MDC28-0.5-BC	28 way connector with 0.5mm pitch.

Optional Variants	
Appearances	**Voltage**
White on Blue Black on Yellow/Green Black on RGB	

Mechanical Specifications					
Module Size	54.60 x 42.20 x 4.48 (With Backlight)				W x H x D mm
Viewing Area	50.60 x 31.00	W x H mm	Hole-to-Hole	---	W x H mm
Dot Size	---	W x H mm	Dot Pitch	---	W x H mm



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Pin layout			
Pin	**Symbol**	**Description**	**Remarks**
1	P/S	P/S = H: Parallel Data I/O P/S = L: Serial Data Input	
2	C86	MPU Interface Selection Pin	
3	V0	Multi-Level power supply for LCD. Voltage applied is determined by LC cell, changed through resistive voltage divided or changing impedance using OP. AMP. Levels determined on VSS must maintain magnitudes shown: V0 ≥ V1 ≥ V2 ≥ V3 ≥ V4 ≥VSS	
4	V1		
5	V2		
6	V3		
7	V4		
8	C2-	DC/DC Converter. Capacitor between this terminal and CAP2P terminal.	
9	C2+	DC/DC Converter. Capacitor between this terminal and CAP2N terminal.	
10	C1+	DC/DC Converter. Capacitor between this terminal and CAP1N terminal.	
11	C1-	DC/DC Converter. Capacitor between this terminal and CAP1P terminal.	
12	C3+	DC/DC Converter. Capacitor between this terminal and CAP1N terminal.	
13	VOUT	Voltage Converter I/O	
14	VSS	Ground	
15	VDD	Power Supply	
16	D7	8-Bit bi-directional data bus, connect to 8-bit or 16-bit standard MPU data bus. SPI-4 is selected P/S = L D7 Serial data input (SI); D6 Serial Clock Input (SCL). D0~D5 connected to VDD or floating. When chip select not active, D0~D7 set to high impedance.	
17	D6		
18	D5		
19	D4		
20	D3		
21	D2		
22	D1		
23	D0		
24	E (/RD)	When connected to 8080MPU, Pin treated as the "/RD" signal of the 8080MPU and is LOW-active. Data bus output status when signal is "L". Connect 6800 MPU, pin treated as "E" signal of 6800 MPU, and is HIGH-active.	
25	R/W (/WR)	When connected to 8080MPU, Pin treated as the "/WR" signal of the 8080MPU and is LOW-active. Connect 6800 MPU, pin treated as "R/W" signal of 6800 MPU, decides access type: R/W = H: Read R/W = L: Write.	
26	D/C	Determines whether data bits are data or command.	
27	/CS1	Chip Select.	
28	/RES	/Res is "L", register settings initialised. Reset operation is performed by the /RES signal Level.	

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Absolute Maximums Ratings

Item	Symbol	Minimum	Typical	Maximum	Unit
Power Supply Voltage	V0, VOUT	-0.3	---	14.5	V
Power Supply Voltage	V1,V2,V3,V4	-0.3	---	V0+0.3	V
Power Supply Voltage	VDD	-0.3	---	3.6	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
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	V
Supply Voltage Logic	V_{DD} ~ V_{SS}	---	3.20	3.30	3.40	V
Supply Voltage LCD	V_{DD} ~ V_0	Ta=25°C	8.60	8.80	9.00	V
Supply Current	I_{DD}	V_{DD}=3.3V	---	0.10	---	mA

LCD Characteristics

For STN/FSTN LCD Panel Types

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Viewing Angle	Φ2 – Φ1	CR ≥ 2	---	---	45	ψ=180°
	Θ	---	---			
Contrast Ratio	CR	---	3	---	---	---
Response Time (Rise)	TR	---	---	---	250	ms
Response Time (Fall)	TF	---	---	---	250	ms

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LED Characteristics

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Supply Current	ILED	V=3.60V	---	32	40	mA
Supply Voltage	V	---	3.50	3.60	3.70	V
Reverse Voltage	VR	---	---	---	5	V
Luminance (Without LCD)	IV	ILED=32mA	640	800	---	Cd/m^2
---	---	---	---	---	---	---
LED Life Time	---	ILED=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.