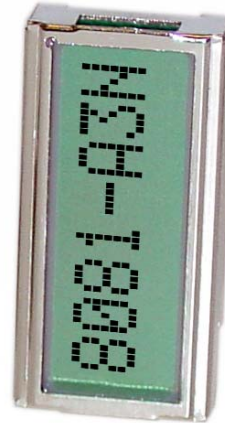
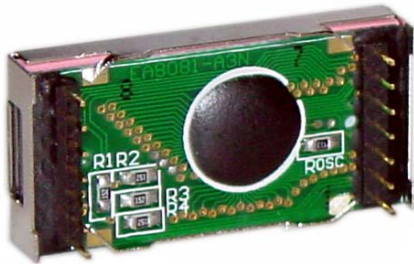


## EA 8081-A3N

### 1x8 CHARACTER INCL. CONTROLLER ST7066

Directly  
soldered into pcb



*Dimension 40 x 20 mm*

### FEATURES

- \* SUPER COMPACT LCD MODULE
- \* CONTRASTY SUPERTWIST DISPLAY (STN BLUE/NEUTRAL)
- \* LARGE CHARACTER WITH 7.15mm
- \* HD 44780 COMPATIBLE
- \* INTERFACE FOR 4- OR 8-BIT DATA BUS
- \* ASCII CHARACTER SET
- \* AVAILABLE ALSO WITH 2-LINE LCD 2x8 - FULLY COMPATIBLE
- \* POWER SUPPLY +5V@2mA
- \* OPERATING TEMPERATURE RANGE 0...+50°C
- \* NO MORE MOUNTING NECESSARY: SIMPLY SOLDER INTO PCB

### ORDERING CODE

LCD-MODULE 1x8 - CHARACTER HEIGHT 7.15mm  
LCD-MODULE 2x8 - CHARACTER HEIGHT 5,01mm  
LCD-MODULE 2x8 - WITH LED BACKLIGHT

**EA 8081-A3N**  
**EA DIPS082-HN**  
**EA DIPS082-HNLED**

## PINOUT

Pin	Symbol	Level	Funktion	Pin	Symbol	Level	Funktion
1	VSS	L	Stromversorgung 0V (GND)	8	D1	H / L	Display Data
2	VDD	H	Stromversorgung +5V	9	D2	H / L	Display Data
3	VEE	-	Kontrastspg. (ca. 0V)	10	D3	H / L	Display Data
4	RS	H / L	Umschaltung Befehl / Daten	11	D4 (D0)	H / L	Display Data
5	RW	H / L	H=Read, L=Write	12	D5 (D1)	H / L	Display Data
6	E	H	Enable (fallende Flanke)	13	D6 (D2)	H / L	Display Data
7	D0	H / L	Display Data, LSB	14	D7 (D3)	H / L	Display Data, MSB

## TABLE OF COMMANDS

Instruction	Code										Description	Execute Time (max.)	
	RS	R/W	DB 7	DB 6	DB 5	DB 4	DB 3	DB 2	DB 1	DB 0			
<b>Clear Display</b>	0	0	0	0	0	0	0	0	0	1	Clears all display and returns the cursor to the home position (Address 0).	1.64ms	
<b>Cursor At Home</b>	0	0	0	0	0	0	0	0	0	1	*	Returns the Cursor to the home position (Address 0). Also returns the display being shifted to the original position. DD RAM contents remain unchanged.	1.64ms
<b>Entry Mode Set</b>	0	0	0	0	0	0	0	0	1	I/D	S	Sets the Cursor move direction and specifies or not to shift the display. These operation are performed during data write and read.	40µs
<b>Display On/Off Control</b>	0	0	0	0	0	0	0	1	D	C	B	Sets ON/OFF of all display (D) cursor ON/OFF (C), and blink of cursor position character (B).	40µs
<b>Cursor / Display Shift</b>	0	0	0	0	0	0	1	S/C	R/L	*	*	Moves the Cursor and shifts the display without changing DD RAM contents.	40µs
<b>Function Set</b>	0	0	0	0	0	1	DL	N	F	*	*	Sets interface data length (DL) number of display lines (N) and character font (F).	40µs
<b>CG RAM Address Set</b>	0	0	0	0	1	ACG					Sets the CG RAM address. CG RAM data is sent and received after this setting.	40µs	
<b>DD RAM Address Set</b>	0	0	0	1	ADD					Sets the DD RAM address. DD RAM data is sent and received after this setting.	40µs		
<b>Busy Flag / Address Read</b>	0	1	BF	AC					Reads Busy flag (BF) indicating internal operation is being performed and reads address counter contents.	-			
<b>CG RAM / DD RAM Data write</b>	1	0	Write Data					Writes data into DD RAM or CG RAM	40µs				
<b>CG RAM / DD RAM Data Read</b>	1	1	Read Data					Reads data from DD RAM or CG RAM	40µs				

## INITIALISIERUNGSBEISPIEL FÜR DEN 8-BIT MODUS

Befehl	RS	R/W	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0	Bemerkung
Function Set	0	0	0	0	1	1	0	0	0	0	8-Bit Datenlänge, 1-zeiliges Display, 5x7 Font
Display ON/OFF	0	0	0	0	0	0	1	1	1	1	Display ein, Cursor ein, Cursor blinken
Clear Display	0	0	0	0	0	0	0	0	0	1	Display löschen, Cursor auf 1. Spalte von 1. Zeile
Entry Mode Set	0	0	0	0	0	0	0	1	1	0	Cursor Auto-Increment

### CHARACTER SET

The below show character set is already built-in. There are 8 additional character which can be defined individually.

Lower 4 bit \ Upper 4 bit	0000 (\$0x)	0010 (\$2x)	0011 (\$3x)	0100 (\$4x)	0101 (\$5x)	0110 (\$6x)	0111 (\$7x)	1010 (\$Ax)	1011 (\$Bx)	1100 (\$Cx)	1101 (\$Dx)	1110 (\$Ex)	1111 (\$Fx)
xxxx0000 (\$x0)	CG RAM (0)	0	1	2	3	4	5	6	7	8	9	A	B
xxxx0001 (\$x1)	(1)	!	!	A	Q	a	q	µ	7	7	4	ä	q
xxxx0010 (\$x2)	(2)	"	2	B	R	b	r	Γ	イ	ウ	×	ρ	θ
xxxx0011 (\$x3)	(3)	#	3	C	S	c	s	┘	ウ	フ	E	ε	∞
xxxx0100 (\$x4)	(4)	\$	4	D	T	d	t	、	I	ト	ト	μ	Ω
xxxx0101 (\$x5)	(5)	%	5	E	U	e	u	・	オ	ナ	1	ε	Ü
xxxx0110 (\$x6)	(6)	&	6	F	V	f	v	ヲ	カ	ニ	ヨ	ρ	Σ
xxxx0111 (\$x7)	(7)	'	7	G	W	g	w	ア	キ	ヌ	ラ	g	π
xxxx1000 (\$x8)	CG RAM (0)	(	8	H	X	h	x	イ	ウ	ネ	リ	フ	×
xxxx1001 (\$x9)	(1)	)	9	I	Y	i	y	ウ	ウ	ル		、	y
xxxx1010 (\$xA)	(2)	*	:	J	Z	j	z	エ	コ	ハ	レ	j	≠
xxxx1011 (\$xB)	(3)	+	;	K	[	k	[	ス	ウ	ヒ	ロ	*	≠
xxxx1100 (\$xC)	(4)	,	<	L	¥	l	l	ヤ	シ	フ	ワ	φ	≠
xxxx1101 (\$xD)	(5)	-	=	M	] m	]	]	ユ	ズ	ハ	ン	≠	÷
xxxx1110 (\$xE)	(6)	.	>	N	^ n	^	^	ヨ	セ	ホ	ハ	ñ	
xxxx1111 (\$xF)	(7)	/	?	O	_ o	_	_	ウ	リ	マ	"	ö	■

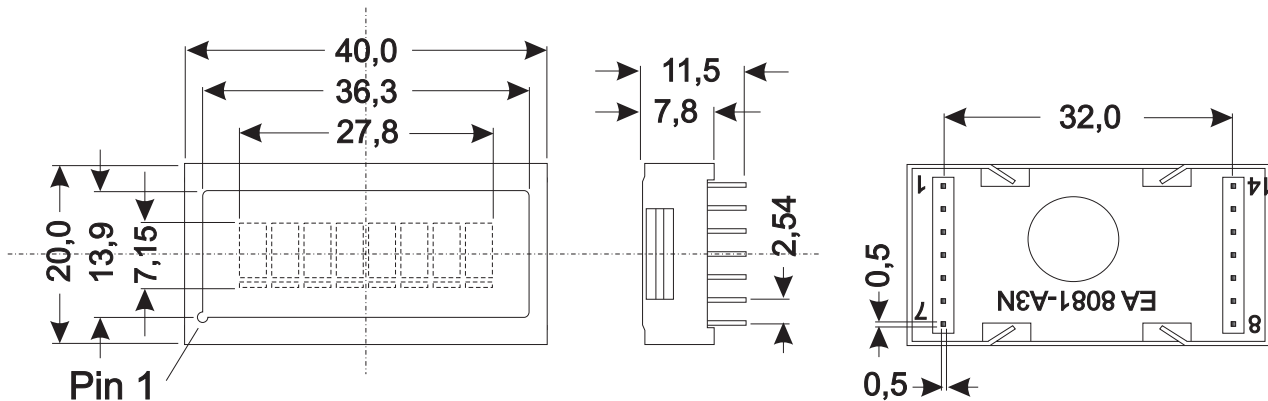
### SELF-DEFINABLE CHARACTERS

There are 192 ROM-fixed characters built-in. In addition to that it's possible to define up to 8 more individually (ASCII codes 0..7).

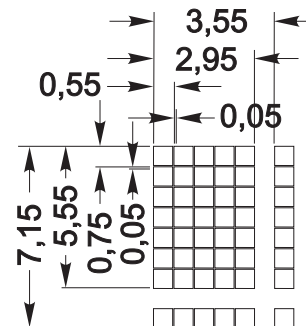
- 1.) The command "CG RAM Address Set" defines the ASCII code (bit 3,4,5) and the individual dot line (bit 0,1,2). The example shows how to define a character with code \$00.
- 2.) With the command "Data Write" pixel data for the character will be written line by line into the CG RAM. Each character requires 8 write cycles where the 8th line represents the cursor line.
- 3.) The new defined character can be used like all other characters: "DD RAM Address Set", "Data Write".

Adresse im CG RAM setzen					Daten des Zeichens								
Adresse		Hex	Bit								Hex		
7	6	5	4		3	2	1	0	Hex				
0	1	0	0	0	0	0	0	0	0	0	0	0	\$04
					0	0	1	0	0	0	0	\$04	
					0	1	0	0	0	0	0	\$04	
					0	1	1	0	0	0	0	\$04	
					1	0	0	1	0	0	1	\$15	
					1	0	1	1	1	0	0	\$0E	
					1	1	0	1	0	0	0	\$04	
					1	1	1	0	0	0	0	\$00	

DIMENSION



all dimension are in mm



Note:  
In general LC displays are not qualified for wave soldering and not for reflow soldering. Temperatures above 90°C may lead to irreversible defect.

2-LINE DISPLAY EA DIPS082-HN:

