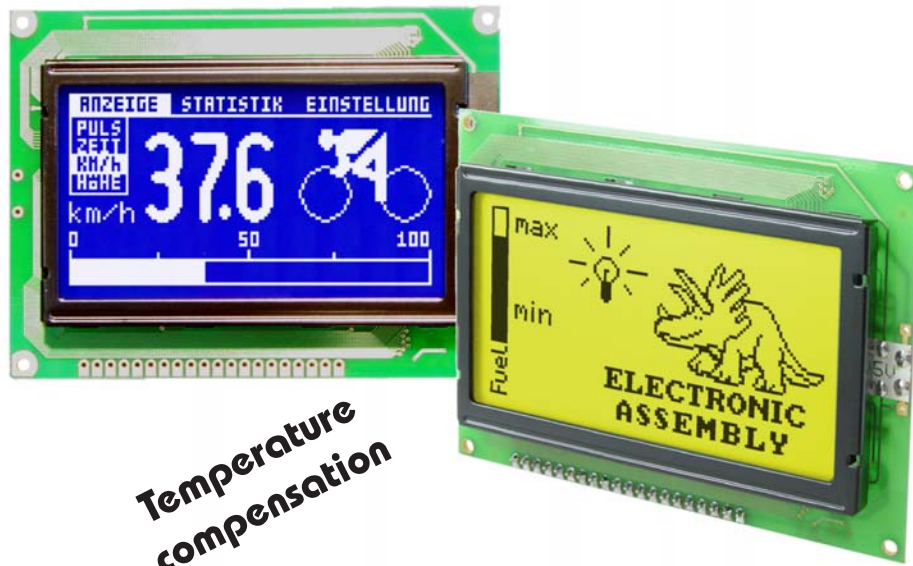


# LCD-GRAPHIC MODULE

## 128x64 DOTS



**Temperature  
compensation**

*Dimensions 93x70x14mm*

### FEATURES

- \* HIGH-CONTRAST STN DISPLAY
- \* WITH YELLOW/GREEN LED BACKLIGHT: EA W128-6N2LED
- \* BLUE-WHITE IMPRESSION WITH WHITE LED BACKLIGHT: EA W128B-6N2LW
- \* BUILT-IN CONTROLLER KS0107/8 OR COMPATIBLE
- \* 8-BIT DATA BUS INTERFACE
- \* POWER SUPPLY +5V typ. 2mA (WITHOUT BACKLIGHT)
- \* BACKLIGHT max. 250mA@+25°C (yellow/green) and 60mA@+25°C (blue-white)
- \* ON BOARD CONTRAST VOLTAGE GENERATOR (ABOUT -9V)
- \* OPERATING TEMPERATURE RANGE -20...+70°C, STORAGE -30...+80°C
- \* AUTOMATIC TEMPERATURE COMPENSATION ON BOARD

### OPTIONALLY

- \* TOUCH PANEL WITH 8x4 AREAS, ANTI-GLARE
- \* DRIVER-IC WITH RS-232 (NOT IN COMBINATION WITH TOUCH PANEL)
- \* SNAP-IN BEZEL EA 0099-KE

### ORDERING CODE

LCD-GRAPHIC MODULE 128x64 DOTS

LCD-GRAPHIC MODULE 128x64 DOTS WITH LED B/L

LCD-GRAPHIC MODULE 128x64 WITH TOUCH PANEL 8X4

LCD-GRAPHIC MODULE BLUE 128x64 DOTS WITH LED B/L

LCD-GRAPHIC MODULE BLUE 128x64 WITH TOUCH PANEL

HIGH-LEVEL-GRAPHICCONTROLLER WITH RS-232C

SNAP-IN BEZEL 102x80mm

**EA W128-6N2**

**EA W128-6N2LED**

**EA W128-6N2LEDTP**

**EA W128B-6N2LW**

**EA W128B-6N2LWTP**

**EA IC202-PGH**

**EA 0099-KE**

**ELECTRONIC  
ASSEMBLY**

making things easy

## LC-DISPLAY EA W128-6N2

This graphic display module is made in newest STN lcd technology. It is equipped with a yellow/green or a white LED backlight. This makes it well readable under various ambient light conditions. For direct sunlight we suggest the yellow/green version.

The display can be easy connected to a 6800 microprocessor system.

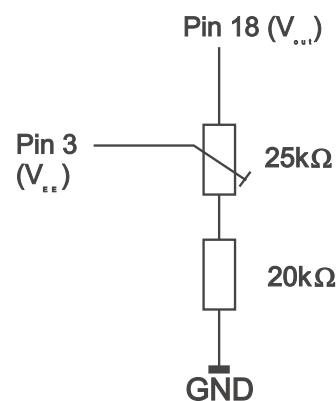
Using the backlight requires a current source or an external resistor. Maximum current is 250mA (yellow/green) and 60mA (blue-white), specified for +25°C. The forward voltage is typ. 4.2V and 3.0~3.6V.

Please consider a derating at higher ambient temperatures.

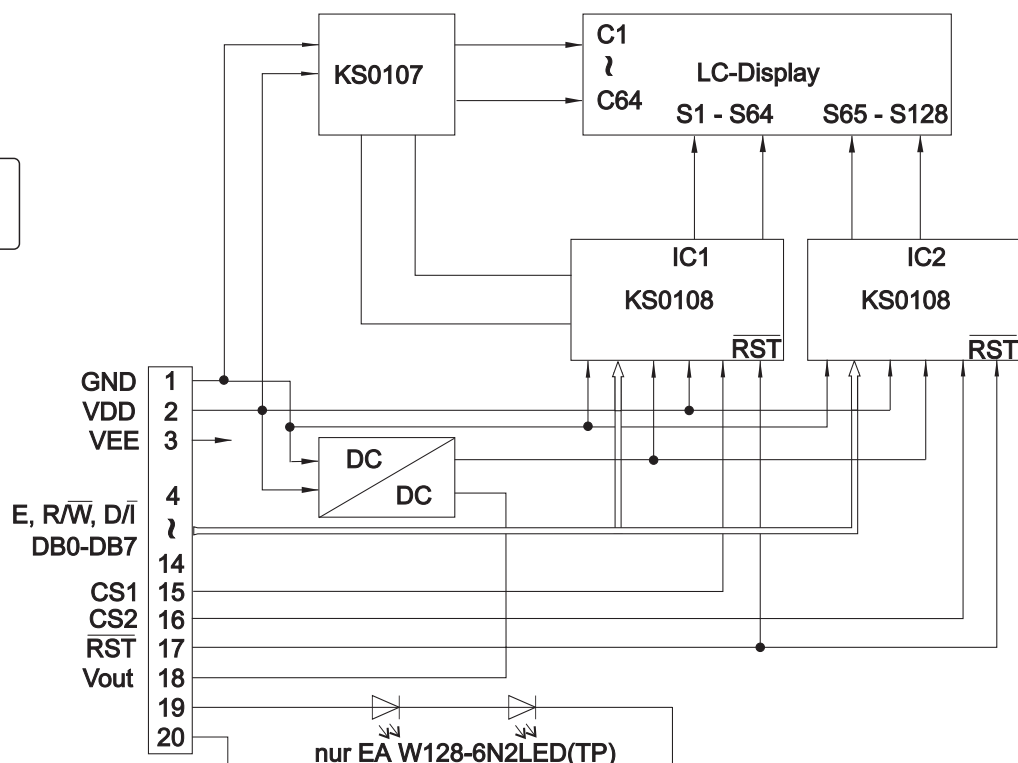
## PINOUT

Pin	Symbol	Function
1	GND	Ground potential (0V)
2	VDD	Power supply for logic (+5V)
3	VEE	Operating voltage for LC driving (input)
4	D/t	H: Data input L: Instruction code input
5	R/W	H: Data Read L: Data Write
6	E	Enable signal (falling edge)
7..14	D0..D7	Data bus line
15	CS1	H: Chip selection left side
16	CS2	H: Chip selection right side
17	RST	L: Reset
18	VOUT	Output voltage for LC driving (-7..-9V) depends on module temperature
19	A	Anode for LED backlight
20	C	Cathode for LED backlight

## CONTRAST ADJUSTMENT



## BLOC DIAGRAMM



## ABSOLUTE MAXIMUM RATING

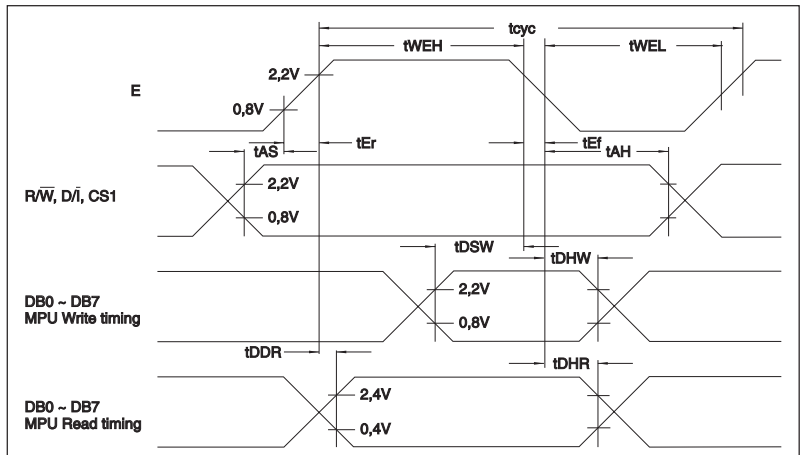
Parameter	Symbol	Min	Max	Unit
Power supply for logic	VDD-VSS	0	7,0	V
Input voltage	VI	VSS	VDD	V
Operating temperature	Ta	-20	+70	°C
Storage temperature	Tstg	-30	+80	°C

## ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Supply voltage	VDD	-	4,5	5,0	5,5	V
Supply current	IDD	VDD=5V	-	2,0	3,0	mA
High level input voltage for logic	VIH	-	2,4	-	VDD	V
Low level input voltage for logic	VIL	-	0	-	0,7	V
High level output voltage for logic	VOH	-IOH=0,6mA	VDD-0,4	-	VDD	V
Low level output voltage for logic	VOL	IOL=1,6mA	0	-	0,4	V
RES input high voltage	VIHR	-	0,7xVDD	-	VDD	V

## TIMING CHARACTERISTICS

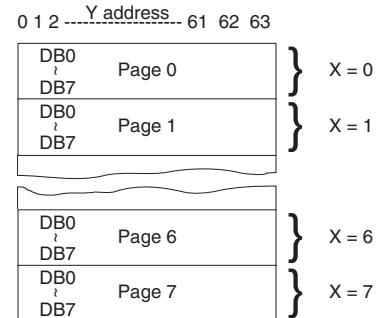
Parameter	Symb	Min	Typ	Max	Unit
Enable cycle time	tcyc	1000	-	-	ns
Enable Puls width	tWEH	450	-	-	ns
	tWEL	450	-	-	ns
Enable raise time	tEr	-	-	25	ns
Enable fall time	tEf	-	-	25	ns
Set-up time	tAS	140	-	-	ns
Data set-up time	tDSW	200	-	-	ns
Data delay time	tDDR	-	-	320	ns
Address hold time	tAH	10	-	-	ns
Data hold time (Write)	tDHW	10	-	-	ns
Data hold time (Read)	tDHR	20	-	-	ns



## INSTRUCTION SET KS0108

Instructions	Code										
	R/W	D/I	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0	
Display ON/OFF	0	0	0	0	1	1	1	1	1	1/0	Controls the ON/OFF of display. RAM data and internal status are not affected. 1:ON, 0:OFF
Display start line	0	0	1	1	display start line (0 - 63)					1/0	Specifies a RAM line displayed at the top of screen
Set page(X address)	0	0	1	0	1	1	1	Page (0 - 7)			Sets the page (x address) of RAM at the page of (x address) register.
4. Set address	0	0	0	1	Y address (0 - 63)					0	Sets the Y address at the Y address counter
5. Status Read	1	0	B U S Y	0	ON / OFF	R E S E T	0	0	0	0	Read the status. RESET 1:reset 0:normal ON/OFF 1:display OFF 2:display ON BUSY 1:on the internal operation 0:Ready
Write display data	0	1	Write data								Writes data DB0 (LSB) to DB7 (MSB) on the data bus into display RAM. Can access to the address of the display RAM specified in advance.
Read display data	1	1	Read data								Reads data DB0 (LSB) to DB7 (MSB) from the display RAM to the data bus. After the access, Y address is increased by 1.

### Address Configuration of Display Data RAM



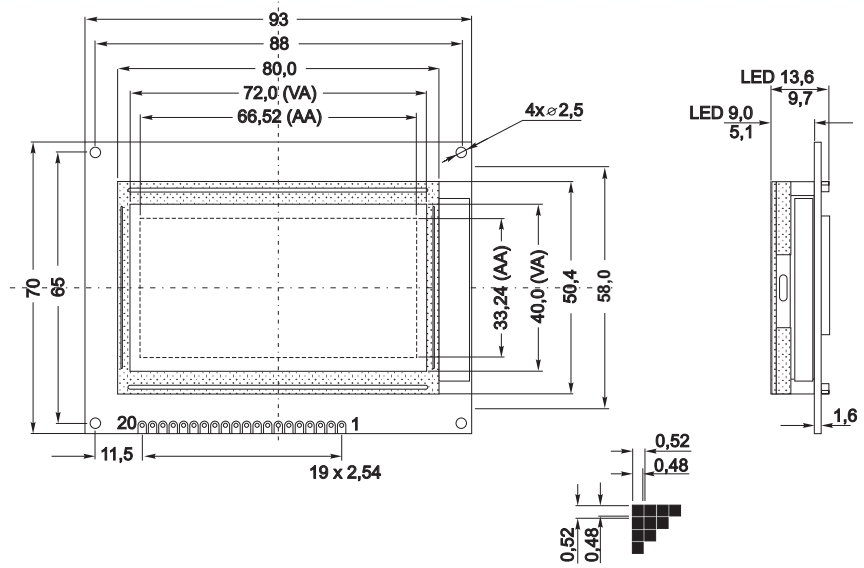
A full data sheet for the controller KS0108 you will find at our web site:

<http://www.lcd-module.de/eng/dbl/dbl.htm>

## DIMENSIONS

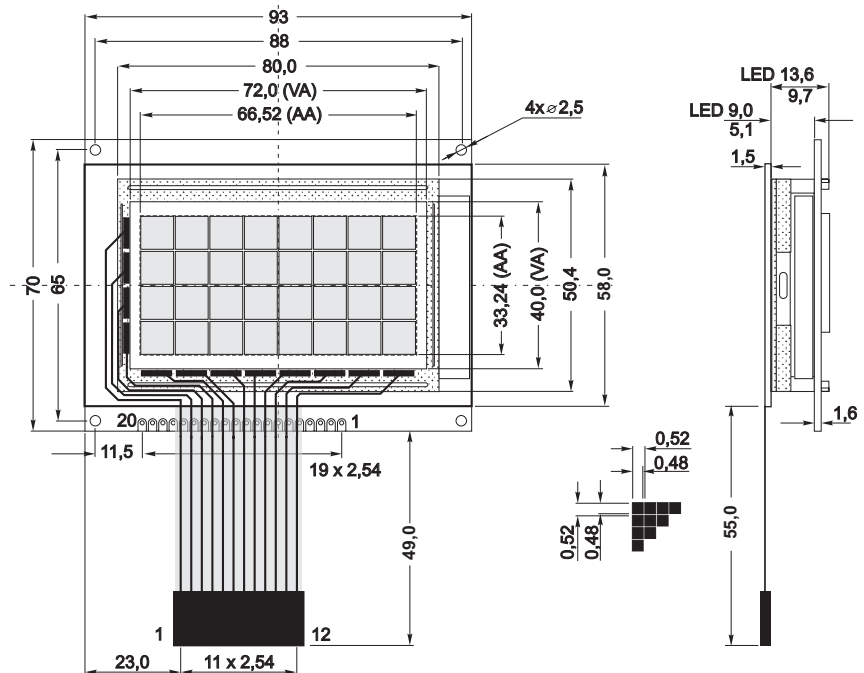
### WITHOUT TOUCH PANEL

EA W128-6N2LED  
EA W128B-6N2LW  
all dimensions are in mm



### WITH TOUCH PANEL

EA W128-6N2LEDTP  
EA W128B-6N2LWTP  
all dimensions are in mm



### TOUCH PANEL

The surface of the touch panel is anti-reflex and scratch proof.

Technology: resistive matrix touch with 8x4 fix located „keys“. Operation is like a mebrane keyboard: scan columns and rows.

Specification				
Item	min	typ	max	Value
On-Resistance	300		10.000	Ω
Voltage	0.5		5	V
Current	10u		10m	A
Force	150		200	g
Bounce		10		ms
Temperature range	-30		+75	°C
Lifetime	1.000.000,			Cycle