



**FENIX** *group*

Quality & Service

Low-cost  
Standard  
Character  
LCD Modules



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# Fenix custom-Made LCD panels

## INTRODUCTION

Since custom-made LCD panel introduction 25 years ago, their usage has increased drastically. From calculators, watches and pocket games to cover the industrial market (medical instrumentation, automobile industry, weighing scales and so many other applications).

One of the main advantages why using custom-made LCD panels is their easiness in displaying customised contents required on any application. As consequence, using custom-made LCD panels enhance the performance and quality of any final product.

Custom-made LCD panels can display endless combinations of numeric or/and alphanumeric characters, symbols, indicators, messages, icons, enunciators, bar graphs, and so on. Their content is only limited by the imagination of the designer engineer.

## HOW TO ORDER

Make a photocopy of the custom-made LCD panel design form that you will find in this catalogue, fill it up properly, and send it to us together any relevant drawing and/or specification sheet, including external and internal dimensions and sizes, so that we can work out a reliable quotation.

## OPTIONAL ACCESSORIES

Apart from supplying the required custom-made LCD panel, FENIX can provide customers with the following accessories to make easier the assembly process:

### Backlight panels

Standard backlight panels or customised backlight panels, for Transflective or Transmissive custom-made LCD panels, can be provided to customers in accordingly. The following types are available :

- LED backlight panels
- ELECTROLUMINESCENT backlight panels, including the complete EL inverter, or just the voltage transformer.

### Zebra/Elastomeric connectors

Rubber connectors can also be supplied in accordance with the custom-made LCD panels, for those that do not use pin connectors.

# Custom-Made LCD panel design form

LCD TYPE	<input type="checkbox"/> TN <input type="checkbox"/> STN	DRIVE METHOD	<input type="checkbox"/> DYNAMIC <input type="checkbox"/> STATIC	VOP <input type="text"/> DUTY <input type="text"/> BIAS <input type="text"/>	DRIVER <input type="text"/> FREQ <input type="text"/>
VIEW DIRECTION	<input type="checkbox"/> 6:00 (DOWN) <input type="checkbox"/> 12:00 (UP) <input type="checkbox"/> 3:00 (RIGHT) <input type="checkbox"/> 9:00 (LEFT)	DISPLAY MODE	<input type="checkbox"/> POSITIVE <input type="checkbox"/> NEGATIVE	POLARIZER TYPE <input type="checkbox"/> REFLECTIVE <input type="checkbox"/> TRANSFLECTIVE <input type="checkbox"/> TRANSMISSIVE	
CONNECTOR	<input type="checkbox"/> RUBBER <input type="checkbox"/> PIN <input type="checkbox"/> FLEXIBLE	TEMPERATURE RANGE	OPERATING TEMPERATURE <input type="text"/> °C STORAGE TEMPERATURE <input type="text"/> °C		<input type="text"/> °C <input type="text"/> °C
DIMENSIONS	LCD WIDTH <input type="text"/> LCD HEIGHT <input type="text"/> GLASS THICKNESS <input type="text"/> PIN LENGTH <input type="text"/> N° OF PIN ROWS <input type="text"/>			VIEWING AREA WIDTH <input type="text"/> VIEWING AREA HEIGHT <input type="text"/> LCD THICKNESS <input type="text"/> PIN PITCH <input type="text"/> N° OF PIN PER ROW <input type="text"/>	
DELIVERY SCHEDULE	COUNTER DRAWING FOR APPROVAL IN 2 WEEKS, ONCE QUOTATION IN ACCEPTED SAMPLES FOR APPROVAL IN 4 WEEKS, ONCE COUNTER DRAWING IS APPROVED MASS PRODUCTION IN 6 WEEKS, ONCE SAMPLES ARE APPROVED			QUANTITY PER ORDER <input type="text"/> QUANTITY PER YEAR <input type="text"/>	



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# How to order

## 1 LCD TYPE

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- A TN
- B STN Yellow-green
- C STN Gray
- D STN Negative
- E FSTN

## 2 POLARIZER AND VIEWING ANGLE TYPE

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- A Reflective / 6H
- B Reflective / 12H
- C Transflective / 6H
- D Transflective / 12H
- E Transmissive / 6H
- F Transmissive / 12H
- G Negative / 6H
- H Negative / 12H

## 3 BACKLIGHT TYPE

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Nil Without backlight

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- A Bottom LED
- Q Edge LED
- E EL
- F CCFL

## 4 BACKLIGHT COLOUR

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Nil Without backlight

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- B Yellow-green
- C Blue
- D White

## XX SPECIAL OPTION

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- W Extended operating temperature range
- XX Special numbering according customer options



# LCD module guiding chart

## CHARACTER LCD MODULE SERIES

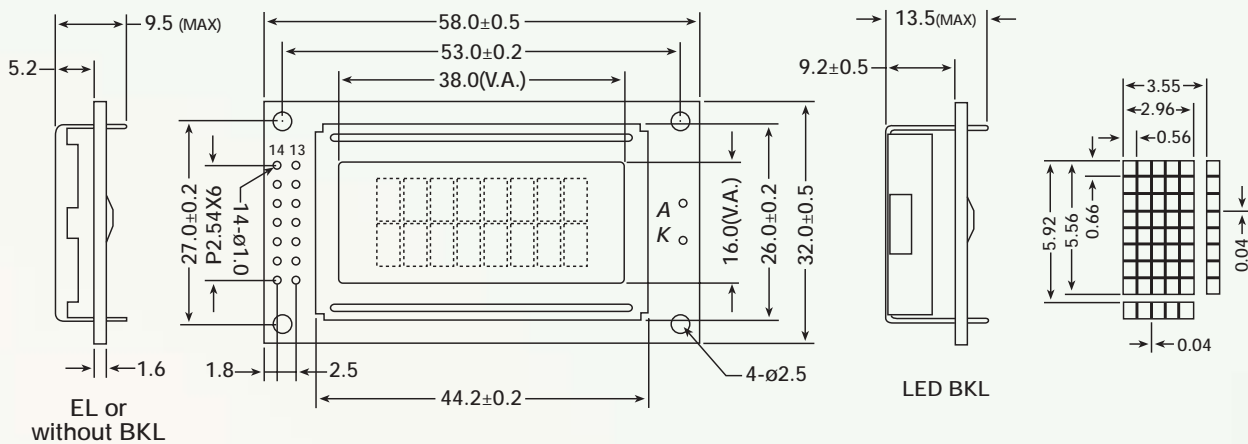
Display Characters x line	Module Partnumber	Module Size (W x H x L)	Dot Size (W x H)	Character Size (W x H)	View area (W x H)	Duty Cycle
8 x 2	FNX082A	58.0 x 32.0 x 9.5/13.5	0.56 x 0.66	2.96 x 5.56	38.0 x 16.0	1/16
16 x 1	FNX161A	80.0 x 36.0 x 9.5/13.5	0.55 x 0.75	3.07 x 6.56	64.5 x 14.0	1/16
	FNX161B	122.0 x 33.0 x 9.5/13.5	0.92 x 1.10	4.84 x 9.22	99.0 x 13.0	1/16
16 x 2	FNX162A	85.0 x 29.5 x 9.5/13.5	0.56 x 0.61	3.00 x 5.23	64.5 x 16.4	1/16
	FNX162B	80.0 x 36.0 x 9.5/13.5	0.56 x 0.61	3.00 x 5.23	64.5 x 16.4	1/16
	FNX162C	85.0 x 36.0 x 9.5/13.5	0.56 x 0.61	3.00 x 5.23	63.0 x 16.4	1/16
	FNX162D	84.0 x 44.0 x 9.5/13.5	0.56 x 0.61	3.00 x 5.23	64.5 x 16.4	1/16
	FNX162E	122.0 x 44.0 x 9.5/13.5	1.00 x 1.15	5.20 x 9.55	99.0 x 24.0	1/16
16 x 4	FNX164A	87.0 x 60.0 x 9.5/14.0	0.55 x 0.55	2.95 x 4.75	61.8 x 25.2	1/16
20 x 2	FNX202A	116.0 x 37.0 x 9.5/13.5	0.60 x 0.65	3.20 x 5.55	83.0 x 18.6	1/16
	FNX202B	180.0 x 40.0 x 9.5/15.0	1.12 x 1.12	6.00 x 9.66	149.0 x 23.0	1/16
20 x 4	FNX204A	98.0 x 60.0 x 9.5/13.5	0.55 x 0.55	2.95 x 4.75	78.0 x 25.2	1/16
	FNX204B	146.0 x 62.5 x 10.5/14.5	0.92 x 1.10	4.84 x 9.22	123.0 x 42.5	1/16
24 x 2	FNX242A	118.0 x 36.0 x 9.5/14.7	0.60 x 0.65	3.20 x 5.55	94.5 x 18.0	1/16
40 x 2	FNX402A	182.0 x 33.5 x 10.5/14.0	0.60 x 0.65	3.20 x 5.55	154.0 x 16.5	1/16
40 x 4	FNX404A	190.0 x 54.0 x 10.5/14.0	0.50 x 0.55	2.78 x 4.89	190.0 x 54.0	1/16

## GRAPHIC LCD MODULE SERIES

Display Dots (W x H)	Module Partnumber	Module Size (W x H x L)	Dot Size (W x H)	View area (W x H)	Duty Cycle	Built-in Controller
128 x 64	FNX12864A	93.0 x 70.0 x 9.0/13.0	0.48 x 0.48	72.0 x 40.0	1/64	KS0108B
	FNX12864C	78.0 x 70.0 x 10.0/13.0	0.40 x 0.56	62.0 x 44.0	1/64	KS0108B
	FNX12864D	78.0 x 70.0 x 10.5/13.0	0.40 x 0.56	62.0 x 44.0	1/64	T6963C
	FNX12864E	75.0 x 52.7 x 9.5/12.5	0.39 x 0.39	60.0 x 32.5	1/64	KS0108B
240 x 64	FNX24064B	180.0 x 65.0 x 9.5/13.0	0.49 x 0.49	134.0 x 40.4	1/64	T6963C
240 x 128	FNX240128B	170.0 x 103.2 x 14.0	0.47 x 0.47	132.0 x 76.0	1/128	T6963C
	FNX240128G	144.0 x 104.0 x 12.0/15.0	0.40 x 0.40	114.0 x 64.0	1/128	T6963C*
320 x 240	FNX320240F	160.0/167.1 x 109.0 x 11.0/12.5	0.345 x 0.345	122.0 x 92.0	1/240	SED1335*
	FNX320240Q1	85.0 x 92.2 x 7.6/9.0	0.225 x 0.225	62.0 x 81.8	1/240	SED1335*

\* Optional with pure driver only

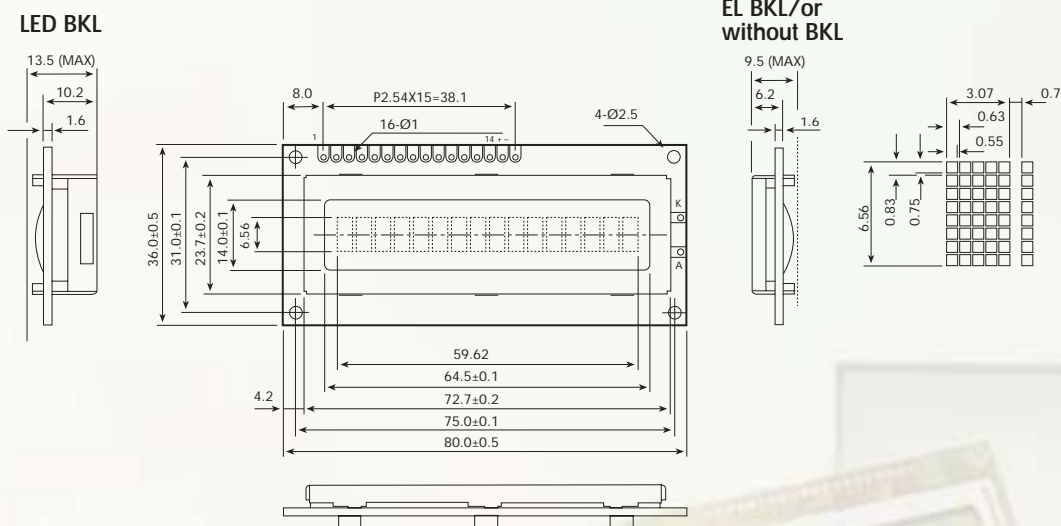
## FNX082A



### FEATURES

1. 5X8 dots with cursor
2. Built-in controller (KS0066U or Equivalent)
3. +5V power supply (Also available for +3.0V)
4. 1/16 duty cycle
5. BKL to be driven by pin1, pin2, or pin15, pin16 or A,K
6. N.V. optional

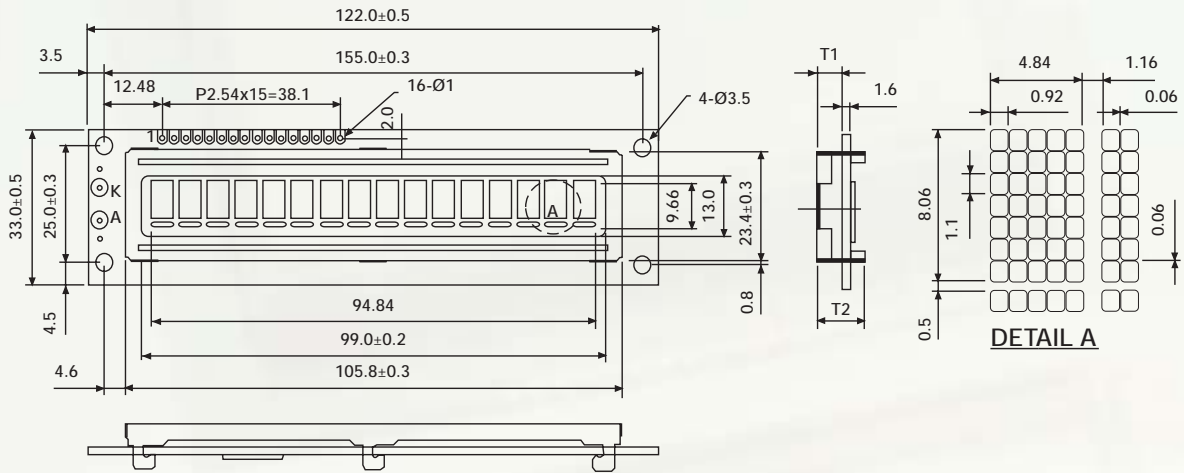
## FNX161C



### PERFORMANCE FEATURES

Performance features	STN, TN
Polarizer	Reflective, transfective, transmissive
Color	Gray, yellow, blue
Backlight	Led (yellow-green)
Temperature range	Standard, wide
Controller	KS0066 (or equivalent)

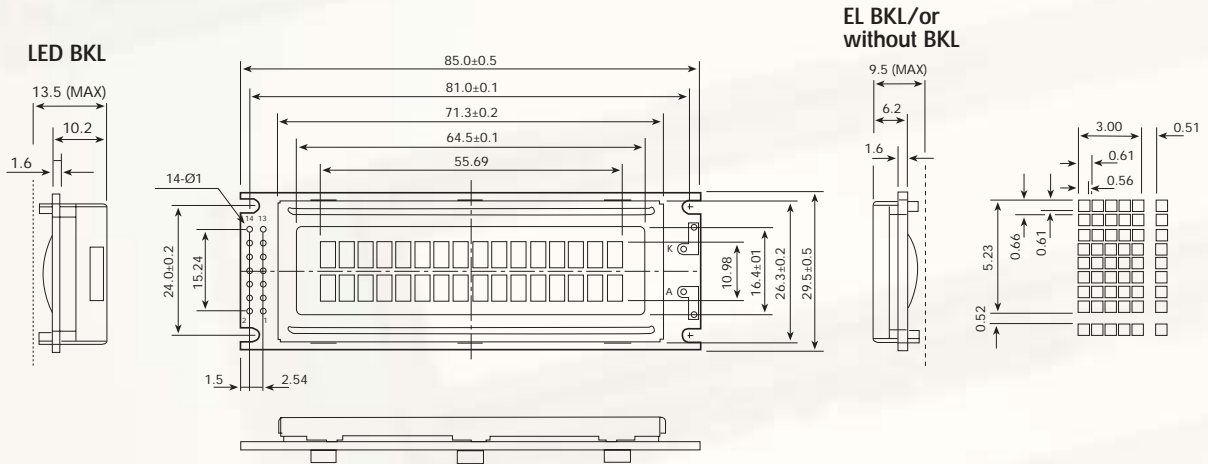
**FNX161B**



**FEATURE**

1. Construction: STN LCD panel, Bezel, Zebra and PCB
2. Optional LED back-light
3. Controller: KS0066U or Equivalent
4. 5V or 3.3V single power input. Built-in DC/DC converter while using 3.3V power input
5. Normal / Extended temperature type

**FNX162A**



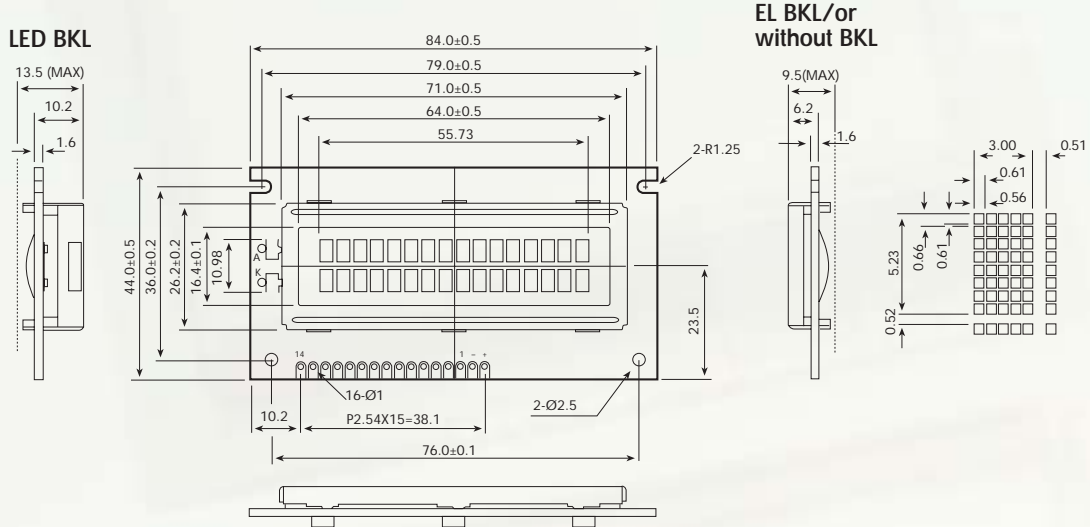
**PERFORMANCE FEATURES**

Performance features	STN, TN
Polarizer	Reflective, transfective, transmissive
Color	Gray, yellow, blue
Backlight	Led (yellow-green)
Temperature range	Standard, wide
Controller	KS0066 (or equivalent)





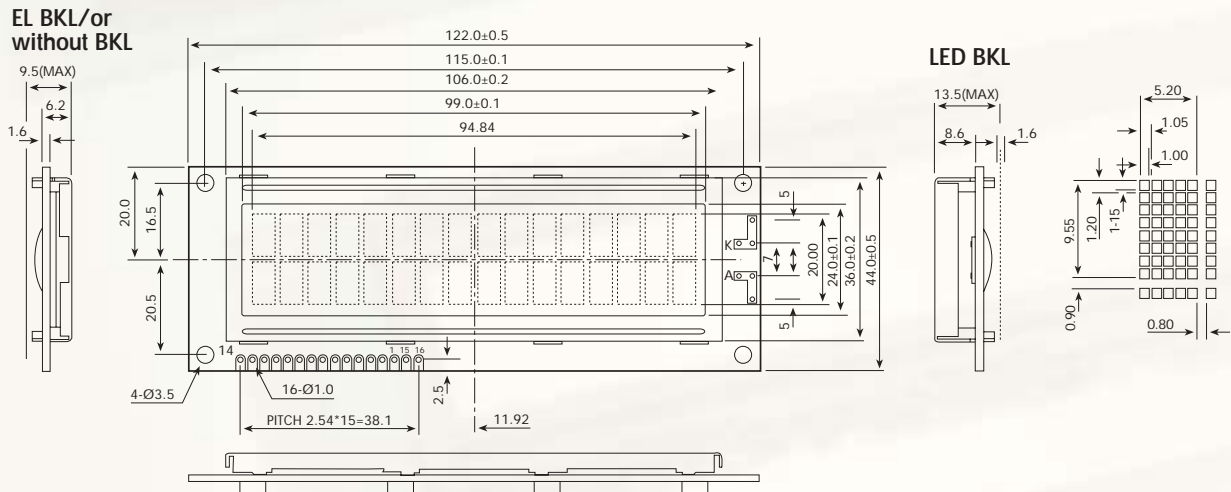
## FNX162D



### PERFORMANCE FEATURES

Performance features	STN, TN
Polarizer	Reflective, transfective, transmissive
Color	Gray, yellow, blue
Backlight	Led (yellow-green)
Temperature range	Standard, wide
Controller	KS0066 (or equivalent)

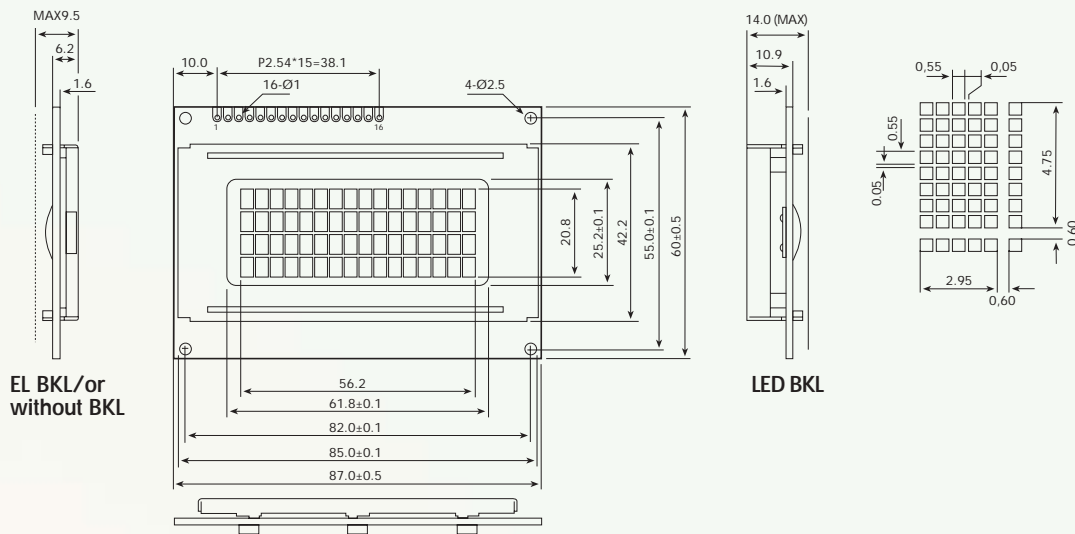
## FNX162E



### PERFORMANCE FEATURES

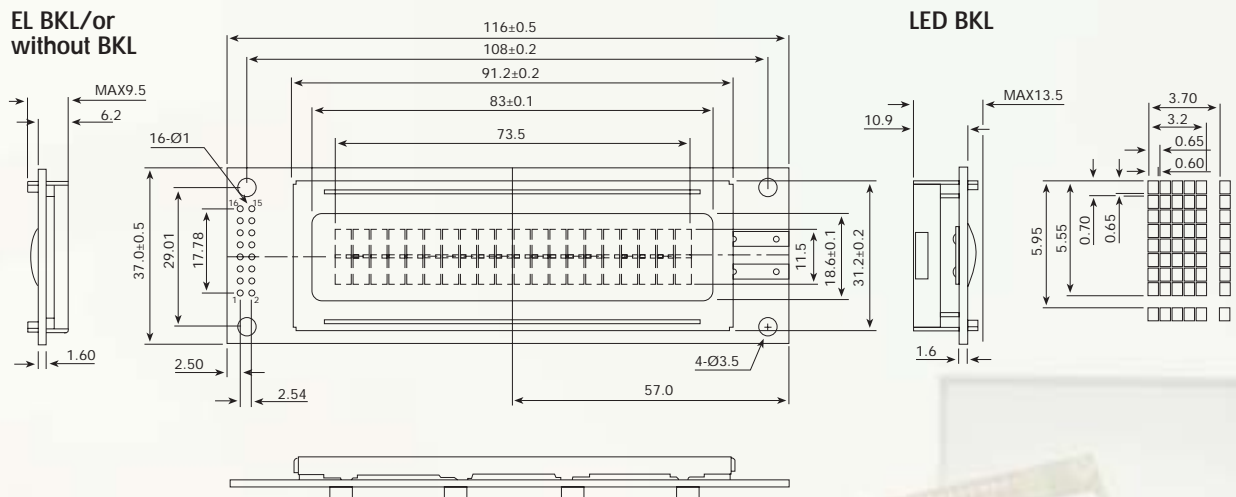
Performance features	STN, TN
Polarizer	Reflective, transfective, transmissive
Color	Gray, yellow, blue
Backlight	Led (yellow-green)
Temperature range	Standard, wide
Controller	KS0066 (or equivalent)

## FNX164A



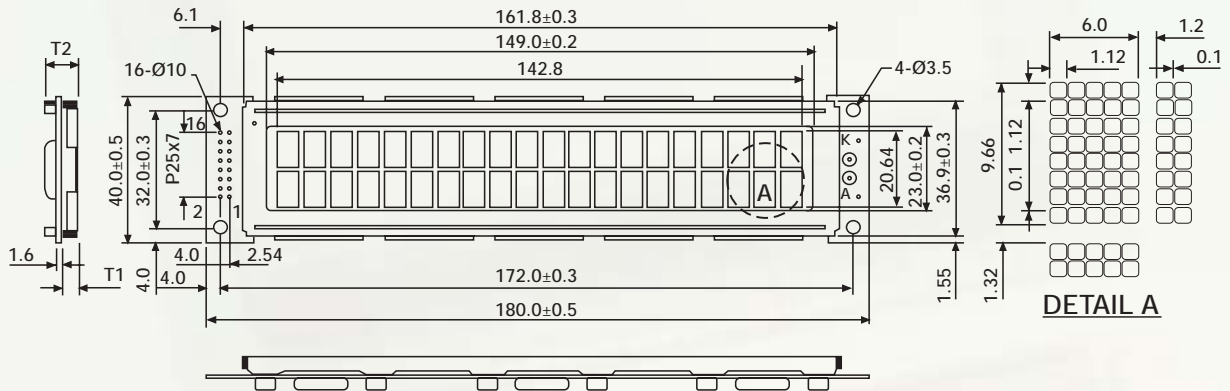
PERFORMANCE FEATURES	
Performance features	STN, TN
Polarizer	Reflective, transfective, transmissive
Color	Gray, yellow, blue
Backlight	LED (yellow-green)
Temperature range	Standard, wide
Controller	KS0066 (or equivalent)

## FNX202A



PERFORMANCE FEATURES	
Performance features	STN, TN
Polarizer	Reflective, transfective, transmissive
Color	Gray, yellow, blue
Backlight	LED (yellow-green)
Temperature range	Standard, wide
Controller	KS0066 (or equivalent)

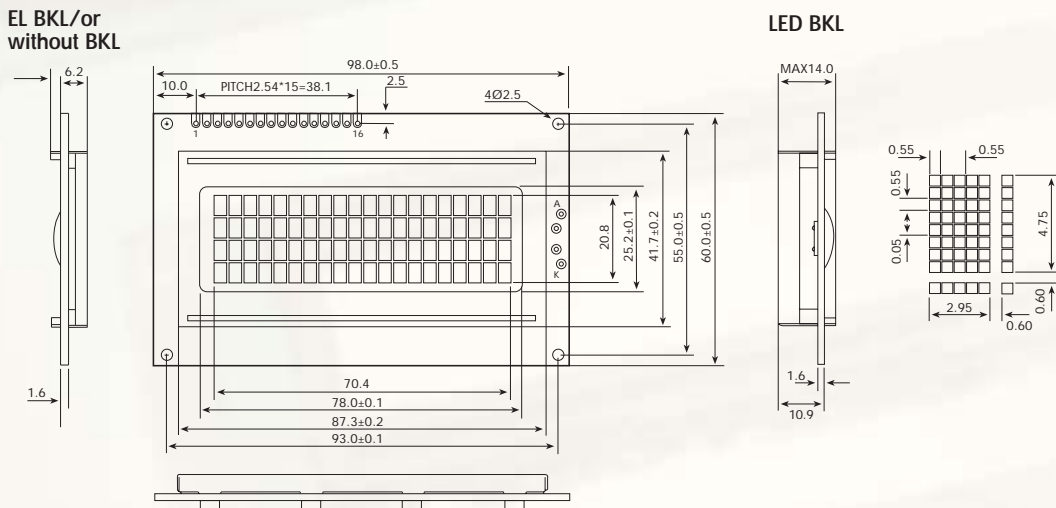
## FNX202B



### FEATURE

1. Construction: STN LCD panel, Bezel, Zebra and PCB
2. Optional LED or EL back-light, white edge LED available
3. Controller: KS0066U or Equivalent
4. 5V or 3.3V single power input. Built-in DC/DC converter while using 3.3V power input
5. Normal / Extended temperature type

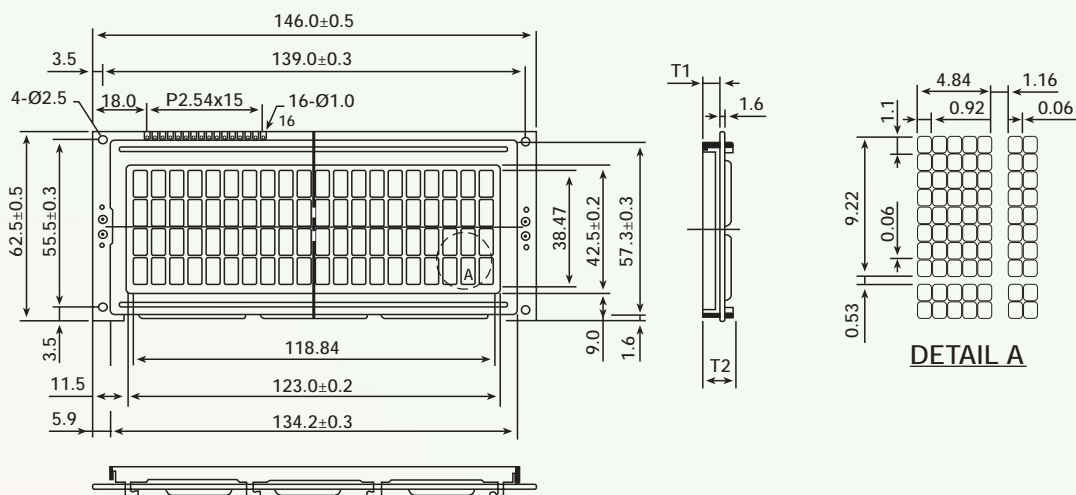
## FNX204A



### PERFORMANCE FEATURES

Performance features	STN,TN
Polarizer	Reflective, transfective, transmissive
Color	Gray, yellow, blue
Backlight	Led (yellow-green)
Temperature range	Standard, wide
Controller	KS0066 (or equivalent)

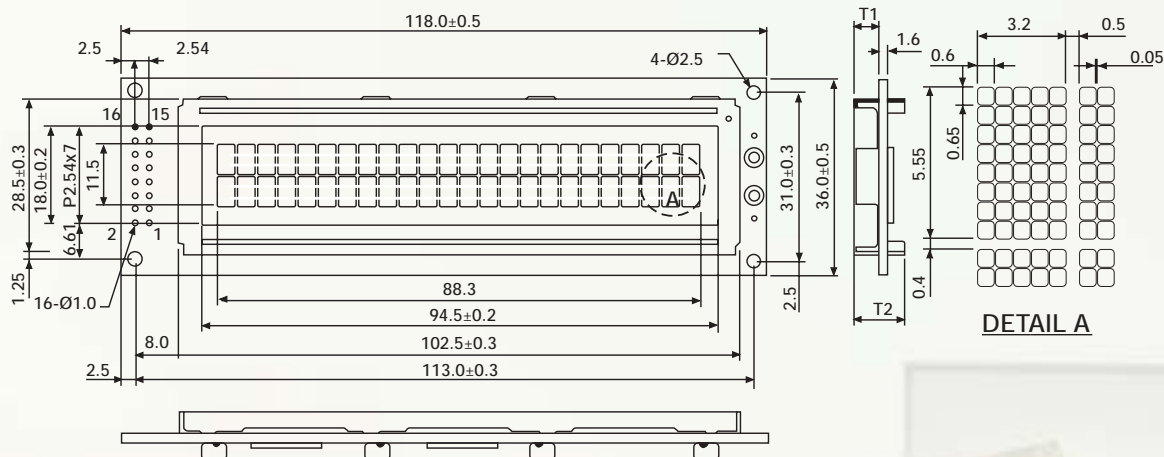
## FNX204B



### FEATURE

1. Construction: STN LCD panel, Bezel, Zebra and PCB
2. Optional LED or EL back-light white Edge LED backlight available
3. Controller: KS0066U or Equivalent
4. 5V or 3.3V single power input. Built-in DC/DC converter while using 3.3V power input
5. Normal / Extended temperature type

## FNX242A

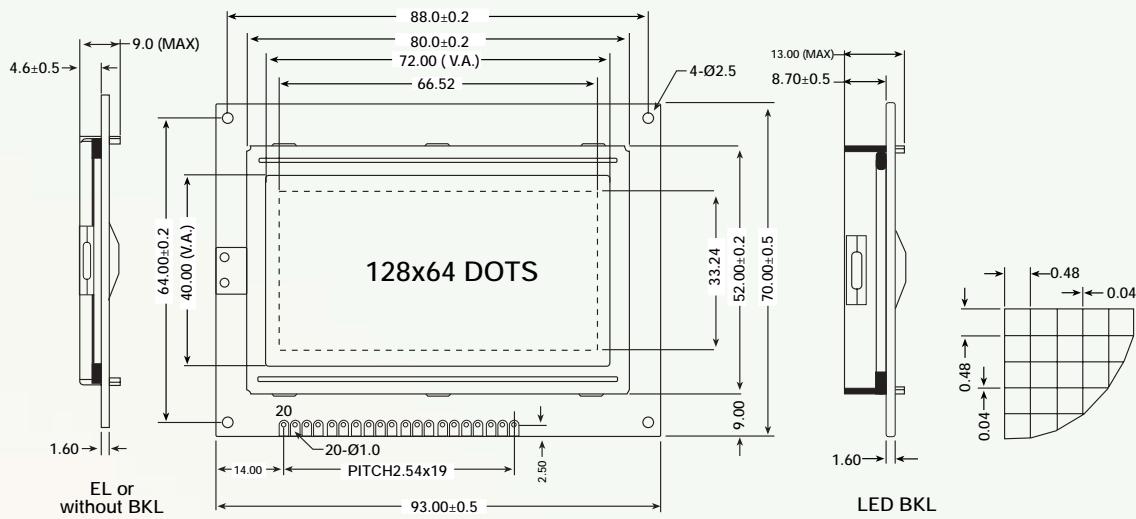


### FEATURE

1. Construction: STN LCD panel, Bezel, Zebra and PCB
2. Optional LED or EL back-light
3. Controller: KS0066U or Equivalent
4. 5V or 3.3V single power input. Built-in DC/DC converter while using 3.3V power input
5. Normal / Extended temperature type



# FNX12864A



## FEATURE

1. 128X64 dots graphic LCD module
2. Built-in controller (KS0108B)
3. 5.0V power supply
4. STN; 1/64 duty; LED BKL or EL BKL

## MECHANICAL DATA

Item	Standard	Unit
Module dimension	93.0x70.0	mm
Viewing area	72.0x40.0	mm
Dot size	0.48x0.48	mm
Dot pitch	0.52x0.52	mm

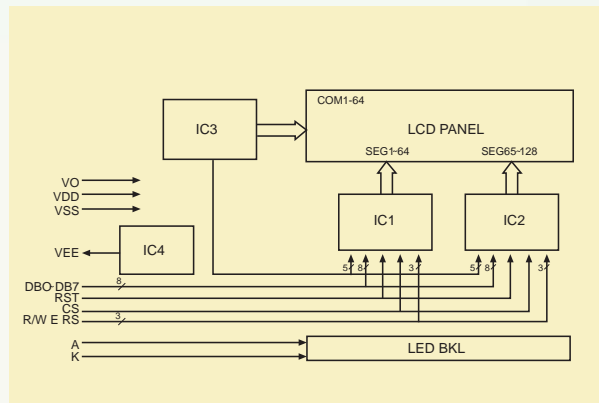
## ABSOLUTE MAXIMUM RATING

Item	Symbol	Standard			Unit
		Min	Typ	Max	
Power supply	VDD-VSS	-0.3	—	5.5	V
Input voltage	VI	-0.3	—	VDD	

## ELECTRONICAL CHARACTERISTICS

Item	Symbol	Condition	Standard			Unit
			Min	Typ	Max	
Input voltage	VDD	+5V	4.7	5.0	5.5	V
Supply current	IDD	VDD=5V	—	8	—	mA
Recommended LCD driving voltage for normal temp version module	VDD-VO	-20°C	—	—	—	V
		0°C	—	9.8	—	
		25°C	—	9.5	—	
		50°C	—	9.3	—	
		70°C	—	—	—	
LED forward voltage	VF	25°C	—	4.2	4.5	V
LED forward current	IF	25°C	—	360	—	mA
EL power supply current	IEL	VEL=110V AC 400Hz	—	—	—	mA

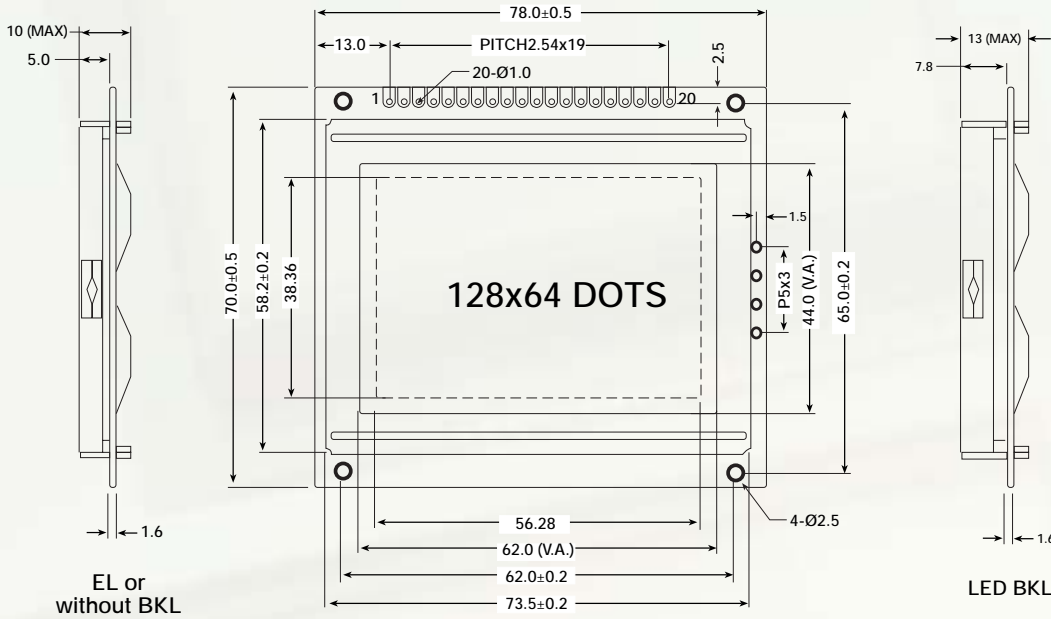
## BLOCK DIAGRAM



## INTERFACE PIN CONNECTIONS

Pin No	Symbol	Function
1	VSS	GND
2	VDD	+5V
3	VO	Contrast adjustment
4	RS	H/L Register select signal
5	R/W	H/L Read/Write signal
6	E	H/L Enable signal
7 to 14	DB0 to DB7	H/L Data bus line
15	CS1	Chip select for IC1
16	CS2	Chip select for IC2
17	RST	Reset signal
18	VEE	Negative voltage output
19	A	Power supply for BKL (4.2V)
20	K	Power supply for BKL (GND)

# FNX12864C



### FEATURE

1. 128X64 dots graphic LCD module
2. Built-in controller (KS0108B)
3. 5.0V power supply
4. STN; 1/64 duty; LED BKL or EL BKL

### MECHANICAL DATA

Item	Standard	Unit
Module dimension	78.0x70.0	mm
Viewing area	62.0x44.0	mm
Dot size	0.40x0.56	mm
Dot pitch	0.44x0.60	mm

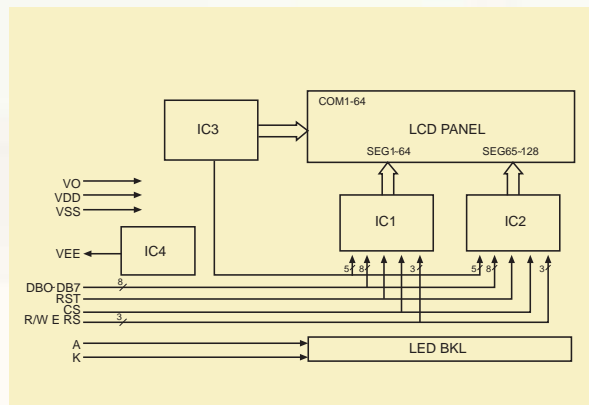
### ABSOLUTE MAXIMUM RATING

Item	Symbol	Standard			Unit
		Min	Typ	Max	
Power supply	VDD-VSS	-0.3	—	5.5	V
Input voltage	VI	-0.3	—	VDD	

### ELECTRONICAL CHARACTERISTICS

Item	Symbol	Condition	Standard			Unit
			Min	Typ	Max	
Input voltage	VDD	+5V	4.7	5.0	5.5	V
Supply current	IDD	VDD=5V	—	8	—	mA
Recommended LCD driving voltage for normal temp version module	VDD-VO	-20°C	—	—	—	V
		0°C	—	9.8	—	
		25°C	—	9.5	—	
		50°C	—	9.3	—	
LED forward voltage	VF	25°C	—	4.2	4.5	V
LED forward current	IF	25°C	—	360	—	mA
EL power supply current	IEL	VEL=110V AC 400Hz	—	—	—	mA

### BLOCK DIAGRAM

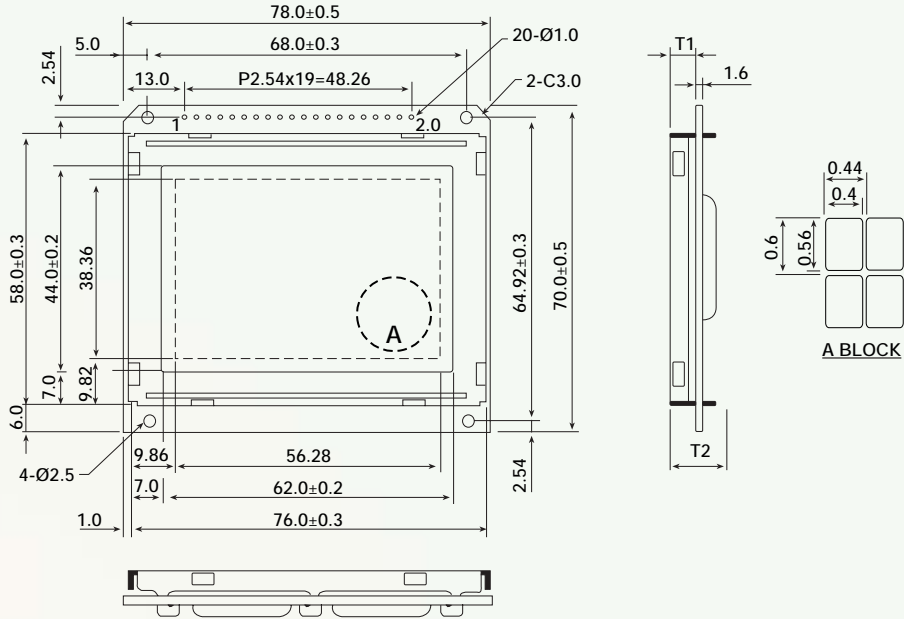


### INTERFACE PIN CONNECTIONS

Pin No	Symbol	Function
1	/CSA	Chip select for IC1
2	/CSB	Chip select for IC2
3	VSS	GND
4	VDD	+5V
5	VO	Contrast adjustment
6	D/I	H/L Register select signal
7	R/W	H/L Read/Write signal
8	E	H/L Enable signal
9 to 16	DB0 to DB7	H/L Data bus line
17	RST	Reset signal
18	VEE	Negative voltage output
19	A	Power supply for BKL (4.2V)
20	K	Power supply for BKL (GND)



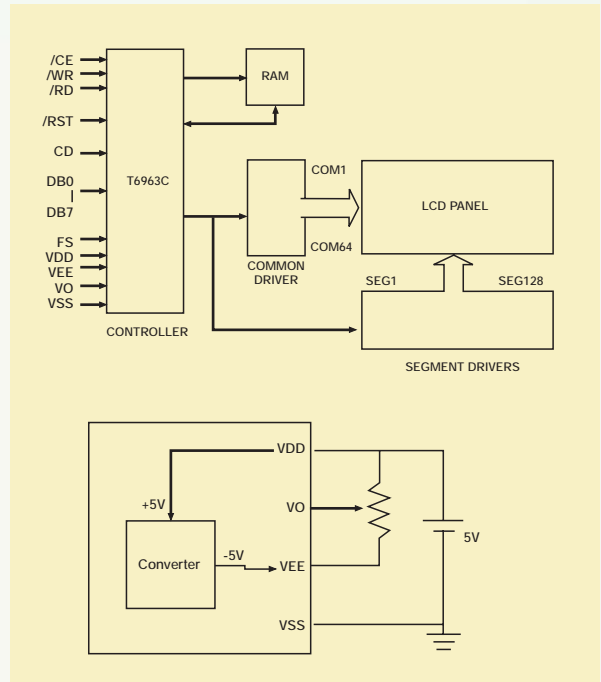
# FNX12864D



### FEATURE

1. Construction: STN LCD panel, Bezel, Zebra and PCB
2. Optional edge type LED or EL back-light, white edge-light LED available
3. Controller: T6963C
4. 5V or single power input. Built-in DC/DC converter for LCD driving.
5. Normal / Extended temperature type

### BLOCK DIAGRAM



### THICKNESS

Version	T1	T2
EL & No Backlight	7.5±0.3	14.0 Max
CCFL Backlight	7.5±0.3	14.0 Max

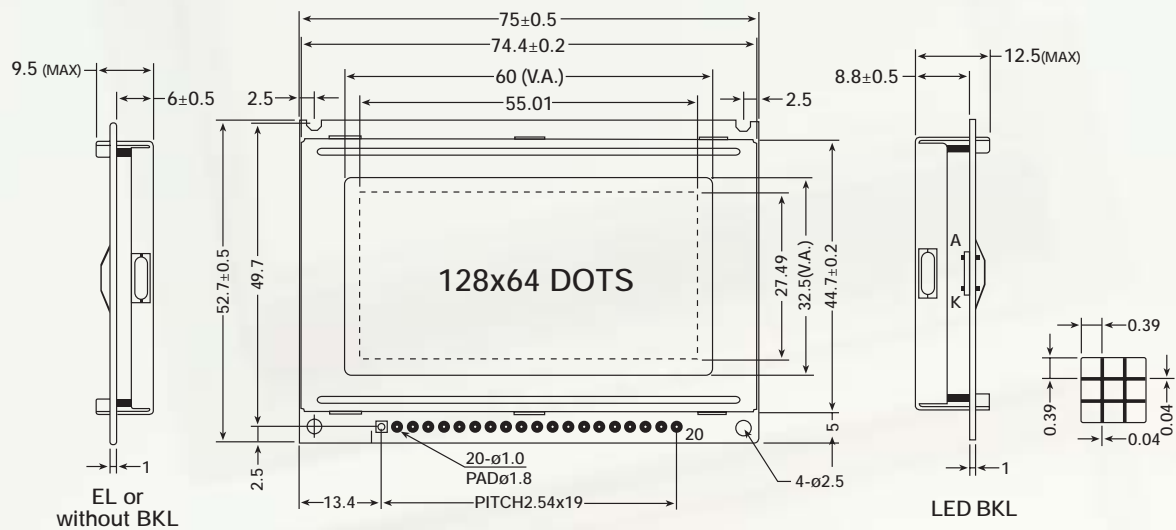
### ELECTRICAL CHARACTERISTICS

Item	Symbol	Condition	Typ. Value	Unit
LCD driving voltage	VDD/VDO	25°C	9.2	V
Supply current	I <sub>DD</sub>	VDD=5.0V	3.0	mA

### INTERFACE

Pin No	Symbol	Pin No	Symbol
1	VEE	11	DB1
2	VSS	12	DB2
3	VDD	13	DB3
4	VO	14	DB4
5	/WR	15	DB5
6	/RD	16	DB6
7	/CE	17	DB7
8	C/D	18	FS
9	/RST	19	A/EL1
10	DB0	20	K/EL2

# FNX12864E

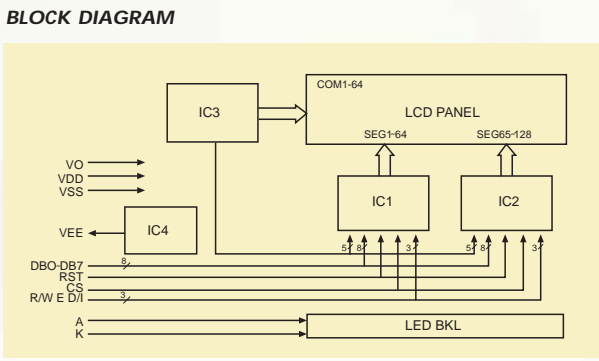


FEATURE	
1.	128X64 dots graphic LCD module
2.	Built-in controller (KS0108B)
3.	5.0V power supply
4.	STN; 1/64 duty; LED BKL or EL BKL

MECHANICAL DATA		
Item	Standard	Unit
Module dimension	75.0x52.7	mm
Viewing area	60.0x32.5	mm
Dot size	0.39x0.39	mm
Dot pitch	0.43x0.43	mm

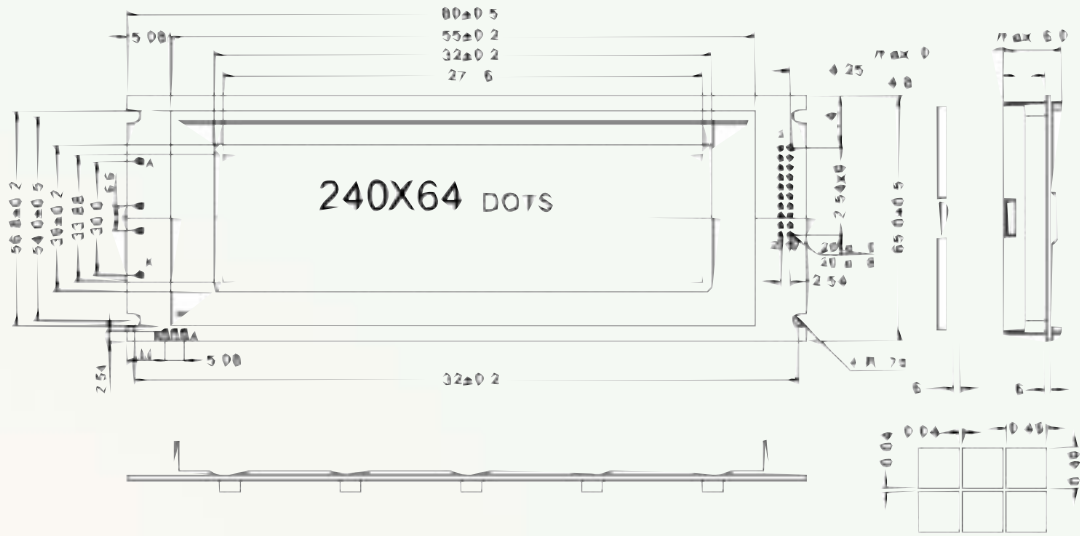
ABSOLUTE MAXIMUM RATING					
Item	Symbol	Min	Standard Typ	Max	Unit
Power supply	VDD-VSS	-0.3	—	5.5	V
Input voltage	VI	-0.3	—	VDD	

ELECTRONICAL CHARACTERISTICS						
Item	Symbol	Condition	Standard			Unit
			Min	Typ	Max	
Input voltage	VDD	+5V	4.7	5.0	5.5	V
Supply current	I <sub>DD</sub>	VDD=5V	—	8	—	mA
Recommended LCD driving voltage for normal temp version module	VDD-V <sub>O</sub>	-20°C	—	—	—	V
		0°C	—	9.8	—	
		25°C	—	9.5	—	
		50°C	—	9.3	—	
LED forward voltage	V <sub>F</sub>	25°C	—	4.2	4.5	V
LED forward current	I <sub>F</sub>	25°C	—	360	—	mA
EL power supply current	I <sub>EL</sub>	V <sub>EL</sub> =110V AC 400Hz	—	—	—	mA



INTERFACE PIN CONNECTIONS		
Pin No	Symbol	Function
1	VDD	+5V
2	VSS	GND
3	VO	Contrast adjust
4 to 11	DB0 to DB7	H/L Data bus line
12	CS1	Chip select for IC1
13	CS2	Chip select for IC2
14	RST	Reset signal
15	R/W	H/L Read/Write signal
16	D/I	H/L H: Data, L: Instruction code
17	E	H/L Enable signal
18	VEE	Negative voltage output
19	A	Power supply for BKL (4.2V)
20	K	Power supply for BKL (GND)

## FNX24064B



- FEATURE**
1. 240X64 dots graphic LCD module
  2. Built-in controller (T6963C)
  3. 5.0V power supply
  4. STN; 1/64 duty; LED BKL or EL BKL

**MECHANICAL DATA**

Item	Standard	Unit
Module dimension	180.0x65.0	mm
Viewing area	132.0x39.0	mm
Dot size	0.49x0.49	mm
Dot pitch	0.53x0.53	mm

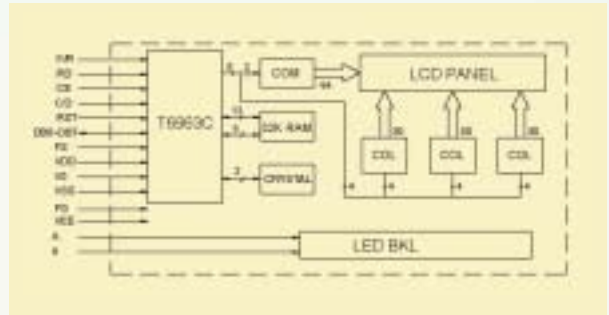
**ABSOLUTE MAXIMUM RATING**

Item	Symbol	Standard			Unit
		Min	Typ	Max	
Power supply	VDD-VSS	-0.3	—	5.5	V
Input voltage	VI	-0.3	—	VDD	

**ELECTRONICAL CHARACTERISTICS**

Item	Symbol	Condition	Standard			Unit
			Min	Typ	Max	
Input voltage	VDD	+5V	4.7	5.0	5.5	V
Supply current	I <sub>DD</sub>	VDD=5V	—	7.0	—	mA
Recommended LCD driving voltage for normal temp version module	VDD-VO	-20°C	—	—	—	V
		0°C	—	—	—	
		25°C	—	12.6	—	
		50°C	—	—	—	
LED forward voltage	VF	25°C	—	4.2	4.5	V
LED forward current	IF	25°C	—	350	—	mA
EL power supply current	I <sub>EL</sub>	V <sub>EL</sub> =110V AC 400Hz	—	—	—	mA

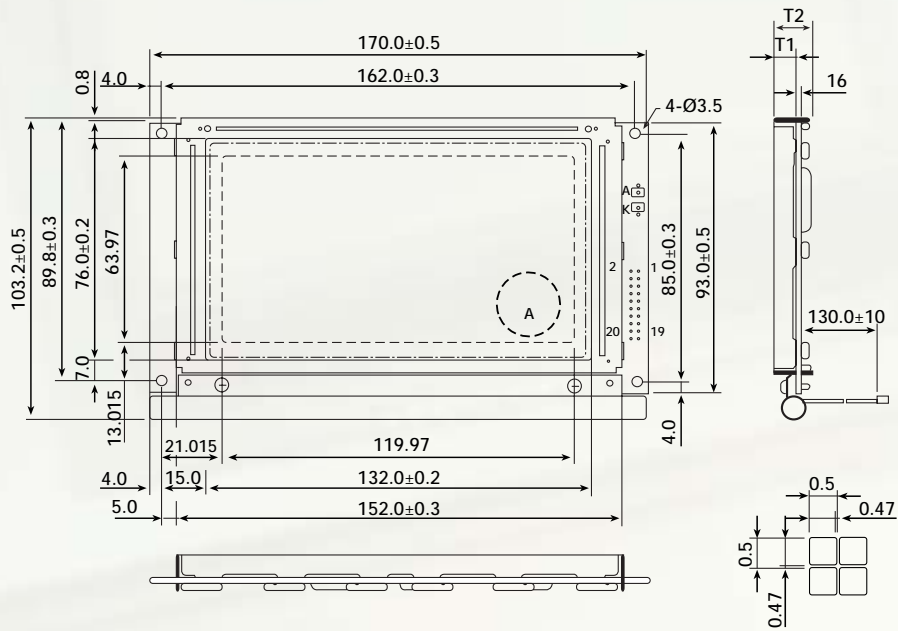
**BLOCK DIAGRAM**



**INTERFACE PIN CONNECTIONS**

Pin No	Symbol	Function
1	FG	Frame ground
2	VSS	GND
3	VDD	+5V
4	VO	Contrast adjustment
5	/WR	Write enable
6	/RD	Read enable signal
7	/CE	Chip enable signal
8	C/D	H: Instruction, L: Data
9	VEE	Operating voltage for LCD
10	/RST	Reset signal
11 to 18	DB0 to DB7	Data bus line
19	FS	Font selection
20	N/A	NO Connection

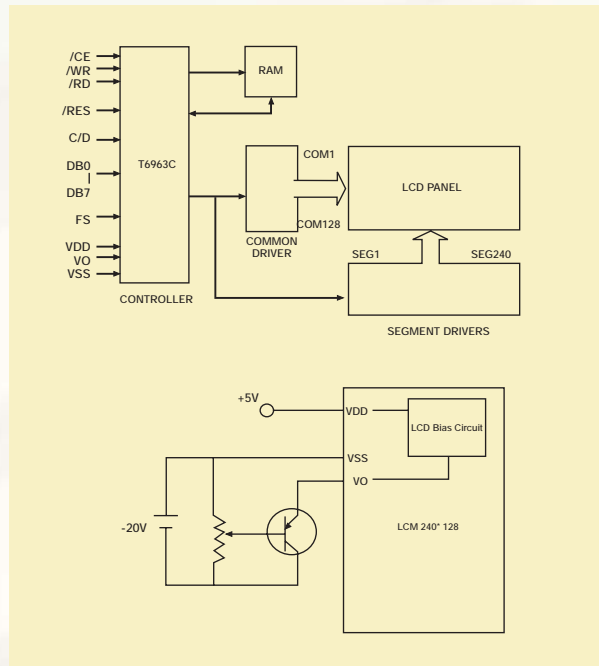
## FNX240128B



### FEATURE

1. Construction: STN LCD panel, Bezel, Zebra and PCB
2. Optional: LED, EL or CCFL back-light
3. Controller: T6963C
4. Besides +5V for logic circuit, -20V is needed for LCD driving (optional DC/DC converter available).
5. Normal / Extended temperature type

### BLOCK DIAGRAM



### THICKNESS

Version	T1	T2
EL & No Backlight	7.5±0.3	14.0 Max
CCFL Backlight	7.5±0.3	14.0 Max

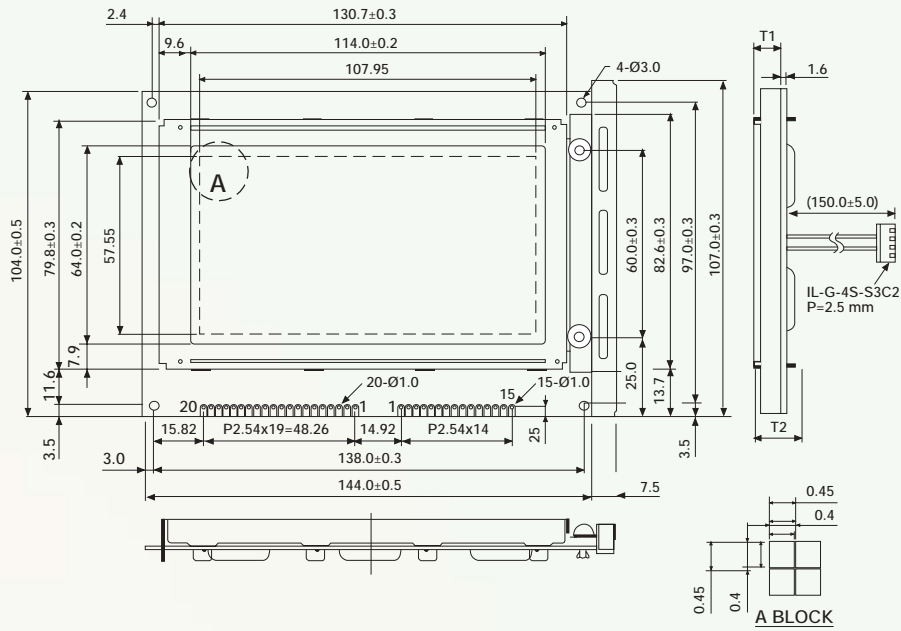
### ELECTRICAL CHARACTERISTICS

Item	Symbol	Condition	Typ. Value	Unit
LCD driving voltage	VDD/VO	25°C	18.5	V
Supply current	I <sub>DD</sub>	VDD=5.0V	15	mA

### INTERFACE

Pin No	Symbol	Pin No	Symbol
1	FG	11	DB0
2	VSS	12	DB1
3	VDD	13	DB2
4	VO	14	DB3
5	/WR	15	DB4
6	/RD	16	DB5
7	/CE	17	DB6
8	C/D	18	DB7
9	NC	19	FS
10	/RES	20	NC

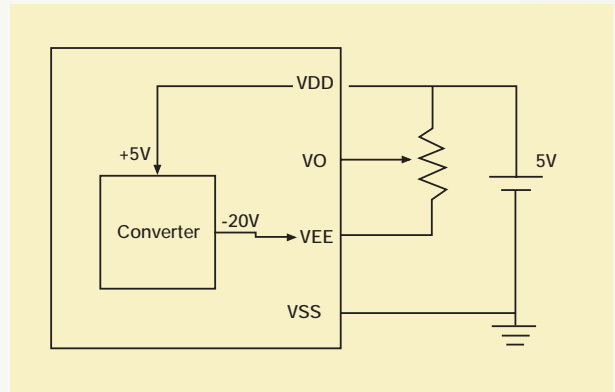
# FNX240128G



### FEATURE

1. Construction: STN LCD panel, Bezel, Zebra and PCB
2. Optional: LED/EL/CCFL back-light, white edge-light LED available
3. Built-in Controller/Pure Driver
4. 5V single power input. Built-in DC/DC converter for LCD driving
5. Normal / Extended temperature type

### BLOCK DIAGRAM



### ELECTRICAL CHARACTERISTICS

Item	Symbol	Condition	Typ. Value	Unit
LCD driving voltage	VDD/VO	25°C	18.9	V
Supply current (Controller)	I <sub>DD</sub>	VDD=5.0V	25	mA
Supply Current (Driver)	I <sub>DD</sub>	VDD=5.0V	15	mA

### BUILT-IN CONTROLLER

Pin No	Symbol	Pin No	Symbol
1	VSS	11	DB4
2	VDD	12	DB5
3	VO	13	DB6
4	C/D	14	DB7
5	/RD	15	/CE
6	/WR	16	/RES
7	DB0	17	VEE
8	DB1	18	MD2
9	DB2	19	FS
10	DB3	20	NC

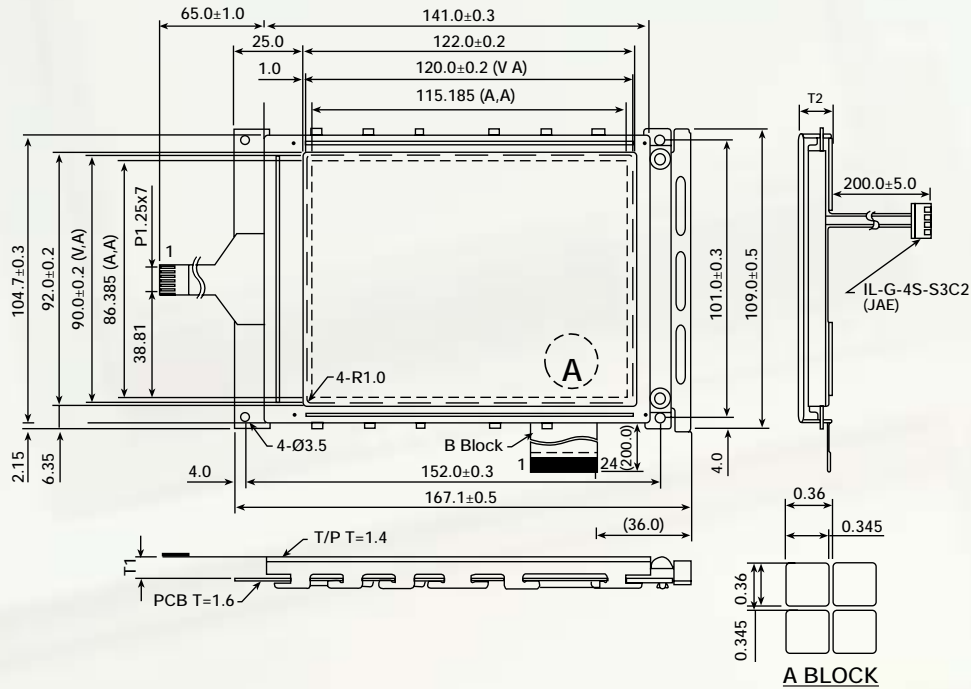
### PURE DRIVER

Pin No	Symbol	Pin No	Symbol
1	FLM	9	D1
2	CP	10	D2
3	LP	11	D3
4	M	12	VO
5	VDD	13	/DISPOFF
6	VSS	14	A/EL1
7	VEE	15	K/EL2
8	DO		

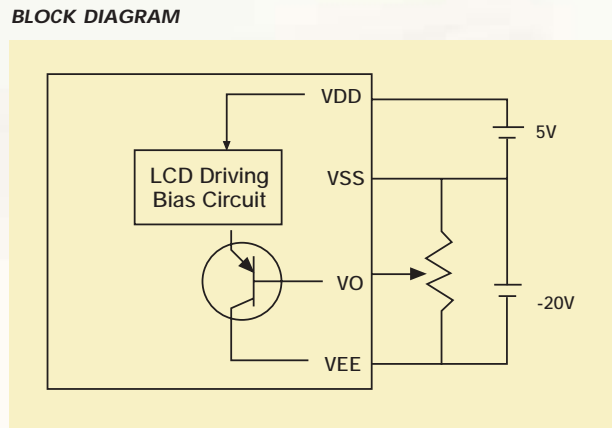
### THICKNESS

Version	T1	T2
EL & No Backlight	5.5±0.3	12.0 Max
LED, CCFL Backlight	9.0±0.3	15.0 Max

# FNX320240F



- FEATURE**
1. Construction: STN/FSTN LCD, Bezel, Heat Seal, Zebra and PCB
  2. Optional: EL, CCFL, White LED back-light, Touch Panel
  3. Built-in Controller/Pure Driver
  4. Besides +5V for logic circuit, -20V is needed for LCD driving (optional DC/DC converter)
  5. Normal / Extended temperature type



**ELECTRICAL CHARACTERISTICS**

Item	Symbol	Condition	Typ. Value	Unit
LCD driving voltage	VDD/VO	25°C	21.7	V
Supply current (Controller)	I <sub>DD</sub>	VDD=5.0V	15	mA
Supply Current (Driver)	I <sub>DD</sub>	VDD=5.0V	5	mA

**PURE DRIVER**

Pin No	Symbol	Pin No	Symbol
1	DO	8	LP
2	D1	9	CP
3	D2	10	VDD
4	D3	11	VSS
5	/DISPOFF	12	VEE
6	FLM	13	VO
7	NC	14	FGND

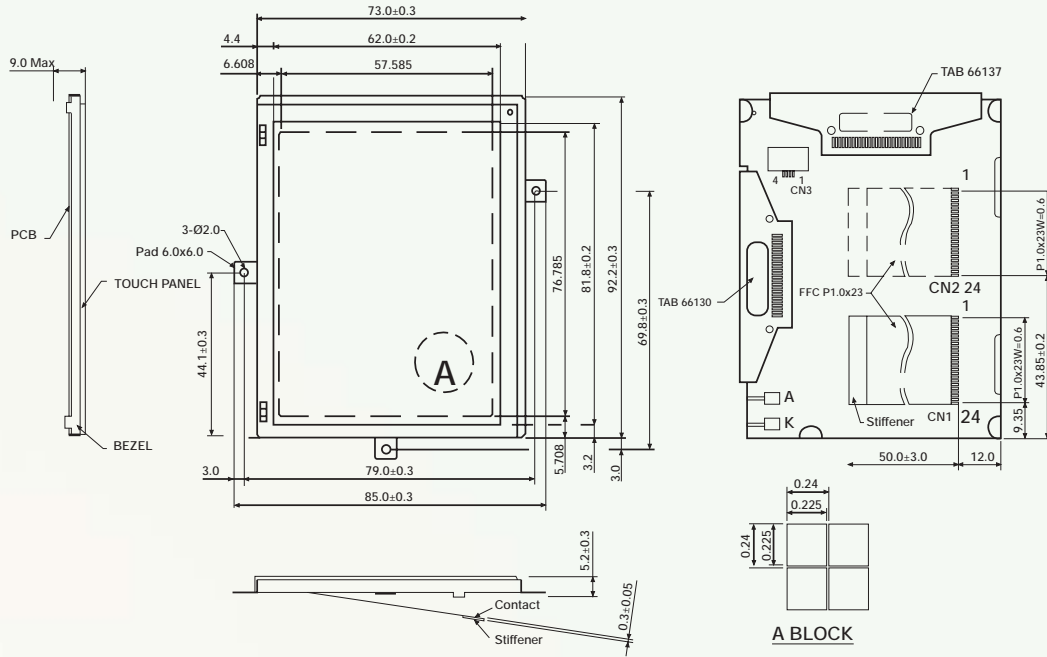
**BUILT-IN CONTROLLER**

Pin No	Symbol	Pin No	Symbol
1	/RESET	13	DB7
2	/RD	14	VDD
3	/WR	15	VSS
4	/CS	16	VEE
5	AO	17	VO
6	DB0	18	RV
7	DB1	19	NC
8	DB2	20	NC
9	DB3	21	NC
10	DB4	22	NC
11	DB5	23	A/EL1
12	DB6	24	K/EL2

**THICKNESS**

Version	T1	T2
EL & No Backlight	6.5±0.3	11.0 Max
CCFL Backlight	6.5±0.3	11.0 Max
Touch Panel	7.9±0.3	12.5 Max

# FNX320240Q



## FEATURE

1. All in one solution
2. Construction: FSTN LCD, TAB IC and PCB
3. Option: EL backlight, EL driver, Touch Panel, Touch Panel Controller
4. Built-in Controller/Pure Driver.
5. 5V or 3.3V single power input. Built-in DC/DC converter for LCD driving. Ultra Low Power Consumption
6. Normal / Extended temperature type

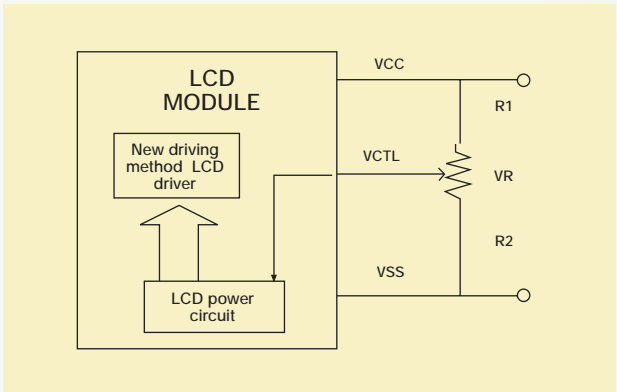
## ELECTRICAL CHARACTERISTICS

Item	Symbol	Condition	Typ. Value	Unit
LCD driving voltage	VDD/VO	25°C	22.9	V
Supply current (Controller)	I <sub>DD</sub>	VDD=5.0V	25	mA
Supply Current (Driver)	I <sub>DD</sub>	VDD=5.0V	1.5	mA

## BUILT-IN CONTROLLER

Pin No	Symbol	Pin No	Symbol
1	/RESET	13	DB7
2	/RD	14	VDD
3	/WR	15	VSS
4	/CS	16	VCTL
5	AO	17	EL_ON
6	DB0	18	SK
7	DB1	19	DO
8	DB2	20	DI
9	DB3	21	CS
10	DB4	22	INT
11	DB5	23	EL1
12	DB6	24	EL2

## BLOCK DIAGRAM



## PURE DRIVER

Pin No	Symbol	Pin No	Symbol
1	DO	13	VCTL
2	D1	14	/RESET
3	D2	15	SK
4	D3	16	DO
5	/DISPOFF	17	DI
6	FLM	18	CS
7	M	19	INT
8	LP	20	EL1
9	CP	21	EL2
10	VCC	22	NC
11	VSS	23	NC
12	EL_ON	24	NC

## THICKNESS

Version	T1	T2
EL Backlight	3.8±0.3	7.6 Max
Touch Panel	5.2±0.3	9.0 Max



Fenix Imvico SA: DCA-0751-AQ-2001

Authorized distributor



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