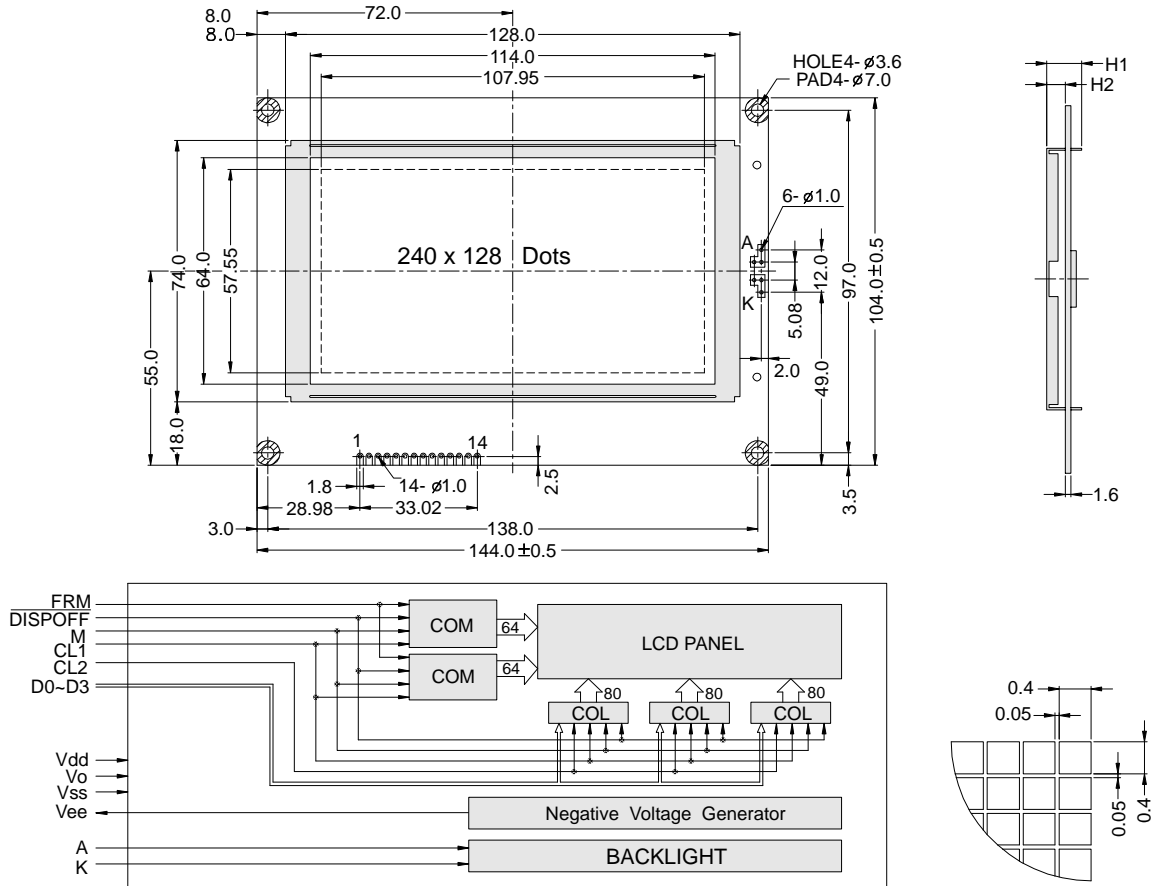




**OUTLINE DIMENSION & BLOCK DIAGRAM**



The tolerance unless classified  $\pm 0.3\text{mm}$

MECHANICAL SPECIFICATION			
Overall Size	144.0 x 104.0	Module	H2 / H1
View Area	114.0 x 64.0	W/O B/L	5.2 / 9.8
Dot Size	0.40 x 0.40	EL B/L	5.2 / 9.8
Dot Pitch	0.45 x 0.45	LED / CCFL B/L	9.2 / 13.8

PIN ASSIGNMENT		
Pin no.	Symbol	Function
1	Vo	Contrast Adjust
2	Vee	Negative voltage output
3	DB0	Data bus line
4	DB1	Data bus line
5	DB2	Data bus line
6	DB3	Data bus line
7	M	Alternation control signal
8	Vss	Power supply(GND)
9	Vdd	Power supply(+)
10	CL2	Display data input colock
11	CL1	Display data input colock
12	FRM	Shift direction select
13	DISPOFF	Column output control
14	FG	Frame ground

ABSOLUTE MAXIMUM RATING									
Item	Symbol	Condition	Min.	Max.	Units				
Supply for logic voltage	Vdd-Vss	25°C	-0.3	7	V				
LCD driving supply voltage	Vdd-Vee	25°C	0	22.0	V				
Input voltage	Vin	25°C	-0.3	Vdd+0.3	V				
ELECTRICAL CHARACTERISTICS									
Item	Symbol	Condition	Min.	Typical	Max.	Units			
Power supply voltage	Vdd-Vss	25°C	4.5	—	5.5	V			
LCD operation voltage	Vop	Top	N	W	N	W	V		
		-20°C	—	18.8	—	19.8	—	20.8	V
		0°C	12.5	—	13.1	—	13.7	—	V
		25°C	11.7	17.2	12.3	18.1	12.9	19.1	V
		50°C	10.9	—	11.4	—	11.9	—	V
70°C	—	16.1	—	16.9	—	17.7	V		
LCM current consumption (No B/L)	Idd	Vdd=5V	—	7	—	mA			
Backlight current consumption	LED/edge	VB/L=3.5V	—	120	—	mA			
	LED/array	VB/L=4.2V	—	900	—	mA			

**REMARK**

LCD option: STN, TN, FSTN

Backlight Option: LED,EL Backlight feature, other Specs not available on catalog is under request.





Products

- Mono Type Part Numbering System
- COG Part Numbering System
- EMS Part Numbering System
- Color Type Part Numbering System
- Mono COG Part Numbering System
- Self-made product Part Numbering System

**Mono Type Part Numbering System**

P C 16 02 \* \* \* - \* \*\* - \* - \*

1 2 3 4 5 6 7 8 9 10 11

No	Code value	Description	Remark
1	P	Powertip products	Brand
2	C	Character type	Module type
	G	Graphic type	
3	08,16,20,24...	Character per line (for character modules)	Characters per line or row dots
	120,122,128...	Row dots (for graphic modules)	
4	01,02,03,04,...	Lines (for graphic modules)	Lines or column dots
	32,240...	Column dots (for graphic modules)	
5	A	Without backlight	
	B	EL backlight blue-green	
	D	EL backlight yellow-green	
	E	EL backlight white	
	F	CCFL backlight white	
	L	LED backlight yellow-green	
	M	LED backlight amber	
	N	LED backlight red	Backlight mode
	O	LED backlight orange	(Type+Color)
	P	LED backlight pure-green	
	S	LED backlight green	
	T	Double LED backlight	
	U	LED backlight blue	
	V	LED backlight blue white	
	W	LED backlight white	
	R	Triple LED backlight	
6	R	Standard (Through hole, cable, connector and etc.)	Connecting type
	Y	Straight pin-header	
	Z	Right angle pin-header	
7	None	TN positive gray	
	N	TN negative blue	
	P	PBT(Pure Black Tech.)	
	Q	E-TN(Enhanced TN)	
	H	HTN Positive Gray	
	J	HTN Negative (Black/Blue)	
	S	STN positive gray	I CD Mode

U	STN positive yellow-green	
M	STN negative blue	
G	ASTN(Automotive STN)	
W	E-STN(Enhanced STN)	
F	FSTN positive white	
T	FSTN negative black	
Y	E-FSTN(Enhanced FSTN)	
8	0~Z	Series number Model name
9	00~ZZ	IC manufacturer/character pattern /total solution series number Table A
	NN	Without controller
10	A~Z	Refer to display viewing features system Table B
11	No Code value	Standard product Version
	01~ZZ	Special code

**Table A**

S*	SUMSUNG LSI	T*	TOSHIBA LSI	Y*	SANYO LSI
M*	MOTOROLA LSI	E*	EPSON LSI	H*	HITACHI LSI
N*	NOVATEK	W*	SITRONIX LSI	A*	APANPEC LSI
R*	SHARP LSI	P*	PHILIPS LSI	J*	JRC LSI
U*	UMC GROUP LSI	Z*	HOTEK LSI	O*	OKI LSI
B*	RAIO	C*	ASLIC	F*	TOMATO LSI
G*	AVANT	L*	SUNPLUS LSI		

**Table B**

Operation Temperature		Normal Temp.(NT):0°C~50°C		Wide Temp.(WT):-20°C~70°C	
Viewing direction		6:00	12:00	6:00	12:00
Polarizer	Reflective	A	D	G	J
	Transflective	B	E	H	K
	Transmissive	C	F	I	L

TOP

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