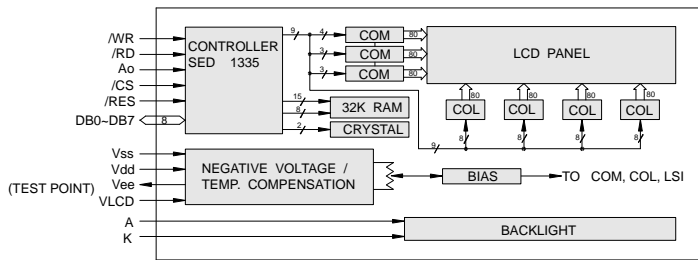
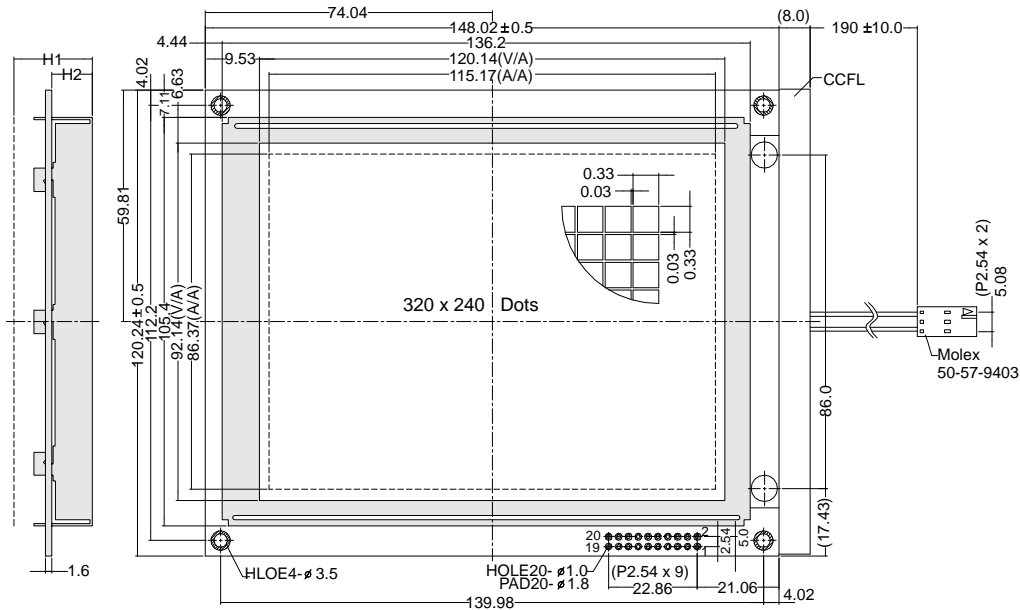




**OUTLINE DIMENSION & BLOCK DIAGRAM**



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

MECHANICAL SPECIFICATION			
Overall Size	148.02 x 120.24	Module	H2 / H1
View Area	120.14 x 92.14	W / O B/L	- / -
Dot Size	0.33 x 0.33	EL B/L	- / -
Dot Pitch	0.36 x 0.36	LED CCFL B/L	10.5 / 20.3

PIN ASSIGNMENT		
Pin no.	Symbol	Function
1	Vss	Power supply(GND)
2	Vdd	Power supply(+)
3	V <sub>LCD</sub>	Contrast Adjust
4	RD	Data Read
5	WR	Data Write
6	Ao	Command / Data select
7-14	DB0-DB7	Data bus line
15	CS	Chip select
16	RST	Reset
17	Vee	Negative voltage input
18	FG	Frame Ground
19/20	NC	No Connection

ABSOLUTE MAXIMUM RATING								
Item	Symbol	Condition	Min.	Max.	Units			
Supply for logic voltage	Vdd-Vss	25°C	-0.3	7.0	V			
LCD driving supply voltage	Vdd-Vee	25°C	0	35.0	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	-	-	-	-	V	
		0°C	-	-	26.4	-	-	V
		25°C	-	-	24.8	-	-	V
		50°C	-	-	24.2	-	-	V
70°C	-	-	-	-	-	V		
LCM current consumption (No B/L)	I <sub>dd</sub>	Vdd=5V	-	50	-	mA		
Backlight current consumption	LED/edge	VB/L=4.2V	-	200	-	mA		
	LED/white	VB/L=3.5V	-	160	-	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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