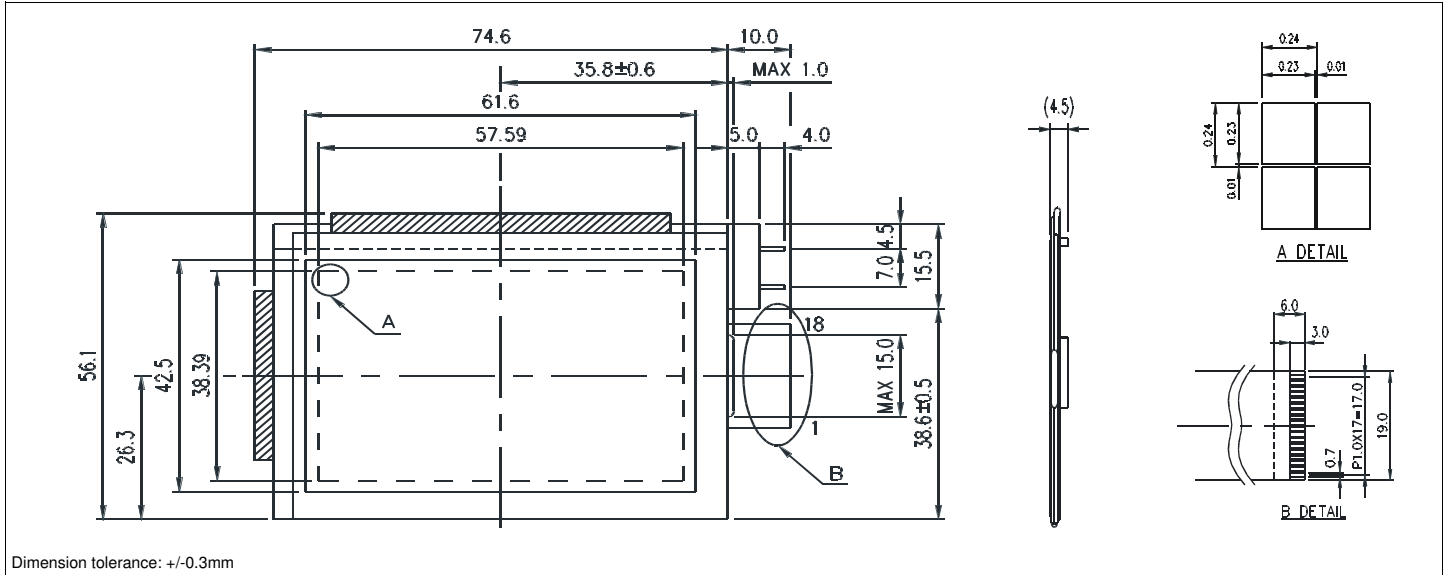


# HDM 240GS16-1

2.8" 240 X 160 Dots Graphic

## Dimensional Drawing



### Features

Backlight.....None or EL  
 Options.....positive STN or FSTN (B/W)  
 Normal/Extended Temperature  
 Bottom/Top Viewing  
 Analog Touch Panel  
 Built-in Controller.....None

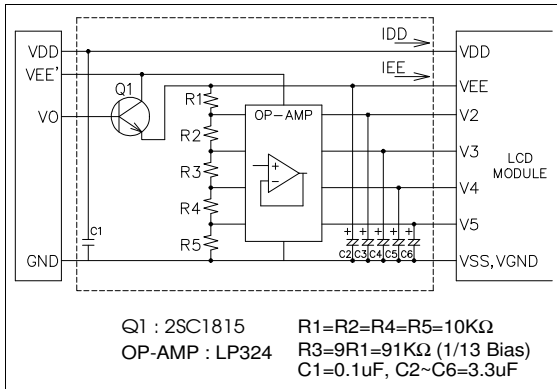
### Physical Data

Module Size.....74.6W x 56.1H x 4.5T mm  
 Viewing Area Size.....61.6W x 42.5H mm  
 Dot Pitch.....0.24W x 0.24H mm  
 Dot Size.....0.23W x 0.23H mm  
 Weight.....15g or 17g

### Electrical Characteristics (VDD=3.3±10% 25°C)

PARAMETER	SYM	CONDITION	MIN	TYP	MAX	UNIT
OPERATING VOLTAGE	V <sub>DD</sub>	-	2.97	3.3	3.63	V
POWER SUPPLY FOR LCD	V <sub>EE</sub> -V <sub>SS</sub>	Normal	20.1	20.4	20.7	V
		Extended	20.5	20.8	21.1	V
POWER SUPPLY CURRENT (Normal Temp. LCM)	I <sub>DD</sub>	-	-	0.55	0.83	mA
	I <sub>EE</sub>	-	-	0.8	1.2	mA
POWER SUPPLY CURRENT (Extended Temp. LCM)	I <sub>DD</sub>	-	-	0.58	0.88	mA
	I <sub>EE</sub>	-	-	0.9	1.4	mA
EL Power Supply Current	I <sub>EL</sub>	65 V <sub>rms</sub> 250Hz	2.97	3.3	3.63	V
DRIVE METHOD	1/160 Duty					

### Power Supply



### Pin Connections

PIN NO.	SYMBOL	FUNCTION	
1	V <sub>5</sub>	Bias Voltage for non-select (Common Driver)	
2	V <sub>2</sub>	Bias Voltage for non-select (Common Driver)	
3	V <sub>EE</sub>	-	Power supply voltage for LCD
4	V <sub>DD</sub>	3.3V	Power supply for logic
5	FRAME	H/L	Frame signal (Data signal of the shift register of the common driver)
6	V <sub>GND</sub>	-	GND, Power supply voltage for LCD
7	LOAD	H/L	1) Display data latch 2) Shift clock for common driver
8	V <sub>SS</sub>	0V	Ground
9	DF		switch signal to convert LCD drive waveform into AC
10	DISPOFF	L	Display off
11	CP	H/H→L	clock plus for segment shift register
12	V <sub>4</sub>		Bias Voltage for non-select (Segment Driver)
13	V <sub>3</sub>		Bias Voltage for non-select (Segment Driver)
14	DB3	H/L	Data bus
15	DB2	H/L	
16	DB1	H/L	
17	DB0	H/L	
18	N/C	-	No connection

### Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
SUPPLY VOLTAGE	V <sub>DD</sub> -V <sub>SS</sub>	-0.3	6.5	V
POWER SUPPLY FOR LCD	V <sub>EE</sub> -V <sub>SS</sub>	0	27.0	V
INPUT VOLTAGE	V <sub>IN</sub>	0	6.5	V
OPERATING TEMPERATURE	T <sub>OP</sub>	0	50	°C
STORAGE TEMPERATURE	T <sub>STG</sub>	-20	70	°C