

# SG12864G ( 128 DOTS X 64 DOTS )

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## FEATURES

- ◆ BUILT-IN CONTROLLER (T6963C OR EQUIVALENT)
- ◆ +5 V POWER SUPPLY
- ◆ 1/64 DUTY CYCLE
- ◆ 8-BIT PARALLEL INTERFACE
- ◆ 4.2 V LED FORWARD VOLTAGE

## MECHANICAL DATA

| ITEM                    | DIMENSIONS              | UNIT |
|-------------------------|-------------------------|------|
| Module Size (W x H x T) | 78.0 x 70.0 x 8.8(12.7) | mm   |
| Viewing Area (W x H)    | 72.0 x 40.0             | mm   |
| Active Area (W x H)     | 66.52 x 33.24           | mm   |
| Dot Size (W x H)        | 0.48 x 0.48             | mm   |
| Dot Pitch (W x H)       | 0.52 x 0.52             | mm   |

## INTERFACE PIN CONNECTIONS

| NO.   | SYMBOL  | LEVEL | FUNCTION                           |
|-------|---------|-------|------------------------------------|
| 1     | FG      | -     | Frame Ground                       |
| 2     | Vss     | 0V    | Power Supply Ground                |
| 3     | VDD     | 5V    | Power Supply Voltage               |
| 4     | Vo      | -     | Contrast Adjustment Voltage        |
| 5     | /WR     | L     | Write Singal                       |
| 6     | /RD     | L     | Read Signal                        |
| 7     | /CE     | L     | Enable Signal                      |
| 8     | C/D     | H/L   | H : Data, L : Instruction Code     |
| 9     | /RST    | L     | Reset Signal                       |
| 10~17 | DB0-DB7 | H/L   | Data Bus Line                      |
| 18    | FS      | H/L   | H : 6*8, L : 8*8 Select Of Columns |
| 19    | A       | 4.2V  | LED Power (+)                      |
| 20    | K       | 0V    | LED Power (-)                      |

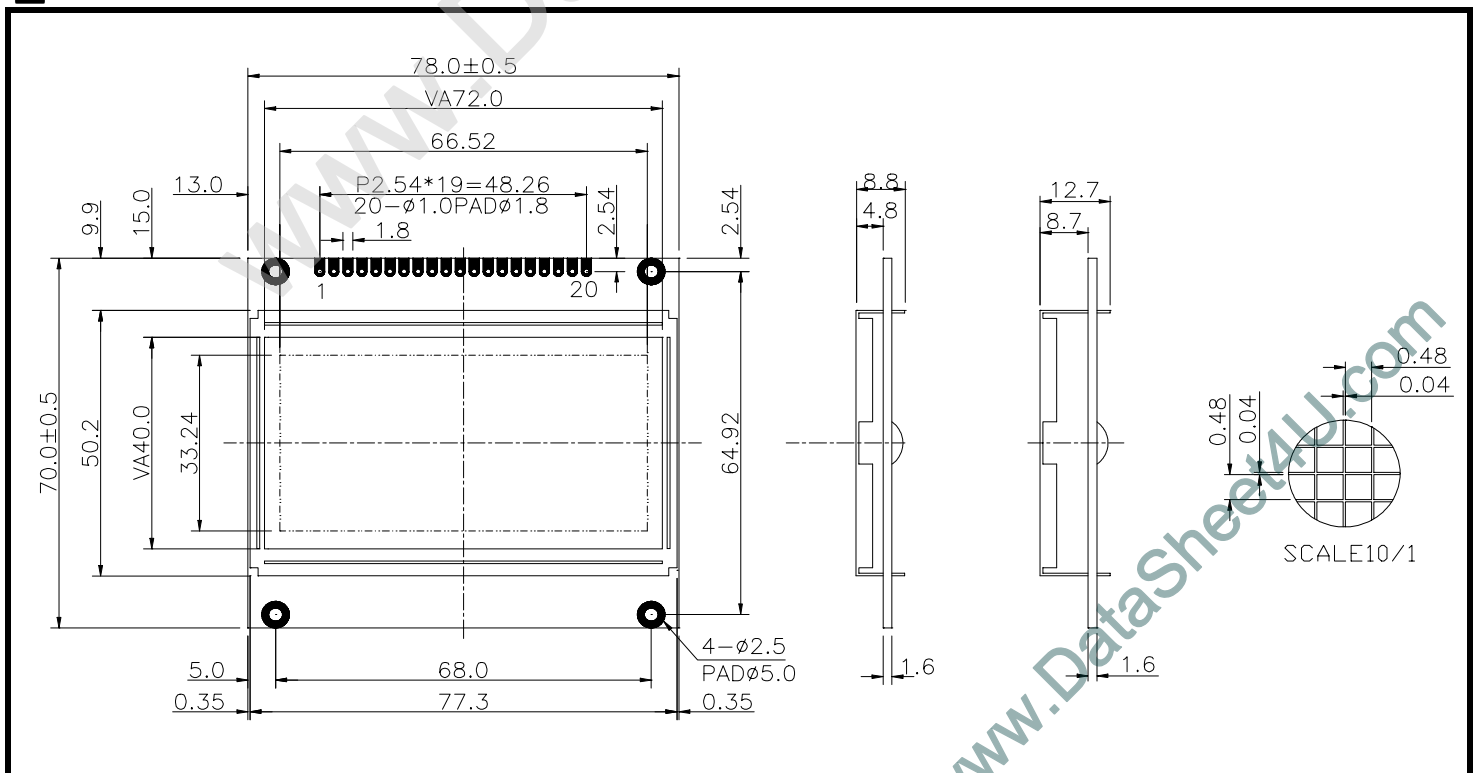
## ABSOLUTE MAXIMUM RATINGS

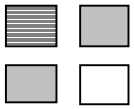
| ITEM                         | SYMBOL  | MIN. | TYP. | MAX. | UNIT |
|------------------------------|---------|------|------|------|------|
| Supply Voltage For Logic     | VDD-Vss | 0    | -    | 7    | V    |
| Supply Voltage For LCD Drive | VDD-Vo  | 0    | -    | 14   | V    |
| Input Voltage                | Vi      | Vss  | -    | VDD  | V    |

## ELECTRICAL CHARACTERISTICS

| ITEM                     | SYMBOL       | CONDITION      | MIN. | TYP. | MAX. | UNIT |   |
|--------------------------|--------------|----------------|------|------|------|------|---|
| Supply Voltage For Logic | VDD-Vss      | -              | 4.5  | 5    | 5.5  | V    |   |
| Supply Voltage For LCD   | VDD-Vo       | VDD=5V Ta=25°C | 7.6  | 8.3  | 9.2  | V    |   |
| Supply Current           | IDD          | VDD=5V         | -    | 4.5  | 10   | mA   |   |
| Input Voltage            | "HIGH" Level | Vih            | -    | 2.2  | -    | VDD  | V |
|                          | "LOW" Level  | Vil            | -    | -    | -    | 0.6  | V |
| Output Voltage           | "HIGH" Level | VoH            | -    | 2.4  | -    | -    | V |
|                          | "LOW" Level  | VoL            | -    | -    | -    | 0.4  | V |

## EXTERNAL DIMENSIONS



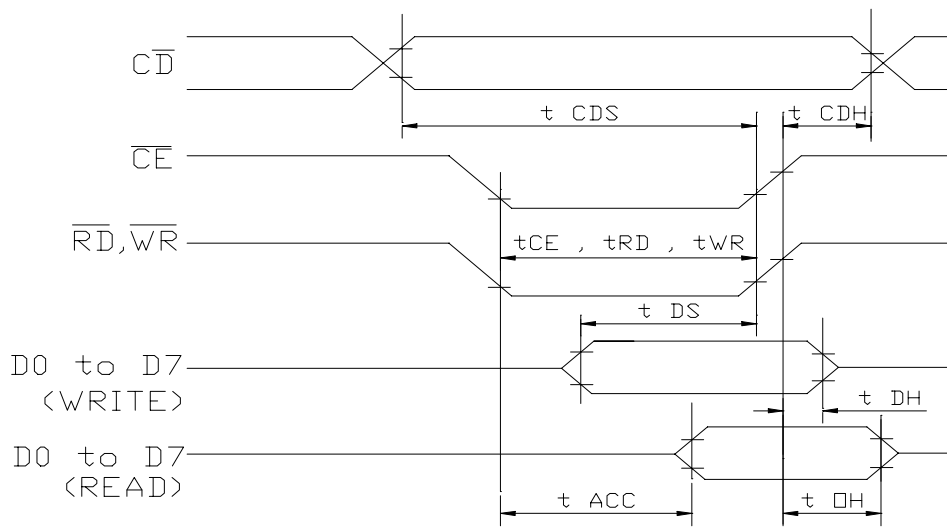


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## ■ TIMING CHARACTERISTICS

| ITEM                  | SYMBOL                   | MIN. | MAX. | UNIT. |
|-----------------------|--------------------------|------|------|-------|
| C/D Setup Time        | $t_{CDS}$                | 100  | -    | ns    |
| C/D Hold Time         | $t_{CDH}$                | 10   | -    | ns    |
| CE, RD,WR Pulse Width | $t_{CE}, t_{RD}, t_{WR}$ | 80   | -    | ns    |
| Data Setup Time       | $t_{DS}$                 | 80   | -    | ns    |
| Data Hold Time        | $t_{DH}$                 | 40   | -    | ns    |
| Access Time           | $t_{ACC}$                | -    | 150  | ns    |
| Output Hold Time      | $t_{OH}$                 | 10   | 50   | ns    |

Bus Timing



## ■ BLOCK DIAGRAM

