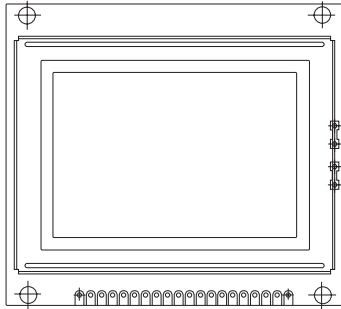


# 128 x 64 Dots Graphic LCD



## FEATURES

- Built-in controller TOSHIBA-(T6963C)
- + 5V power supply
- 1/64 duty cycle
- Built-in N.V

## MECHANICAL DATA

| ITEM             | STANDARD VALUE     | UNIT |
|------------------|--------------------|------|
| Module Dimension | 78.0 x 70.0 x 12.1 | mm   |
| Viewing Area     | 62.0 x 44.0        | mm   |
| Mounting Hole    | 68.0 x 64.9        | mm   |
| Dot Pitch        | 0.44 x 0.6         | mm   |

## ABSOLUTE MAXIMUM RATING

| ITEM          | SYMBOL  | STANDARD VALUE |      |      | UNIT |
|---------------|---------|----------------|------|------|------|
|               |         | MIN.           | TYP. | MAX. |      |
| Power Supply  | VDD-VSS | 4.5            | 5.0  | 5.5  | V    |
| Input Voltage | VI      | - 0.3          | —    | VDD  | V    |

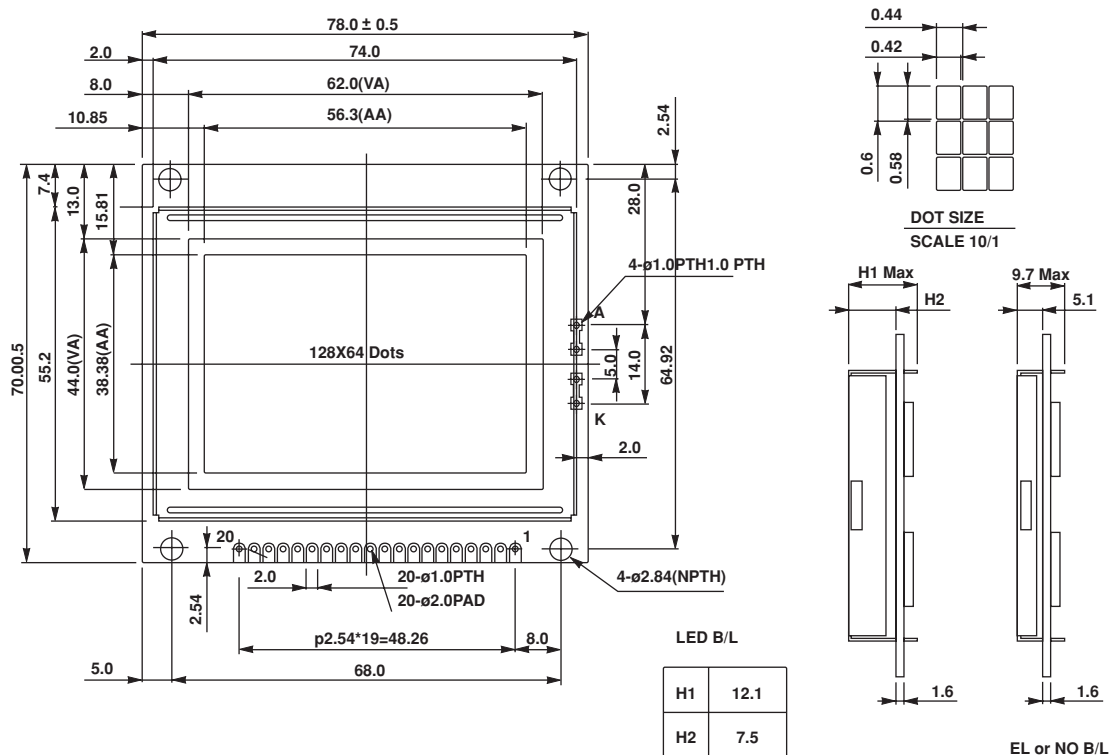
**NOTE:** VSS = 0 Volt, VDD = 5.0 Volt

## ELECTRICAL SPECIFICATIONS

| ITEM                     | SYMBOL | CONDITION                       |      | STANDARD VALUE     |      |                    | UNIT |
|--------------------------|--------|---------------------------------|------|--------------------|------|--------------------|------|
|                          |        |                                 |      | MIN.               | TYP. | MAX.               |      |
| Input Voltage            | VDD    | L level                         |      | 0.7V <sub>DD</sub> | —    | V <sub>DD</sub>    | V    |
|                          | VIO    | H level                         |      | 0                  | —    | 0.3V <sub>DD</sub> | V    |
| Supply Current           | IDD    | VDD = 5V                        |      | —                  | 11.2 | 11.8               | mA   |
| Recommended LC Driving   | VDD-V0 | 0°C                             |      | 9.4                | 9.9  | 10.4               | V    |
| Voltage for Normal Temp. |        | 25°C                            |      | 9.4                | 9.6  | 10.4               |      |
| Version Module           |        | 50°C                            |      | 8.7                | 9.2  | 9.7                |      |
| LED Forward Voltage      | VF     | 25°C                            |      | —                  | 4.2  | —                  | V    |
| LED Forward Current      | IF     | 25°C Array                      | High | —                  | 480  | 960                | mA   |
|                          |        | 25°C Array                      | Low  | —                  | 140  | 280                | mA   |
| EL Power Supply Current  | IEL    | V <sub>el</sub> = 110VAC; 400Hz |      | —                  | —    | 5.0                | mA   |

| PIN NUMBER | SYMBOL                  | FUNCTION                                          |
|------------|-------------------------|---------------------------------------------------|
| 1          | FG/Vee                  | Frame Ground                                      |
| 2          | Vss                     | Power Supply (0V)                                 |
| 3          | Vdd                     | Power Supply (+ 5V)                               |
| 4          | Vo                      | Power Supply for LCD Driver                       |
| 5          | $\overline{\text{WR}}$  | Data Write                                        |
| 6          | $\overline{\text{RD}}$  | Data Read                                         |
| 7          | $\overline{\text{CE}}$  | Chip Enable                                       |
| 8          | $\overline{\text{CD}}$  | Command/Data Read/Write                           |
| 9          | $\overline{\text{RST}}$ | Controller Reset                                  |
| 10         | DB0                     | Data Bus Line                                     |
| 11         | DB1                     | Data Bus Line                                     |
| 12         | DB2                     | Data Bus Line                                     |
| 13         | DB3                     | Data Bus Line                                     |
| 14         | DB4                     | Data Bus Line                                     |
| 15         | DB5                     | Data Bus Line                                     |
| 16         | $\overline{\text{DB6}}$ | Data Bus Line                                     |
| 17         | DB7                     | Data Bus Line                                     |
| 18         | FS                      | Font Select                                       |
| 19         | A                       | Power Supply for LED B/L (+ 4.2V) RA = 0 $\Omega$ |
| 20         | K                       | Power Supply for LED B/L (0V)                     |

## DIMENSIONS in millimeters





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