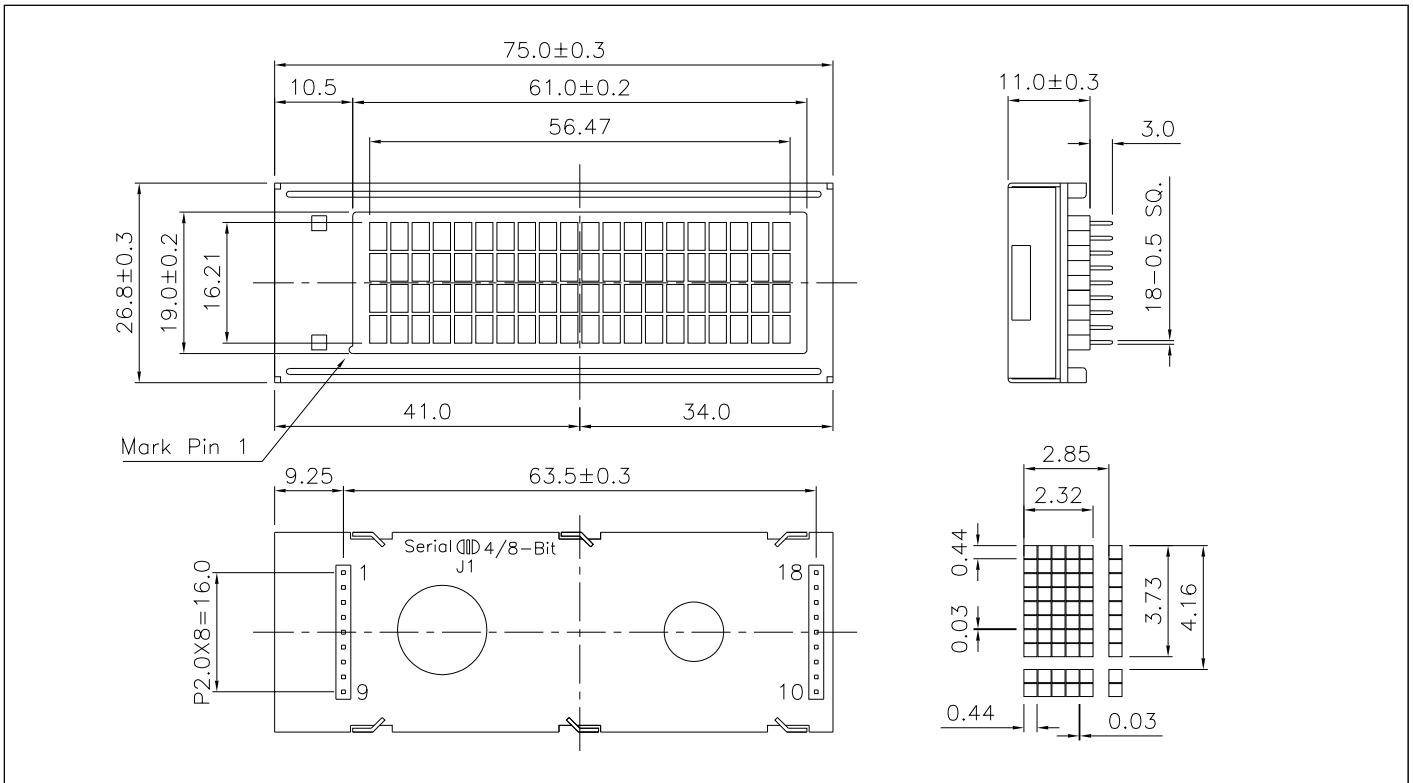


VS2043-DW 20 characters x 4 lines + white led backlight, 4/8-bit parallel or SPI, 3.3V to 5.5V



ABSOLUTE MAXIMUM RATINGS

| Item | Symbol | Min. | Max. | Unit |
|-----------------------|-----------------------------------|------|-----------------------|------|
| Supply Voltage(Logic) | V _{DD} - V _{SS} | -0.3 | 7.0 | V |
| Supply Voltage(LCD) | V _{DD} - V _o | -0.3 | 10.0 | V |
| Input Voltage | V _i | -0.3 | V _{DD} + 0.3 | V |
| Operating Temp. | T _{opr} | -20 | 70 | °C |
| Storage Temp. | T _{stg} | -30 | 80 | °C |

MECHANICAL DATA

| Item | Nominal Dimensions | Unit |
|---------------------------|--------------------|------|
| Module Size (W x H x T) | 75.0 x 26.8 x 14.0 | mm |
| Viewing Area (W x H) | 61.0 x 19.0 | mm |
| Character Size (W x H) | 2.32 x 3.73 | mm |
| Dot Size (W x H) | 0.44 x 0.44 | mm |
| Weight | Approx. 28 | g |

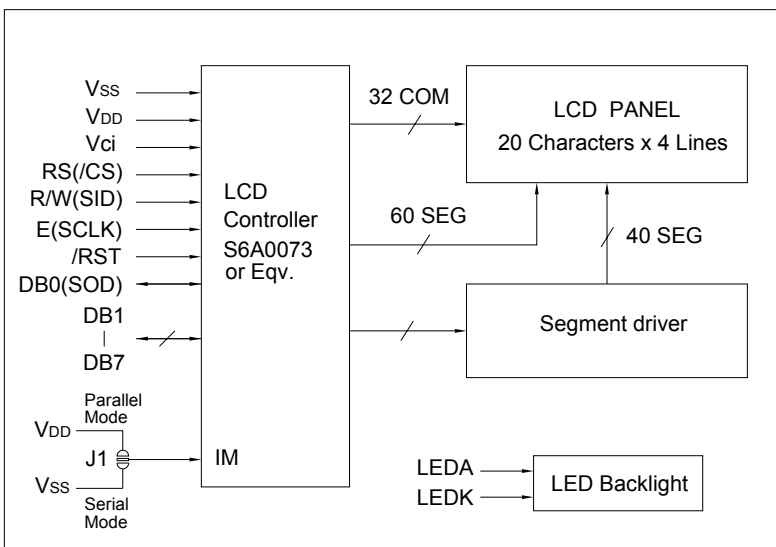
ELECTRICAL CHARACTERISTICS (V_{DD}=3.3V to 5.5V)

| Item | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---------------------|----------------------------------|---------------------------|---------------------|------|--------------------|------|
| Input High Voltage | V _{IH} | -- | 0.7V _{DD} | -- | V _{DD} | V |
| Input Low Voltage | V _{IL} | -- | - 0.3 | -- | 0.6 | V |
| Output High Voltage | V _{OH} | I _{OH} = - 0.1mA | 0.75V _{DD} | -- | V _{DD} | V |
| Output Low Voltage | V _{OL} | I _{OL} = 0.1mA | 0 | -- | 0.2V _{DD} | V |
| Supply Current | I _{DD} | V _{DD} = 5.0V | -- | 1.5 | 2.0 | mA |
| LCD Driving Voltage | V _{DD} - V _s | T _a =25°C | -- | 8.0 | -- | V |

PIN CONNECTIONS

| Pin | Symbol | Level | Function |
|-----|-----------------|----------|---|
| 1 | V _{SS} | 0V | GND |
| 2 | V _{DD} | 3.3-5.5V | Power supply for logic |
| 3 | V _{ci} | -- | Input voltage for contrast adjusting |
| 4 | RS (/CS) | H/L | H: Data, L: Instruction code (Chip selection in serial mode) |
| 5 | R/W (SID) | H/L | H: Read, L: Write (Data input in serial mode) |
| 6 | E(SCLK) | H,H>L | Enable signal (Serial clock input) |
| 7 | DB0(SOD) | H/L | In 8-bit bus mode, used as low order bidirectional data bus. In 4-bit bus mode, used as both high and low order data bus. |
| 8 | DB1 | H/L | |
| 9 | DB2 | H/L | |
| 10 | DB3 | H/L | |
| 11 | DB4 | H/L | In 8-bit bus mode, used as high order bidirectional data bus. In 4-bit bus mode, used as both high and low order data bus. |
| 12 | DB5 | H/L | |
| 13 | DB6 | H/L | |
| 14 | DB7 | H/L | |
| 15 | NC | -- | No connection |
| 16 | /RST | L | Reset signal. Active "L" |
| 17 | LEDA | 5V | Power supply for LED backlight |
| 18 | LEDK | 0V | |

BLOCK DIAGRAM



LED BACKLIGHT SPECIFICATIONS (T_a=25°C)

| Item | Symbol | Typ. | Max. | Unit |
|-----------------|----------------|-------|------|------|
| Forward Voltage | V _f | 2.9 | 3.0 | V |
| Forward Current | I _f | 30 | -- | mA |
| LED Color | | White | | |