

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 | 19.0 | 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

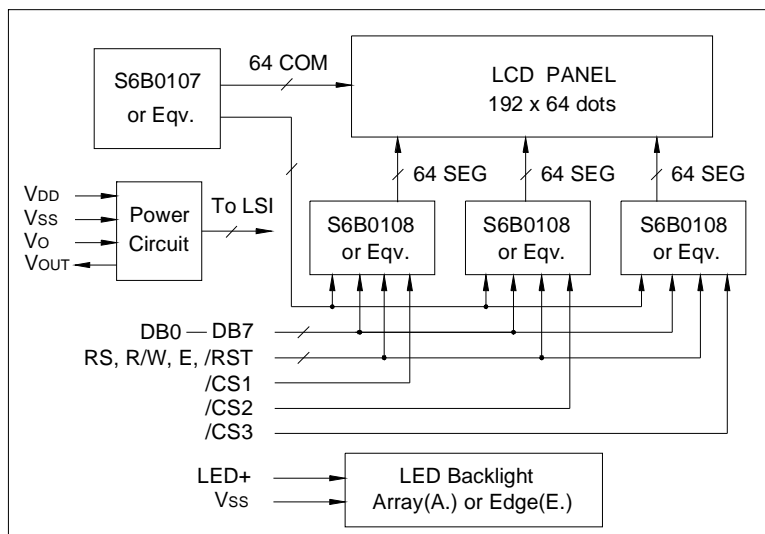
| Item | Nominal Dimensions | Unit |
|---------------------------|--------------------------|------|
| Module Size (W x H x T) | 130.0 x 65.0 x 11.0/13.0 | mm |
| Viewing Area (W x H) | 104.0 x 39.0 | mm |
| Dot Pitch (W x H) | 0.51 x 0.51 | mm |
| Dot Size (W x H) | 0.46 x 0.46 | mm |
| Weight (Reflective/LED) | Approx. 80 / 105 | g |

ELECTRICAL CHARACTERISTICS ($V_{DD}=5V\pm0.25V$)

| Item | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---------------------|----------------|--------------------|-------|------|----------|------|
| Input High Voltage | V_{IH} | -- | 2.0 | -- | V_{DD} | V |
| Input Low Voltage | V_{IL} | -- | - 0.3 | -- | 0.8 | V |
| Output High Voltage | V_{OH} | $I_{OH} = - 0.2mA$ | 2.4 | -- | V_{DD} | V |
| Output Low Voltage | V_{OL} | $I_{OL} = 1.6mA$ | 0 | -- | 0.4 | V |
| Supply Current | I_{DD} | $V_{DD} = 5.0V$ | -- | 8.0 | 10.0 | mA |
| LCD Driving Voltage | $V_{DD} - V_O$ | $T_a=25^{\circ}C$ | -- | 12.7 | -- | V |

| Pin | Symbol | Level | Function |
|-----|------------------|--------|------------------------------------|
| 1 | V _{SS} | 0V | GND |
| 2 | V _{DD} | +5V | Power supply for logic |
| 3 | V _O | -- | Operating voltage for LCD |
| 4 | RS | H/L | H : Data L : Instruction code |
| 5 | R/W | H/L | H : Read L : Write |
| 6 | E | H,H >L | Enable signal |
| 7 | DB0 | H/L | Data bus line |
| 8 | DB1 | H/L | |
| 9 | DB2 | H/L | |
| 10 | DB3 | H/L | |
| 11 | DB4 | H/L | |
| 12 | DB5 | H/L | |
| 13 | DB6 | H/L | |
| 14 | DB7 | H/L | |
| 15 | /CS1 | L | Chip selection for IC1, active "L" |
| 16 | /RST | L | Reset signal, active "L" |
| 17 | /CS2 | L | Chip selection for IC2, active "L" |
| 18 | /CS3 | L | Chip selection for IC3, active "L" |
| 19 | V _{OUT} | -10V | Output voltage for LCD driving |
| 20 | LED+ | +5V | Power supply for LED backlight |

BLOCK DIAGRAM



LED BACKLIGHT SPECIFICATIONS (Ta=25°C)

| Item | Symbol | Typ. | Max. | Unit |
|-------------------------|-------------|---------|------|------|
| Forward Voltage | V_f | 4.1 | 4.3 | V |
| Forward Current (A./E.) | I_f | 390/220 | -- | mA |
| Emission Wave Length | λ_p | 568 | -- | nm |