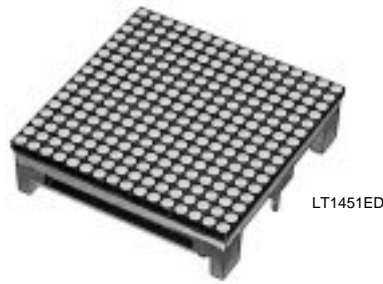


Dot Matrix LED Unit for Indoor Use LT1451ED▲(Chip On Board Type)

■ Features

- No. of dots : 16X16dots
- Outline dimensions : 96X96mm
- Dot size : φ5.0mm
- Dot pitch : 6.0mm
- Radiation color : Yellow-green+Red(dichromatic type)
- Driving method : 1/16 duty dynamic drive

Outline dimensions are shown on page 206, Fig.7.



■ Absolute Maximum Ratings

(Ta=25°C)

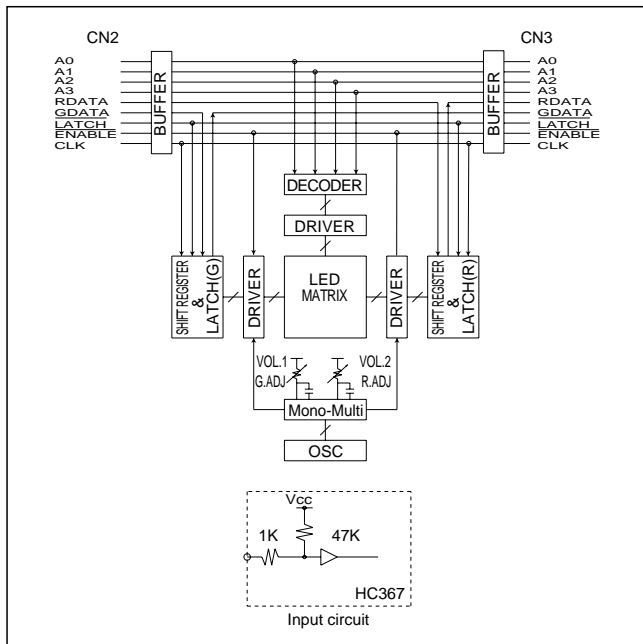
| Parameter | Symbol | Rating | Unit |
|------------------------|--------|-----------------|------|
| Supply voltage for IC | VCC | -0.3 to +6.0 | V |
| Supply voltage for LED | VLED | -0.3 to +6.0 | V |
| Input voltage | VI | -0.3 to Vcc+0.3 | V |
| Turn-on time | tON | 1 | ms |
| Operating temperature | Topr | -10 to +45 | °C |
| Storage temperature | Tstg | -20 to +70 | °C |
| Power dissipation | P | 13 | W |

■ Optical Characteristics

(Vcc=5V, VLED=5V, Ta=25°C)

| Parameter | Symbol | TYP. | Unit |
|--------------------------|--------------|------|-------------------|
| Luminance | Red | 100 | cd/m ² |
| | Yellow-green | 100 | |
| Viewing angle | 2θ1/2 | 70 | ° |
| Peak emission wavelength | Red | 635 | nm |
| | Yellow-green | 565 | |

■ Block Diagram



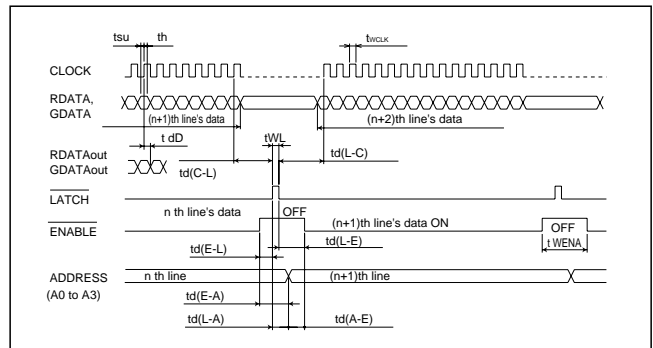
■ Electrical Characteristics

(Vcc=5V, VLED=5V, Ta=25°C)

| Parameter | Symbol | MIN. | TYP. | MAX. | Unit |
|---------------------------|--------|------|------|------|------|
| Supply voltage for IC | VCC | 4.75 | 5.0 | 5.25 | V |
| Supply voltage for LED | VLED | 4.5 | 5.0 | 5.25 | V |
| IC current dissipation*1 | ICC | — | 25 | 50 | mA |
| LED current dissipation*1 | ILED | — | 2.0 | 2.3 | A |
| Input voltage | VIH | 3.5 | — | — | V |
| | VIL | — | — | 1.5 | V |
| Input current | IiH | — | — | 0.1 | μA |
| | IiL | — | — | 0.12 | mA |
| Clock frequency | fCLK | — | — | 4 | MHz |
| Frame frequency | fFR | 80 | — | 625 | Hz |

*1 Under the condition that dichromatic all dots are lit.

■ Timing Chart



■ Recommended Timing Conditions

(Vcc=5.0V, Ta=25°C)

| Parameter | Symbol | Rating | | | Unit | Remarks |
|------------------------|------------|--------|------|------|------|----------------------|
| | | MIN. | TYP. | MAX. | | |
| Clock pulse width | twCLK | 100 | — | — | ns | |
| Latch pulse width | twL | 80 | — | — | ns | |
| Enable pulse width | twENA | 2 | — | — | μs | |
| Data setup time | tsu | 80 | — | — | ns | |
| Data hold time | th | 40 | — | — | ns | |
| Clock-latch time | td (C-L) | 80 | — | — | ns | |
| Latch-clock time | td (L-C) | 150 | — | — | ns | |
| Data output delay time | tdD | — | 85 | 150 | ns | |
| Enable-latch time | td (E-L) | 0 | — | — | μs | |
| Latch-enable time | td (L-E) | 2 | — | — | μs | |
| Enable-address time | td (E-A) | 2 | — | — | μs | |
| Address-enable time | td (A-E) | 20 | — | — | μs | |
| Latch-address time | td (L-A) | 0 | — | — | μs | |
| Propagation delay time | tpLH, tpHL | — | 15 | 40 | ns | Except data terminal |
| Enable frequency | fENA | — | — | 10 | kHz | |
| Frame frequency | fFR | 80 | — | 625 | Hz | |
| Oscillation frequency | fOSC | — | 1 | — | MHz | |

*The model marked with ▲ may not be available in the near future. Contact Sharp sales personnel for details before use.