

TENTATIVE

FEATURES

- (1) Clear 256k-colors
- (2) Ultra thin design
- (3) CCFL Backlight, 800x600 pixels color display.
- (4) Fast response and light weight design.

APPLICATIONS

- (1) Notebook PC.
- (2) OA Equipment.
- (3) Display Terminals.
- (4) Measuring Instrument.
- (5) New Media Equipment.

MECHANICAL SPECIFICATIONS

| Item | Specifications |
|--------------------------|------------------------------------|
| Dimensional Outline(typ) | 243.0(W) × 179.6(H) × 10max.(D) mm |
| Number of Pixels | 800 (W) × 600 (H) Pixels |
| Active Area | 211.2(W) × 158.4(H) mm |
| Pixel Pitch | 0.264(W) × 0.264(H) mm |
| Weight(Approx.) | 500g |
| Backlight | CCFL Side-light type (Single Lamp) |

ABSOLUTE MAXIMUM RATINGS

| Item | Min. | Max. | Unit | |
|------------------------------|--------------------|------|----------------------|------|
| Supply Voltage | (V _{DD}) | -0.3 | 7.0 | V |
| | (V _{FL}) | 0 | 2000 | Vrms |
| FL Driving Frequency | (f _{FL}) | 0 | 100 | KHz |
| Input signal Voltage | (V _{IN}) | -0.3 | V _{DD} +0.3 | V |
| Operating Temperature | | 0 | 50 | °C |
| Storage Temperature | | -20 | 60 | °C |
| Storage Humidity | | 10 | 90 | %RH |
| (Max. Wet bulb temp. = 29°C) | | | | |

ELECTRICAL SPECIFICATIONS (T_a = 25°C)

| Item | Min. | Typ. | Max. | Unit | Remarks | |
|---------------------------------------|--------------------|------|--------|----------------------|---------|-----------------------------------|
| Supply Voltage | (V _{DD}) | 4.75 | 5.0 | 5.25 | V | |
| | (V _{FL}) | - | (600) | - | Vrms | (1, 1-3) |
| FL Start Voltage(T _a =0°C) | | 1000 | - | 2000 | Vrms | |
| High Level Input Voltage | (V _{IH}) | 3.5 | - | V _{DD} +0.3 | V | |
| Low Level Input Voltage | (V _{IL}) | -0.3 | - | 1.5 | V | |
| Current Consumption | (I _{DD}) | - | (250) | - | mA | |
| | (I _{FL}) | - | (4.0) | - | mA rms | |
| *1) Power Consumption | Logic | - | (1.25) | - | W | V _{DD} × I _{DD} |
| | Backlight | - | (2.4) | - | W | V _{FL} × I _{FL} |

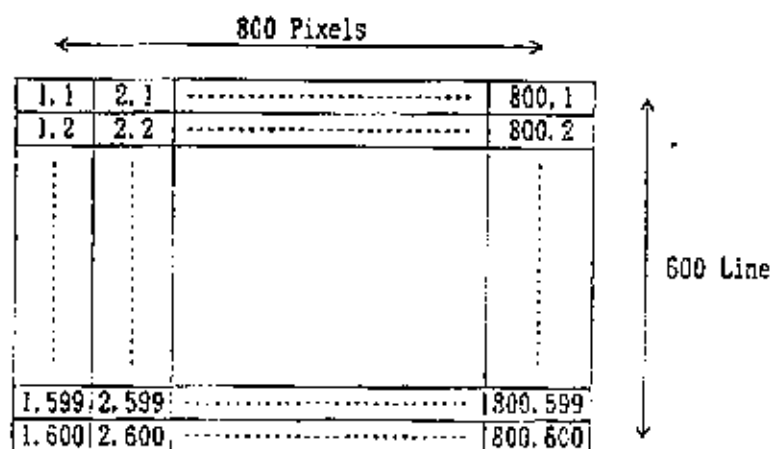
*1): Excepting the efficiency of FL Inverter

OPTICAL SPECIFICATIONS (T_a = 25°C)

| Item | Min. | Typ. | Max. | Unit |
|----------------|---------------------|------|------|-------------------|
| Contrast Ratio | (CR) | 100 | - | - |
| Response Time | (t _{on}) | - | 50 | ms |
| | (t _{off}) | - | 50 | ms |
| Luminance | (L) | (70) | - | cd/m ² |

TIMING SPECIFICATION

| Item | Symbol | Min. | Typ. | Max. | Unit | Remarks |
|-------------------------|--------|----------|-------------|-----------|------|-------------|
| Frame Period | t1 | 604 × t3 | (625) × t3 | 628 × t3 | - | |
| | | - | 17.78 | 17.86 | ms | |
| Vertical Display Term | t2 | 600 × t3 | 600 × t3 | 600 × t3 | - | t2 = N × t3 |
| One Line Scanning Time | t3 | 844 × t5 | (1024) × t5 | 1056 × t5 | - | |
| | | (28.4) | (28.44) | - | μs | |
| Horizontal Display Term | t4 | 800 × t5 | 800 × t5 | 800 × t5 | - | |
| Clock Period | t5 | (25.0) | 27.78 | - | ns | |
| Clock "L" Time | t6 | 9.0 | - | - | ns | |
| Clock "H" Time | t7 | 9.0 | - | - | ns | |
| Set Up Time | t8 | 4.0 | - | - | ns | |
| Hold Time | t9 | 5.0 | - | - | ns | |



CONNECTOR PIN ASSIGNMENT FOR INTERFACE

CN1 INPUT SIGNAL (DF9-31P-1V/HIROSE ELECTRIC CO., LTD.)

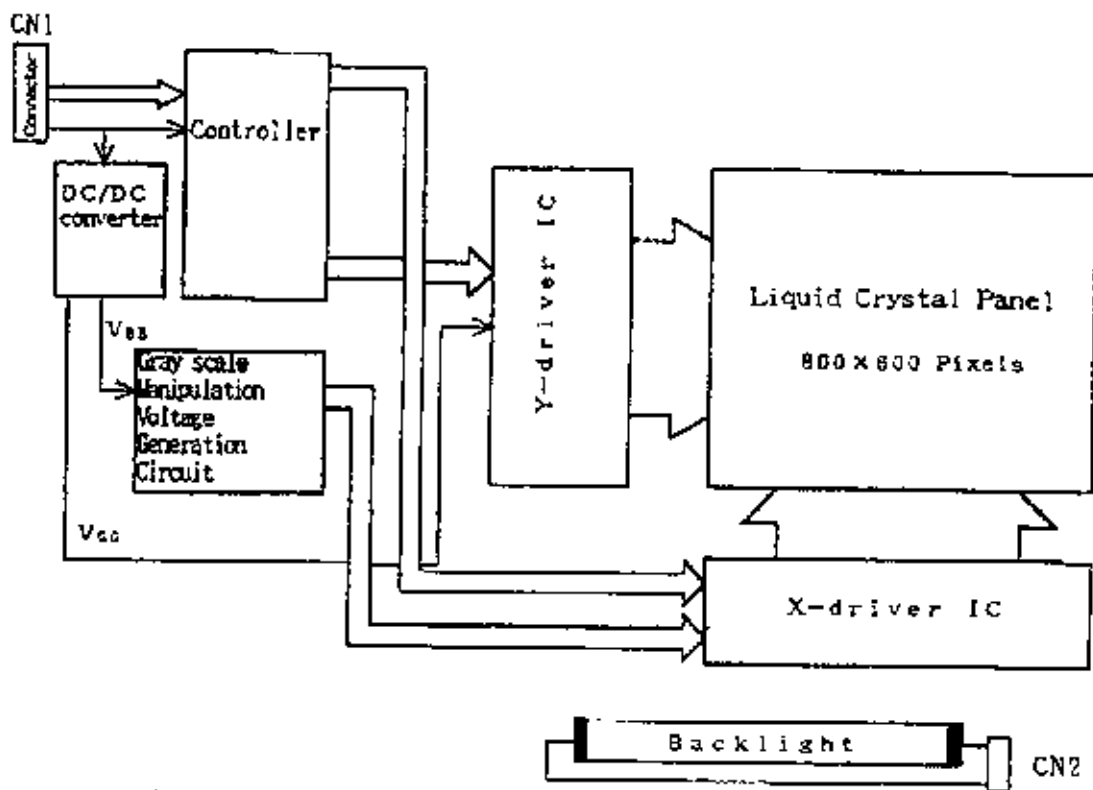
| Terminal No. | Symbol | Function |
|--------------|------------------|---------------------------------|
| 1 | GND | |
| 2 | NCLK | SAMPLING CLOCK |
| 3 | N.C. | NO CONNECTION |
| 4 | N.C. | NO CONNECTION |
| 5 | GND | |
| 6 | R0 ²⁾ | RED DISPLAY DATA (LSB) |
| 7 | R1 ²⁾ | RED DISPLAY DATA |
| 8 | R2 ²⁾ | RED DISPLAY DATA |
| 9 | R3 ²⁾ | RED DISPLAY DATA |
| 10 | R4 ²⁾ | RED DISPLAY DATA |
| 11 | R5 ²⁾ | RED DISPLAY DATA (MSB) |
| 12 | GND | |
| 13 | G0 ²⁾ | GREEN DISPLAY DATA (LSB) |
| 14 | G1 ²⁾ | GREEN DISPLAY DATA |
| 15 | G2 ²⁾ | GREEN DISPLAY DATA |
| 16 | G3 ²⁾ | GREEN DISPLAY DATA |
| 17 | G4 ²⁾ | GREEN DISPLAY DATA |
| 18 | G5 ²⁾ | GREEN DISPLAY DATA (MSB) |
| 19 | GND | |
| 20 | B0 ²⁾ | BLUE DISPLAY DATA (LSB) |
| 21 | B1 ²⁾ | BLUE DISPLAY DATA |
| 22 | B2 ²⁾ | BLUE DISPLAY DATA |
| 23 | B3 ²⁾ | BLUE DISPLAY DATA |
| 24 | B4 ²⁾ | BLUE DISPLAY DATA |
| 25 | B5 ²⁾ | BLUE DISPLAY DATA (MSB) |
| 26 | GND | |
| 27 | ENAB | COMPOUND SYNCHRONIZATION SIGNAL |
| 28 | VDD | +5V POWER SUPPLY |
| 29 | VDD | +5V POWER SUPPLY |
| 30 | N.C. | NO CONNECTION |
| 31 | N.C. | NO CONNECTION |

CN2 CCFL POWER SOURCE (BHR-08VS-1/JAPAN SOLDERLESS TERMINAL MFG CO., LTD.)

| Terminal No. | Symbol | Function |
|--------------|------------------|----------------------------------|
| 1 | VL | CCFL POWER SUPPLY (HIGH VOLTAGE) |
| 2 | NC ¹⁾ | |
| 3 | GL | CCFL POWER SUPPLY (GND SIDE) |

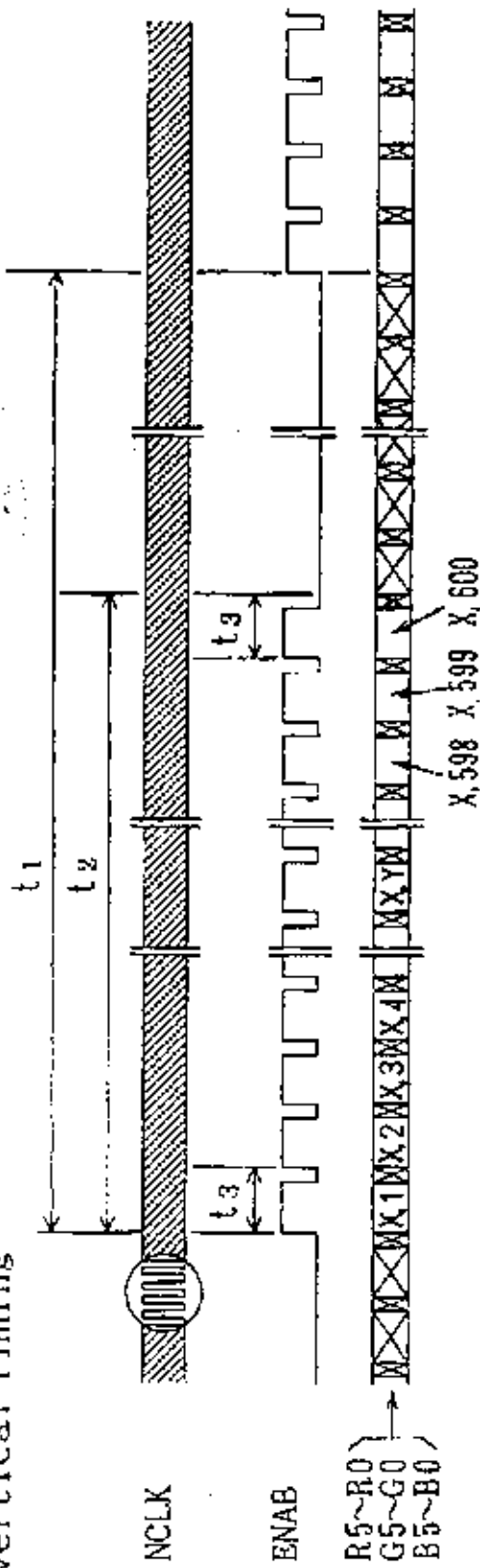
Note 1) NC Terminal is open. (Don't use)

BLOCK DIAGRAM

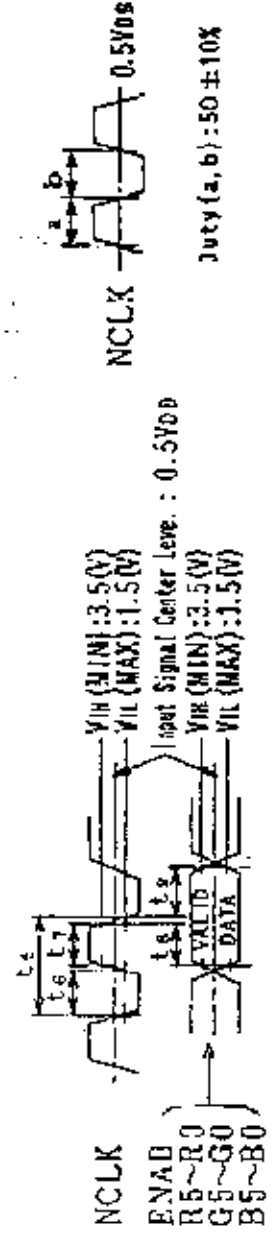
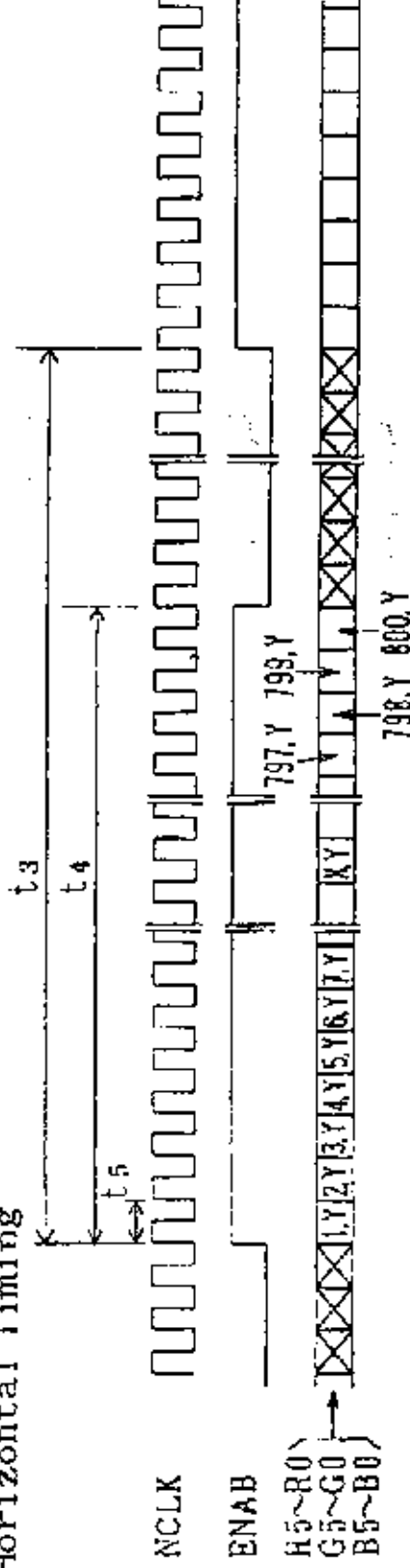


TIMING CHART

(1) Vertical Timing



(2) Horizontal Timing



Note 2) 256K colors are displayed by the combinations of 18 bits data.


| Display | | R5 | R4 | R3 | R2 | R1 | R0 | G5 | G4 | G3 | G2 | G1 | G0 | B5 | B4 | B3 | B2 | B1 | B0 | Gray Scale Level |
|-----------------------------|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------|------------|------|------------------|
| Basic Color | Black | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | - | | |
| | Blue | L | L | L | L | L | L | L | L | L | L | L | H | H | H | H | H | - | | |
| | Green | L | L | L | L | L | L | H | H | H | H | H | L | L | L | L | L | - | | |
| | Light Blue | L | L | L | L | L | L | H | H | H | H | H | H | H | H | H | H | - | | |
| | Red | H | H | H | H | H | H | L | L | L | L | L | L | L | L | L | L | - | | |
| | Purple | H | H | H | H | H | H | L | L | L | L | L | H | H | H | H | H | - | | |
| | Yellow | H | H | H | H | H | H | H | H | H | H | H | L | L | L | L | L | - | | |
| | White | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | - | | |
| Gray Scale of Red | Black | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L 0 | | |
| | Dark | ↑ | L | L | L | L | L | H | L | L | L | L | L | L | L | L | L | L | L 1 | |
| | | ↓ | L | L | L | L | H | L | L | L | L | L | L | L | L | L | L | L | L 2 | |
| | Light | ↑ | | | | | | | | | | | | | | | | | L 3~ | |
| | | ↓ | H | H | H | H | L | H | L | L | L | L | L | L | L | L | L | L | L 60 | |
| | Red | H | H | H | H | H | H | L | L | L | L | L | L | L | L | L | L | Red L 63 | | |
| Gray Scale of Green | Black | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L 0 | | |
| | Dark | ↑ | L | L | L | L | L | L | L | L | L | L | H | L | L | L | L | L | L 1 | |
| | | ↓ | L | L | L | L | L | L | L | L | L | H | L | L | L | L | L | L | L 2 | |
| | Light | ↑ | | | | | | | | | | | | | | | | | L 3~ | |
| | | ↓ | L | L | L | L | L | L | H | H | H | H | L | L | L | L | L | L | L 61 | |
| | Green | L | L | L | L | L | L | H | H | H | H | H | L | L | L | L | L | Green L 62 | | |
| Blue | L | L | L | L | L | L | H | H | H | H | H | L | L | L | L | L | Blue L 63 | | | |
| Gray Scale of Blue | Black | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L 0 | | |
| | Dark | ↑ | L | L | L | L | L | L | L | L | L | L | L | L | L | L | H | L 1 | | |
| | | ↓ | L | L | L | L | L | L | L | L | L | L | L | L | L | L | H | L 2 | | |
| | Light | ↑ | | | | | | | | | | | | | | | | L 3~ | | |
| | | ↓ | L | L | L | L | L | L | L | L | L | L | L | H | H | H | L | H | L 60 | |
| | Blue | L | L | L | L | L | L | L | L | L | L | L | H | H | H | H | H | Blue L 61 | | |
| Gray Scale of White & Black | Black | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L 0 | | |
| | Dark | ↑ | L | L | L | L | L | H | L | L | L | L | H | L | L | L | L | H | L 1 | |
| | | ↓ | L | L | L | H | L | L | L | L | L | H | L | L | L | L | H | L 2 | | |
| | Light | ↑ | | | | | | | | | | | | | | | | L 3~ | | |
| | | ↓ | H | H | H | L | H | H | H | H | L | H | H | H | H | L | H | L 60 | | |
| | White | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | White L 61 | | |
| Black | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | Black L 62 | | | |
| White | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | White L 63 | | | |

LTM10C036

DIMENSIONAL OUTLINE

Unit: mm (typ)

Standard Tolerance: $\pm 0.5\text{mm}$

 $2.1 \pm 0.5\text{mm}$

* 1.0mm Max height components might be placed.

