

DMF Series

DMF-5005 (Built-in Controller LSI)

| | |
|-------------|---|
| 240×64 dots | 1/64 Duty Drive |
| Variation | N, NF, N-EB, N-EW, NY-EB, NF-SEW, NY-LY, NYJ-LY |

■ MECHANICAL DATA

| Item | Standard Value | Unit |
|------------------|----------------------|------|
| Module Dimension | 180(W)×65(H)×17.6(D) | mm |
| Viewing Area | 132(W)×39(H) | mm |
| Dot Pixels | 240(W)×64(H) | dots |
| Dot Size | 0.49(W)×0.49(H) | mm |
| Dot Pitch | 0.53(W)×0.53(H) | mm |

■ ABSOLUTE MAXIMUM RATINGS

| Item | Symbol | Condition | min. | typ. | max. | Unit |
|----------------------------|-----------------|-----------|------|------|--------------|------|
| Supply Voltage (Logic) | $V_{CC}-V_{SS}$ | — | -0.3 | — | 7 | V |
| Supply Voltage (LCD Drive) | $V_{CC}-V_{EE}$ | — | 0 | — | 28 | V |
| Input Voltage | V_I | — | -0.3 | — | $V_{CC}+0.3$ | V |
| Operating Temperature | T_{opr} | — | 0 | — | +50 | °C |
| Storage Temperature | T_{stg} | — | -20 | — | +60 | °C |

■ ELECTRICAL CHARACTERISTICS · OPTICAL DATA $T_a=25\text{ }^\circ\text{C}$

| Item | Symbol | Condition | Standard Value | | | Unit |
|--|-----------------|--------------------------------|----------------|------|----------|------|
| | | | min. | typ. | max. | |
| Supply Voltage (Logic) | $V_{CC}-V_{SS}$ | — | 4.5 | 5 | 5.5 | V |
| Supply Current | I_{CC} | — | — | — | 20 | mA |
| | I_{EE} | — | — | — | 10 | mA |
| Input Voltage "H" Level | V_{IH} | High Level | $V_{CC}-2.2$ | — | V_{CC} | V |
| Input Voltage "L" Level | V_{IL} | Low Level | 0 | — | 0.8 | V |
| Supply Voltage for LCD Drive 1/64duty Note 1 | $V_{CC}-V_{EE}$ | $T_a=0^\circ\text{C}$ | — | — | 15.3 | V |
| | | $T_a=25^\circ\text{C}$ | — | 13.0 | — | V |
| | | $T_a=50^\circ\text{C}$ | 10.9 | — | — | V |
| Contrast Ratio Note 1 | CR | $\theta=0^\circ\ \phi=-^\circ$ | — | 7 | — | — |

| | | | | | | |
|------------------------------|----------------|-----------------------|-----|-----|-----|-------------------|
| response time (rise) Note 1 | τ_r | Ta=25°C | — | 160 | 340 | ms |
| Response Time (decay) Note 1 | τ_d | Ta=25°C | — | 160 | 240 | ms |
| LED Forward Voltage | V _F | I _F =500mA | 3.8 | 4.1 | 4.4 | V |
| Brightness (Note 2) | L | I _F =500mA | 45 | — | — | cd/m ² |

Note 1: Applicable to NY-LY

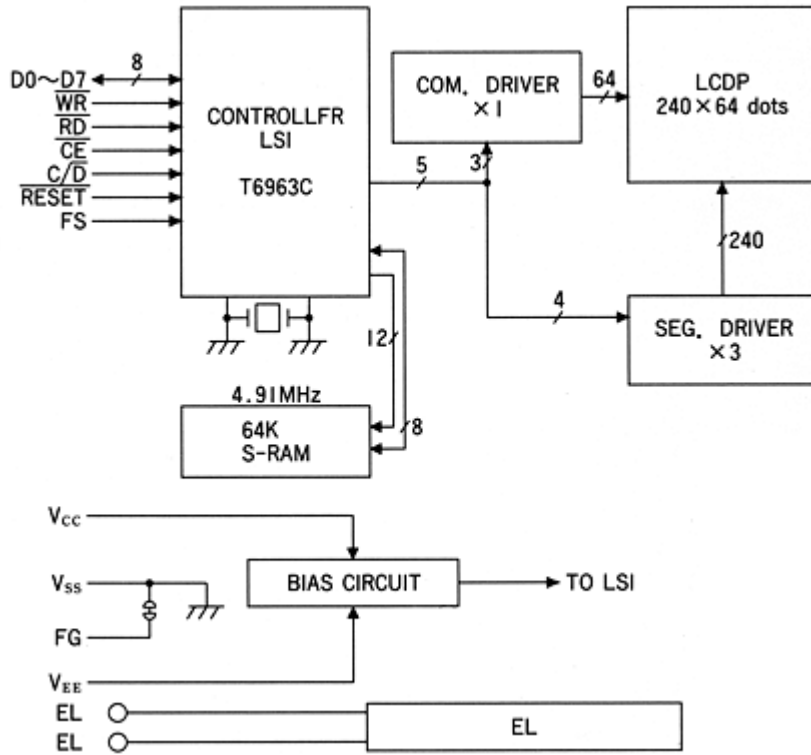
Note 2: Measured at LED Unit alone

■ PIN ASSIGNMENT

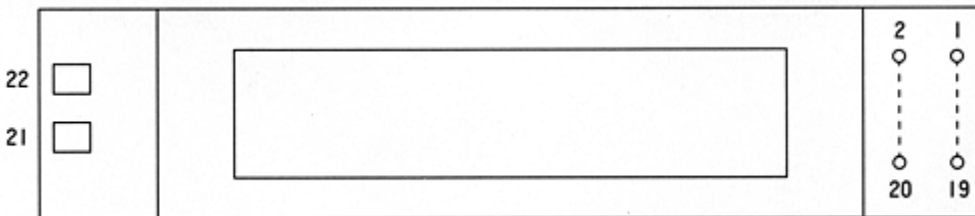
| Pin No. | Symbol | Level | Function |
|---------|--------------------|-------|--|
| 1 | FG | — | Frame Ground |
| 2 | V _{SS} | — | Power Supply (0V, GND) |
| 3 | V _{CC} | — | Power Supply for Logic |
| 4 | V _{EE} | — | Power Supply for LCD Drive |
| 5 | \overline{WR} | H/L | Write Signal ("L" Active) |
| 6 | \overline{RD} | H/L | Read Signal ("L" Active) |
| 7 | \overline{CE} | H/L | Chip Enable Signal ("L" Active) |
| 8 | C/ \overline{D} | H/L | WRITE MODE H:Command Write L:Data Write READ MODE H:Status Read L:Data Read |
| 9 | NC | — | No Connection |
| 10 | \overline{RESET} | H/L | Reset Signal ("L" Reset) |
| 11 | D0 | H/L | Display Data 0 |
| 12 | D1 | H/L | Display Data 1 |
| 13 | D2 | H/L | Display Data 2 |
| 14 | D3 | H/L | Display Data 3 |
| 15 | D4 | H/L | Display Data 4 |
| 16 | D5 | H/L | Display Data 5 |
| 17 | D6 | H/L | Display Data 6 |
| 18 | D7 | H/L | Display Data 7 |
| 19 | FS | H/L | Font Switch(No Connection or Connect with V _{CC} :6×8dots) (Connected with GND :8×8dots) |
| 20 | NC | — | No Connection |

| Pin No. | EL Type | LED Type |
|---------|---------------------|----------------------|
| 21, 22 | Power Supply for EL | Power Supply for LED |

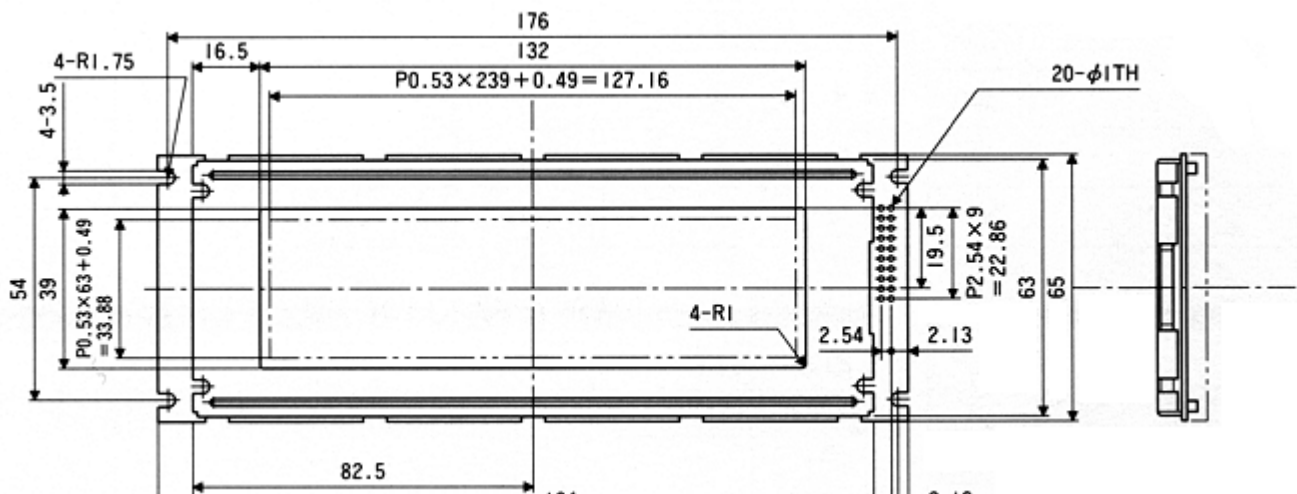
■BLOCK DIAGRAM

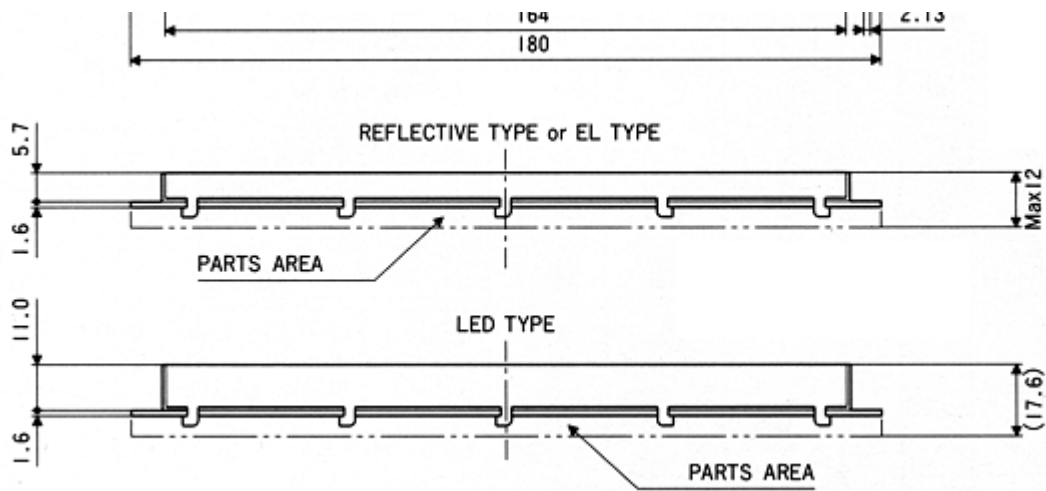


■PIN NBR. LAYOUT (TOP VIEW)



■DIMENSION





■ TIMING CHARACTERISTICS

| Item | Symbol | min. | typ. | max. | Unit | |
|--|--------------------------------|------|------|------|------|------------------------|
| C/ \bar{D} Set Up Time | t_{CDS} | 100 | — | — | ns | C/ |
| C/ \bar{D} Hold Time | t_{CDH} | 10 | — | — | ns | |
| \bar{CE} , \bar{RD} , \bar{WR} Pulse Width | t_{CP} , t_{RP} , t_{WP} | 80 | — | — | ns | \bar{C} |
| Data Set Up Time | t_{DS} | 80 | — | — | ns | \bar{R} \bar{W} |
| Data Hold Time | t_{DH} | 40 | — | — | ns | |
| Access Time | t_{ACC} | — | — | 150 | ns | |
| Output Hold Time | t_{OH} | 10 | — | 50 | ns | DO~C (WRITE) |
| | | | | | | DO~C (REAC) |

(C) Copyright 1998 OPTREX CORPORATION