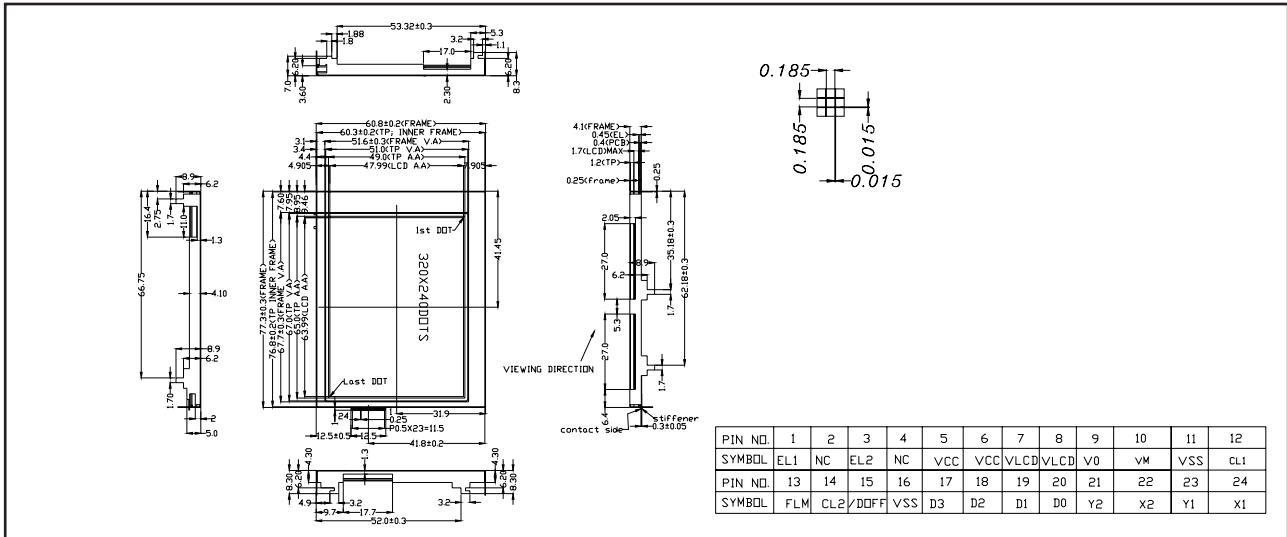


STANDARD TAB MODULES

YMS 320240-15

320 X 240 DOTS, 1/240 DUTY, 1/17 BIAS

EXTERNAL DIMENSION AND DISPLAY PATTERN



MECHANICAL DATA

| ITEM | SPECIFICATION | UNIT |
|-------------------------|-------------------|------|
| Module Size (W x H x T) | 60.8 x 77.3 x 8.9 | mm |
| Viewing Area (W x H) | 51.6 x 67.7 | mm |
| Number of Dots | 320 x 240 | dots |
| Dot Pitch (W x H) | 0.2 x 0.2 | mm |
| Dot Size (W x H) | 0.185 x 0.185 | mm |

PIN CONFIGURATION

| PIN | SYMBOL | SIGNAL DESCRIPTION |
|-----|--------|---|
| 1 | EL1 | EL Terminal (+) |
| 2 | NC | No Connection |
| 3 | EL2 | EL Terminal (-) |
| 4 | NC | No Connection |
| 5 | VCC | Power Supply for Logic |
| 6 | VCC | Power Supply for Logic |
| 7 | VLCD | Power Supply for LCD |
| 8 | VLCD | Power Supply for LCD |
| 9 | V0 | Bias Voltage for Non-Select (Segment Driver) |
| 10 | VM | Bias Voltage for Non-Select (Segment Driver and Common Driver) |
| 11 | VSS | Ground |
| 12 | CL1 | Latch Pulse of Display Data Shift Clock fo Common Driver |
| 13 | FLM | Frame Start Signal (Data Signal of the Shift Register of the Common Driver) |
| 14 | CL2 | Clock Pulse for Segment Shift Register |
| 15 | /DOFF | H: Display ON; L: Dispaly OFF |
| 16 | VSS | Ground |
| 17 | D3 | Data Bus |
| 18 | D2 | Data Bus |
| 19 | D1 | Data Bus |
| 20 | D0 | Data Bus |
| 21 | Y2 | Terminal (Up Side of Vertical) for Touch Panel |
| 22 | X2 | Terminal (Right Side of Horizontal) for Touch Panel |
| 23 | Y1 | Terminal (Down Side of Vertical) for Touch Panel |
| 24 | X1 | Terminal (Left Side of Horizontal) for Touch Panel |

ELECTRICAL CHARACTERISTICS, Ta = 25°C

| ITEM | SYMBOL | CONDITION | SPEC. VALUE | | | UNIT |
|------------------------|-------------------------------------|------------|-------------|------------|------|------|
| | | | MIN. | TYP. | MAX. | |
| Supply Voltage (Logic) | V _{DD} - V _{SS} | | | 3.3 | | V |
| LCD Operating Voltage | V _{LCD} | Ta = +25°C | | 21.6 | | V |
| Response Time | T _{ON} T _{OFF} | | | 172 196 | | ms |
| Contrast | CR | | 2.0 | | | |
| Viewing Angle | 12H | θ1 | CR ≥ 2.0 | 50 | | Deg. |
| | 6H | θ2 | | 65 | | |
| | 3H | θ3 | | 55 | | |
| | 9H | θ4 | | 55 | | |

Note (1): Value is high reliability type.

Note (2): Electro-Optical Characteristics: See page 5.

BACKLIGHTING CHARACTERISTICS, Ta = 25°C, LED

| ITEM | SYMBOL | CONDITION | SPEC. VALUE | | | UNIT |
|-----------|--------|-----------|-------------|------|------|------|
| | | | MIN. | TYP. | MAX. | |
| Voltage | | | | 110 | | V |
| Frequency | | | | 400 | | Hz |

Color: Blue-Green

STANDARD TAB MODULES

YMS 320240-15

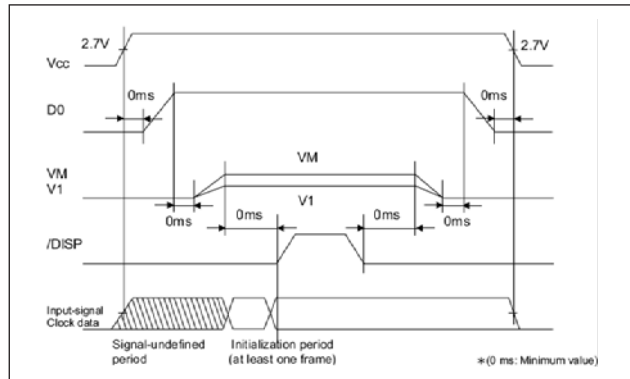
320 X 240 DOTS, 1/240 DUTY, 1/17 BIAS

ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | MIN. | MAX. | UNIT |
|------------------------------|------------|------|----------------|------|
| Supply Voltage Logic | V_{CC} | -0.3 | 7.0 | V |
| Supply Voltage Drive | V_0 | -0.3 | 7.0 | V |
| Input Voltage 1 (Note 1,2) | V_{T1} | -0.3 | $V_{DD} + 0.3$ | V |
| Input Voltage 2 (Note 1,3,4) | V_{T2} | -0.3 | $V_{DD} + 0.3$ | V |
| Operating Temperature | See page 8 | | | |
| Storage Temperature | | | | |

Note (1): Potential from the GND.
 Note (2): Applied to pins SHL, /EIO1, /EIO2, /DISP, D_0 to D_7 , CL_1 , CL_2 , M, BS and MODE.
 Note (3): Applied to VML, VMR, V1L and VMR. Operating the LSI in excess of the absolute maximum rating will result in permanent damage. Use the LSI observing electrical characteristic conditions in normal operation. Exceeding the conditions will cause malfunctions or will affect LSI reliability.
 Note (4): Conform to the following turn-on/off sequence of the power and signals. Otherwise, the LSI will malfunction or will be permanently damaged. In addition, LSI reliability will be affected.

BLOCK DIAGRAM, IST3031



ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | MIN. | MAX. | UNIT |
|------------------------------|------------|-------|----------------|------|
| Supply Voltage Logic | V_{CC} | -0.3 | 7.0 | V |
| Supply Voltage LCD Drive | V_{LCD} | -0.3 | 25.0 | V |
| | V_{EE} | -20.0 | 0.3 | V |
| Input Voltage 1 (Note 1,2) | V_{T1} | -0.3 | $V_{DD} + 0.3$ | V |
| Input Voltage 2 (Note 1,5,8) | V_H | -0.3 | $V_{DD} + 0.3$ | V |
| Input Voltage 3 (Note 1,6,8) | V_L | -0.3 | $+V_{EE}$ | V |
| Input Voltage 4 (Note 1,6,8) | V_M | -0.3 | 5.0 | V |
| Operating Temperature | See page 8 | | | |
| Storage Temperature | | | | |

Note: If the LSI is used beyond the above maximum ratings, it may be permanently damaged. It should always be used within its specified operating range for normal operation to prevent malfunction or degraded reliability.
 Note (1): The reference point is GND (0V).
 Note (2): Applies to DIO₁, /DISP, SHL, M, NWS₀, NWS₁, NWS₂, NWS₃, NWS₄, RESET, MODE₀, MODE₁, CL, /M/S, AMP, CCL, DIO₂₋₃.
 Note (3): Applies to V_{LCD} , R pin.
 Note (4): Applies to V_{HL} , R pin.
 Note (5): Applies to V_{EEL} , R pin.
 Note (6): Applies to V_L , R pin.
 Note (7): Applicable to ML, R pins (Caution). Operating the LSI in excess of the absolute maximum rating will result in permanent damage. Use the LSI observing electrical characteristic conditions in normal operation. Exceeding the conditions will cause malfunctions or will affect LSI reliability.
 Note (8): Follow the sequence of activation and inactivation for the following power supplies and signals. And this sequence should be applied when using built-in switching circuit. If the sequence is not followed, it may cause LSI malfunction, permanent damage, or adverse effects.

BLOCK DIAGRAM, IST3032

