



DOCUMENT NUMBER AND REVISION

**VL-FS-VI_402_V26 REV. A
(VI_402-DP15-RC-S-LV)**

DOCUMENT TITLE:

SPECIFICATION

OF

LCD TYPE

MODEL NUMBER: VI_402_V26

| DEPARTMENT | NAME | SIGNATURE | DATE |
|-------------|------|-----------|------|
| PREPARED BY | | | |
| CHECKED BY | | | |
| APPROVED BY | | | |

DISTRIBUTION LIST: MARKETING



DOCUMENT REVISION HISTORY

| DOCUMENT REVISION FROM TO | DATE | DESCRIPTION | CHANGED BY | CHECKED BY |
|---------------------------|------|---|------------|------------|
| A | | First Release. Based on the LCD Specifications LCD PID: VI_402_V26, 1998.07.13 and the drawing number: VI-402-DP (REV.0.) | | |



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**Specification
of
LCD Type
Item No.: VI_402_V26**

1. General Description

- Segments and icons LCD Display.
- Positive Gray TN Reflective Mode.
- Viewing Angle: 6 O'clock direction.
- Driving scheme: Static.
- Shoulders pins (length=6.35+/-0.5mm).

2. Mechanical Specifications

The mechanical detail is shown in Fig. 1 to Fig. 4 and summarized in Table 1 below.

Table 1

| Parameter | Specifications | Unit |
|--------------------|---|------|
| Outline dimensions | 51.40(W) x 30.50(H) x 2.80(D) (Excluded pins) | mm |
| Display format | Segments and icons | - |
| Viewing area | 45.72 MIN.(W) x 17.78 MIN.(H) | mm |
| Weight | Approx.10 | gram |



3. LCD Specifications

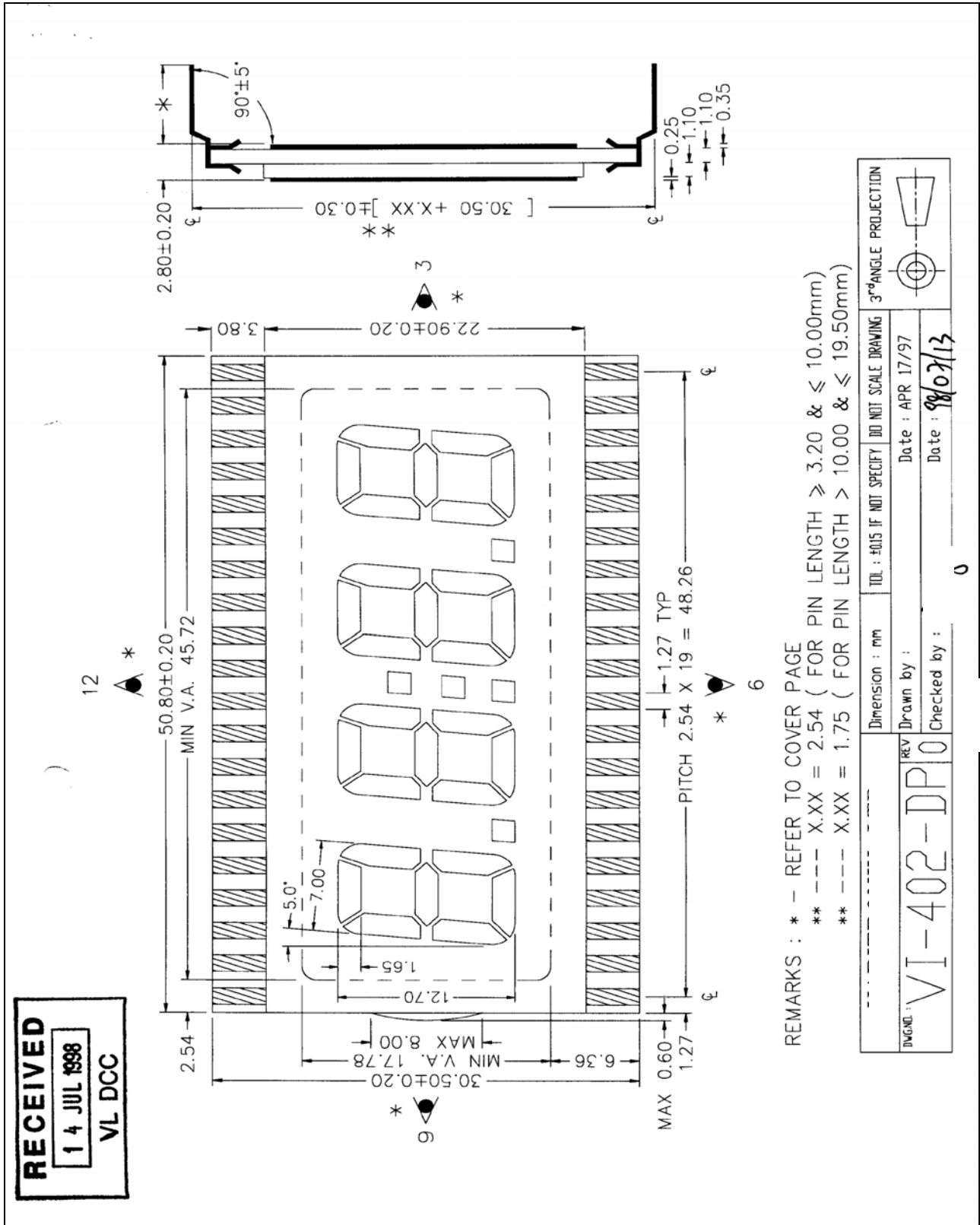


Figure 1: LCD Drawing 1

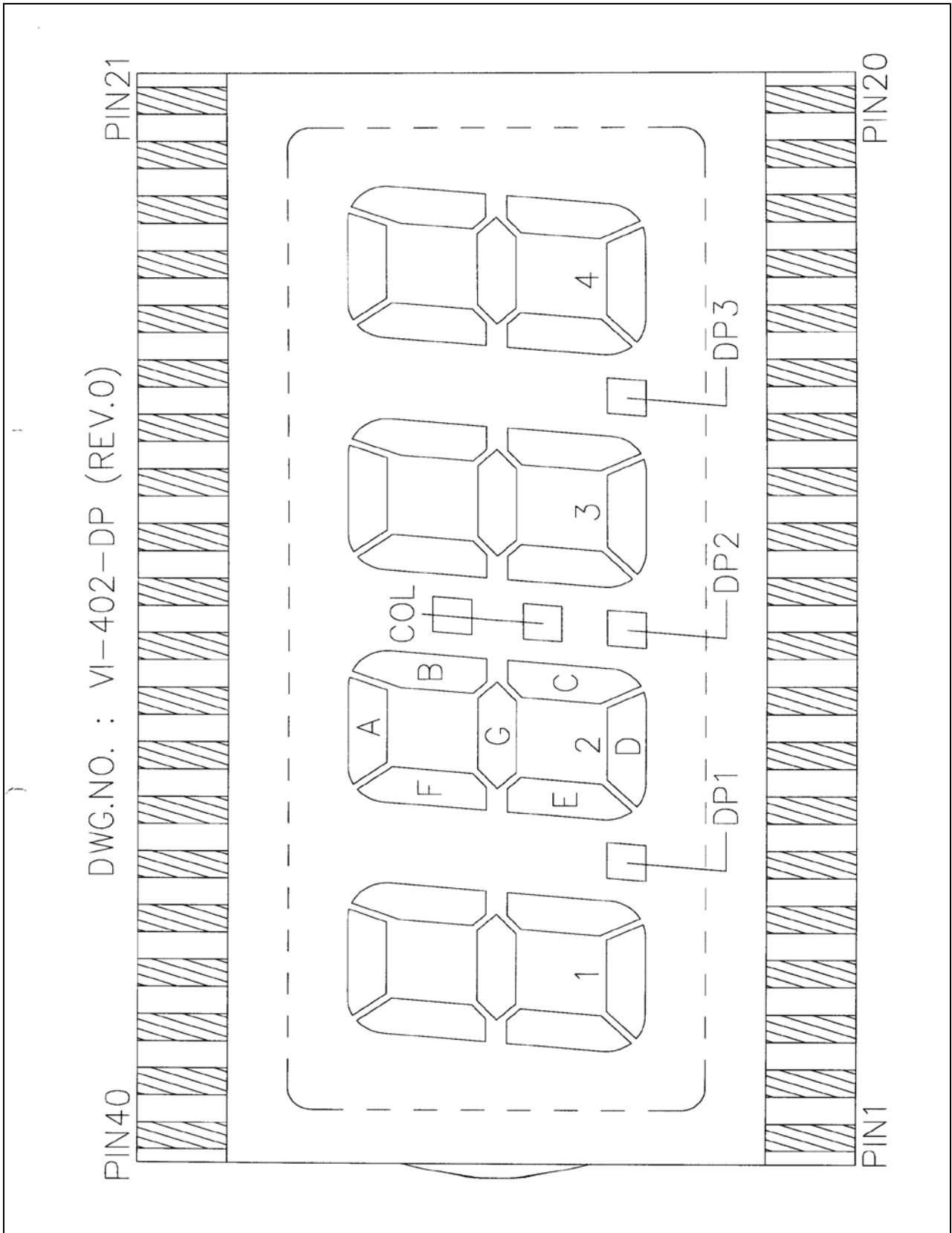


Figure 2: LCD Drawing 2



DWG.NO. : VI-402-DP (REV.0)

| PIN | COM1 | PIN | COM1 |
|-----|------|-----|------|
| 1 | COM1 | 21 | 4A |
| 2 | N.C. | 22 | 4F |
| 3 | N.C. | 23 | 4G |
| 4 | N.C. | 24 | 3B |
| 5 | 1E | 25 | 3A |
| 6 | 1D | 26 | 3F |
| 7 | 1C | 27 | 3G |
| 8 | DP1 | 28 | COL |
| 9 | 2E | 29 | 2B |
| 10 | 2D | 30 | 2A |
| 11 | 2C | 31 | 2F |
| 12 | DP2 | 32 | 2G |
| 13 | 3E | 33 | N.C. |
| 14 | 3D | 34 | 1B |
| 15 | 3C | 35 | 1A |
| 16 | DP3 | 36 | 1F |
| 17 | 4E | 37 | 1G |
| 18 | 4D | 38 | N.C. |
| 19 | 4C | 39 | N.C. |
| 20 | 4B | 40 | COM1 |

REMARKS : N.C. = NO CONNECTION
PCB LINKAGE : PIN1 & PIN40

Figure 3: LCD Drawing 3

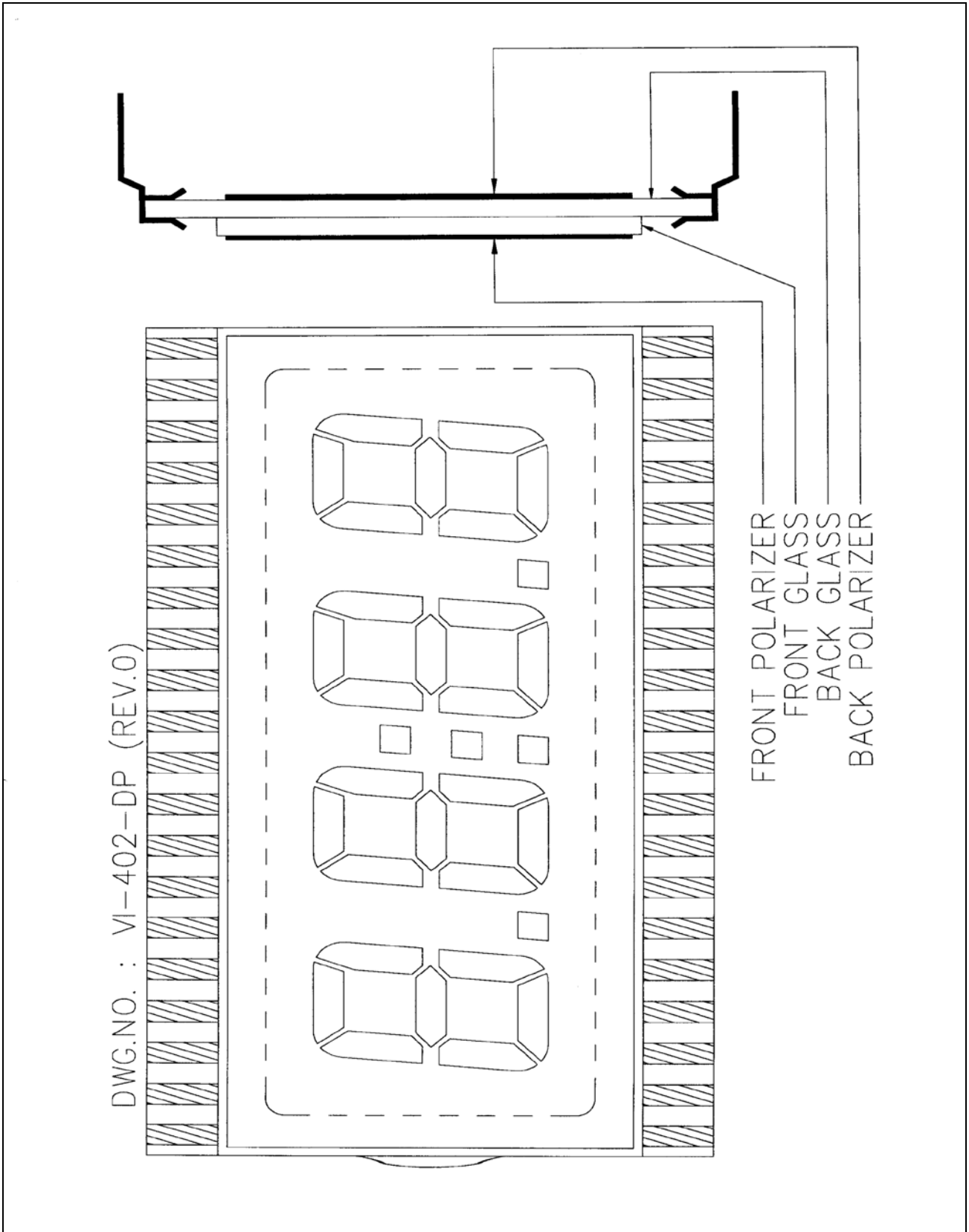


Figure 4: LCD Drawing 4



4. Environmental Condition

Table 2

| Item | Operating Temperature (Topr) | | Storage Temperature (Tstg) (Note1) | | Remark |
|--|--|-------|------------------------------------|-------|-----------------|
| | Min. | Max. | Min. | Max. | |
| Ambient Temperature | -10°C | +60°C | -20°C | +70°C | Dry |
| Humidity | 90% max. RH for Ta ≤ 40°C | | | | No condensation |
| Vibration (IEC 68-2-6) cells must be mounted on a suitable connector | Frequency: 10 ~ 55 Hz Amplitude: 0.75 mm Duration: 20 cycles in each direction. | | | | 3 directions |
| Shock (IEC 68-2-27) Half-sine pulse shape | Pulse duration: 11 ms Peak acceleration: 981 m/s ² = 100g Number of shocks: 3 shocks in 3 mutually perpendicular axes. | | | | 3 directions |

Note1: Product cannot sustain in extreme storage conditions for a long time.

5. Electro-Optical Characteristics

Table 3

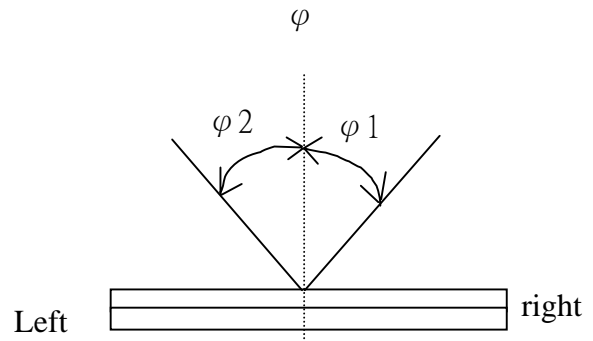
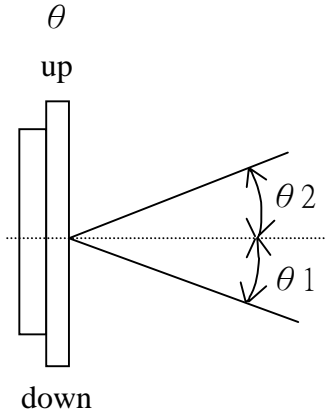
| Item | Symbol | Temp. °C | Value | | | Unit | Condition |
|-----------------------------------|--------|-------------|-------|------|------|------|---|
| | | | Min. | Typ. | Max. | | |
| Driving voltage | Vop | +25 | 2.8 | 3.0 | 3.2 | V | Vop = Optimum voltage |
| Response time | τ r | +25 | - | 30 | 60 | msec | Vop = Optimum voltage θ = 0°, φ = 0° |
| | τ d | | - | 60 | 80 | | |
| Optimum viewing area Cr ≥ 2 | θ 1 | +25 | 50 | 70 | - | DEG | φ = 0° θ = 0° Vop = Optimum voltage (Remark 1) |
| | θ 2 | | 25 | 35 | - | | |
| | φ 1 | | 50 | 70 | - | | |
| | φ 2 | | 50 | 70 | - | | |
| Contrast Ratio | Cr | +25 | 10 | 15 | - | - | Vop = Optimum voltage θ = 0°, φ = 0° |

Remark 1: Due to hardware limitation, the maximum measurable angle is 70°.



6. Optical Characteristics Definition

a.) Viewing Angle

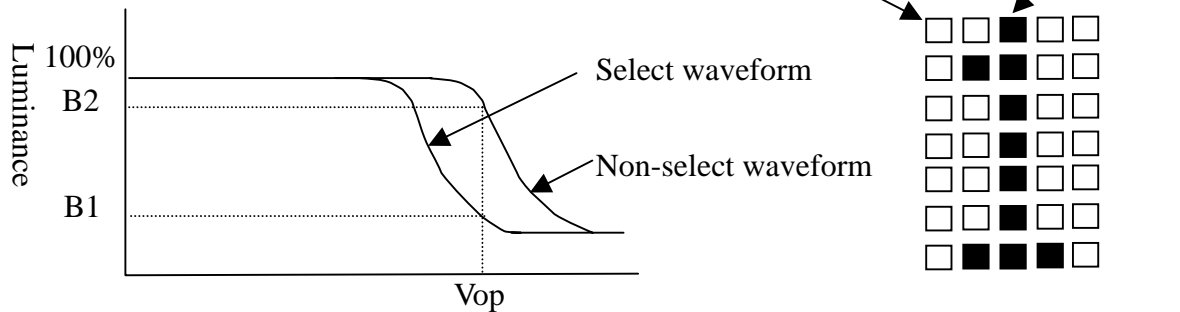


b.) Contrast Ratio

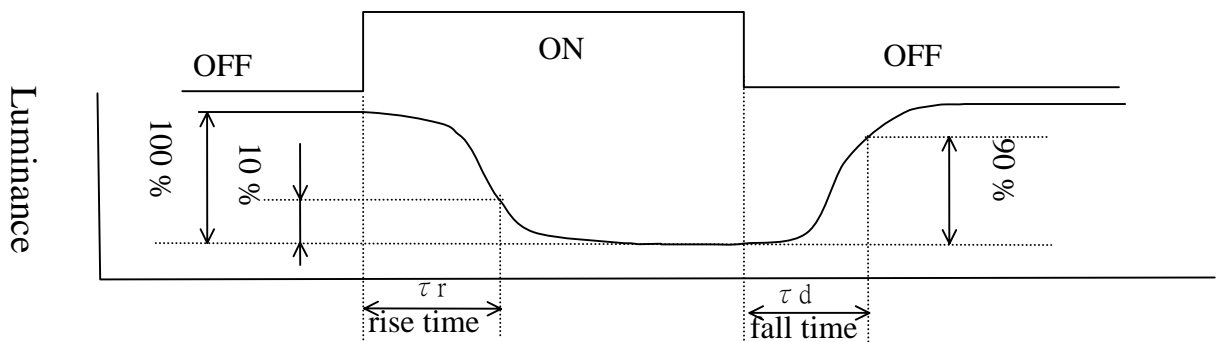
B1 = segments luminance in case of non-selected waveform

B2 = segments luminance in case of selected waveform

Contrast Ratio is defined by $Cr = B2/B1$



c.) Response Time





7. Remark