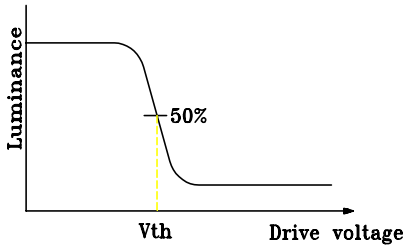
Electro-Optical Characteristics

■ Basic Characteristics of the TN-LCD

1. Luminance and drive voltage characteristics

- AC drive used for drive method DC drive results in abnormal orientation, generation of gas, and shortened service life.
- Luminance depends on the effective value of the drive voltage.

Luminance and voltage characteristics (Static drive)

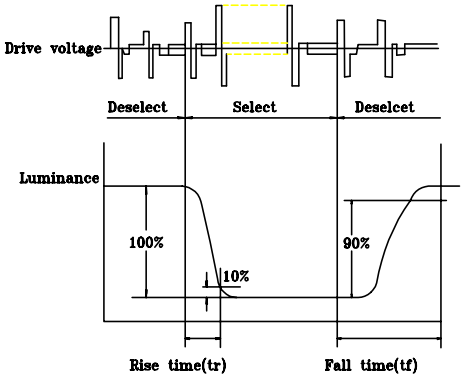


Vth: Assuming that luminance is at 100% when no voltage is applied, Vth represents the drive voltage value when luminance is 50% (lighting start voltage or lighting threshold voltage)

2. Response characteristics

- Cumulative response is used.

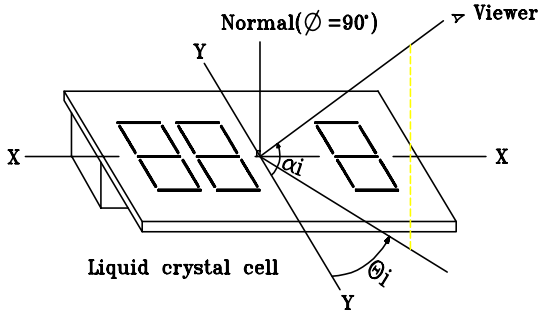
Definition of response time



3. Viewing angle characteristics

The lighting threshold voltage varies in accordance with both αi and θi.

Definition of Viewing Angle



4. Capacitive Load

The Power consumption of liquid crystal is expressed as follows :

$P=kfcv^2$

f : drive frequency v : drive voltage

Consequently, either the frequency or the voltage has to be reduced in order to secure a reduction in the power consumption. However, such factors as luminance characteristics and response characteristics must also be taken into consideration when making such reductions.