



**PRODUCT NAME**

TM87 series

**TITLE**

The application of big-sized LCD panel

**APPLICATION NOTE**

When clients would like to have applications done to big-sized LCD panels, we suggest the following:

1. Use TM8705, TM8706 and TM8713 models for designing.
2. Change the capacitance of Vdd1, Vdd2, Vdd3, CUP1, and CUP2 on the application circuit to 1uF.
3. Select "slow" on the option menu of "LCD frame frequency".

Since the voltage (VDD1-4) for LCD Waveform of TM87 series products is generated by the charge-pump circuit, it relies on the external capacitance of VDD1~4 to stabilize the voltage. Therefore, when the size of LCD panel is bigger, its loading increases as well. As a result, when TM87 drives the big-sized LCD panels, the voltages of VDD1~4 will be dragged down due to the reason of charge sharing and further cause the blinking or unevenness of LCD panel.

Therefore, when TM87 is used to drive big-sized LCD panels, the capacitance of Vdd1, Vdd2, Vdd3, CUP1, and CUP2 on the application circuit has to be changed to 1uF to minimize the influence of charge sharing.

4. Notes for the manufacturing of big-sized LCD panel:
  - a. Set the needed environment on the Demo Board and provide the design to the LCD factory to ask the glass factory to make necessary adjustment based on its characteristics.
  - b. Most glass factories use the standardized liquid crystal material but this formula is not suitable for the application of big-sized LCD panels. Consequently, there is a need to provide the glass factory with a complete module for testing purpose. We suggest the use of TN material and ask the glass factory to adjust its liquid crystal formula and polarizer.
  - c. Pay attention to the layout of internal routing of glasses to avoid the linear to be too highly concentrated, too long or the linear diameter too narrow. These three problems will cause the unevenness of brightness and the panel may be affected to have blinking effect.
  - d. We suggest the use of low-resistance coating material for the glass internal routing to reduce the decrease of LCD driver potential in the glass internal routing.