

### Features

- 2A high efficiency boost regulator with integrated switch for AVDD
- 1.2V low-power regulator for DisplayPort TCON
- 2.5V, 300mA LDO
- Built-in high speed VCOM buffer
- External 2x charge pump for VGH
- Negative regulator for VGL
- Over-current, over-voltage and over-temperature protection
- Built-in soft start
- Reset output for DisplayPort TCON
- QFN-24, 4x4mm package

### Applications

- DisplayPort devices
- TFT LCD display panels for notebooks
- TFT LCD display panels for monitors

### Description

The VPA2000 is a 6-output power management IC for TFT LCD panels. It is integrated into a 24 lead 4x4mm QFN package to provide a small-footprint, low-temperature, and low-cost solution.

The current mode control dc-dc step-up switching regulator (boost) is designed to deliver the AVDD source driver voltage with high efficiency. The 2.4MHz switching frequency allows for a small external inductor to meet PCB area and height requirements.

The negative gate drive voltage (VGL) is regulated by the on-board linear regulator. A built-in high speed VCOM buffer provides the voltage to drive the capacitive backplane of the TFT LCD panel. Both VGL and VCOM output voltages can be adjusted by an external resistor divider.

A simple, low-cost, external 2x charge pump supplies the positive gate drive voltage (VGH). The internal 2.5V fixed output LDO and 1.2V fixed output charge pump supply the core voltages for the timing controller (TCON). The 1.2V charge pump dissipates approximately 80% less power than a traditional LDO solution.

### Block Diagram

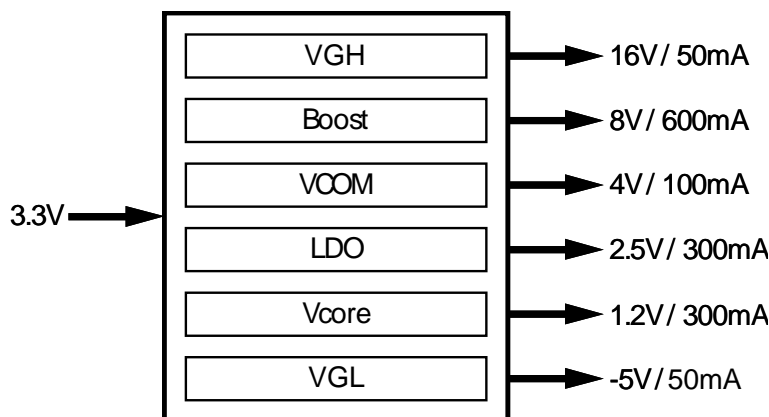


Figure 1. VPA2000 Block Diagram



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