

Notebook and Tablet LCD Panel PMIC with AVDD Boost, VGH Boost, Two Bucks, LDO, Two Negative Charge-Pumps, OP-Amp, VCOM Calibrator and GPM

Features

- 2.5 V to 5.5 V Input Supply Voltage Range
- I²C Interface
- High-Efficiency Step-up Regulator (AVDD)
 - . Peak-Current Mode Synchronous Boost converter
 - . 600 kHz to 2 MHz Adjustable Switching Frequency by I²C
 - . Programmable Output Voltage 4.5 V to 11 V
- High-Efficiency Step-up Regulator (VGH)
 - . Voltage Mode Synchronous Boost Converter
 - . 600 kHz to 2 MHz Adjustable Switching Frequency by I²C
 - . Programmable Output Voltage 10 V to 37 V
- High-Efficiency Step-down Regulator (VIO, VCORE)
 - . Synchronous Buck Converter
 - . VCORE Programmable Output Voltage 0.8 V to 2.8 V
 - . VIO Programmable Output Voltage 1 V to 2.8 V
- Low Dropout Voltage Linear Regulator (LDO)
 - . Programmable Output Voltage 1.2 V to 2.8 V
 - . 300 mA Maximum Output Current
- Programmable VCOM Calibrator
 - . 128-Step Adjustable Sink Current Output
 - . Temperature Compensation
- High Speed OP-Amp
 - . ±150 mA Short Circuit Current.
- Two Programmable Negative Charge-Pump Regulators (VGL1, VGL2)
- Programmable Voltage Detector
- Gate Pulse Modulator
- Thermal Shut Down Protection

Applications

- LCD Notebook, Tablet and Monitor Panels

Description

The SM4801 integrates one synchronous AVDD boost converter, a low dropout LDO, a VGH synchronous boost converter, two synchronous buck converters, two VGL negative charge pumps, a 7-bit VCOM calibrator, a high performance VCOM OP amp with temperature compensation, a gate pulse modulator (GPM) and a voltage detector. The AVDD boost converter provides the regulated supply voltage for the panel source driver ICs while the VGH boost converter provides the regulated voltage for the positive level shifter supply which can vary according to the temperature sensed by an external NTC thermistor. The negative charge pump regulators provide the negative voltage for the negative level shifter supply, and two buck converters and an LDO regulator to supply the system's logic voltage. The gate pulse modulator modulates the output voltage of the level shifter. The high-speed op-amp is designed to drive the LCD backplane (VCOM) with the capability of high current and wide bandwidth. The device is optimized for thin-film transistor (TFT) liquid-crystal display (LCD) applications.

Device Information

Part	Package	Size
SM4801	40QFN	3.5 mm x 6.5 mm

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